

ANNUAL REPORT

1 August 2021 – 31 July 2022

CALL Scotland

Moray House School of Education
and Sport

The University of Edinburgh

National Support for Learning
through

Assistive Technology (AT)
and

Augmentative and Alternative
Communication (AAC)



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CALL Scotland's Vision

Every child/young person in Scotland with a disability or additional support needs has the curriculum materials, the Assistive Technologies and/or Augmentative and Alternative Communication tools they may need - and the support to use them effectively – to participate effectively and fulfil their potential through learning and achievement.

CALL Scotland's Mission

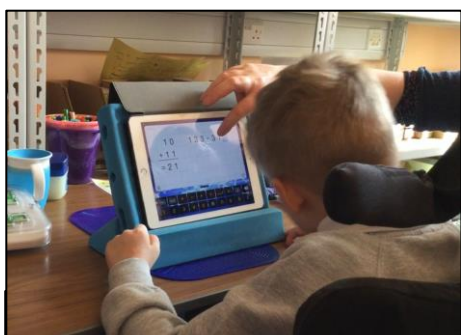
To help children and young people to overcome disability and barriers to learning created by their environment, and to fulfil their potential, CALL Scotland provides pupils and families, local authorities and professionals with -

- Free Assistive Technology resources.
- Assistive Technology Assessment and Support.
- Professional Learning and Training.
- Information and advice.
- Equipment Loans and Technical Services.
- Strategic Leadership.
- Knowledge Transfer, research and development.

National Outcomes

CALL Scotland's services and products contribute to delivery of the National Outcomes and to improve outcomes for children and young people:

- Children and Young People: we grow up loved, safe and respected so that we realise our full potential.
- Education: we are well educated, skilled and able to contribute to society.
- Health; we are healthy and active.
- Human Rights: we respect, protect and fulfil human rights and live free from discrimination.



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Summary

Format of the Report

This year's report is presented in two sections: Section 1 details work primarily funded through Scottish Government Learning Directorate while Section 2 covers assessment and support that we deliver in partnership with local authorities and our collaboration with SQA. The reason for separating the report into two sections is to clarify what is funded by whom.

The report covers the period from 1 August 2021 to 31 July 2022. The breadth and quantity of CALL's work is reflected in the report and is testament to the hard work, talents and dedication of the CALL team. However, unless we can find new sources of income, we will not be able to sustain the current team which will obviously adversely affect our activity and the impact that we have across Scotland and beyond.

National Inclusive Digital Learning Resources

The [Books for All](#) website which provides accessible digital textbooks and Bookbug picture books continues to be a valuable resource although the number of downloads has fallen since schools returned following Covid lockdowns. Our partnership with Scottish Book Trust to create and distribute [accessible versions of Bookbug books](#) continued and Claire and Gillian again developed [learning resources](#) in Grid and Clicker digital formats for learners with more complex additional support needs. The Symbols for All website and resources have been updated and the [Symbols for All Core Word Kit](#) has been popular with practitioners.

The [Scottish computer voices](#) and free text readers continue to be downloaded and made available as school computers running the Windows OS are refreshed. However, many learners who use Chromebooks or iPads do not have access to Scottish or Gaelic voices and this remains a concern as these devices are being provided to learners in different parts of Scotland.

National Information and Advice

We again responded to a wide range of calls and emails and communications from hundreds of staff, parents and disabled people and some examples are given in the report. Access to free, open and independent advice can be extremely valuable for many people who are trying to find out about or make best use of assistive technology.

The number of visits to the websites fell slightly last year compared to 2020-21 and particularly 2019-20 which perhaps reflects a return to school and fewer people spending time on computers and devices. CALL's social media presence continues to grow. We created [new posters](#) and Craig developed two new sets of [video tutorials](#).

Professional Learning

The Professional Learning programme, coordinated by Shirley Lawson, has again been extremely successful. A record 1,938 people participated in CALL courses, Insets, lectures and the [ASL Technology conference](#). The number of Insets delivered increased by 39% compared to the year before. We were particularly pleased to contribute to seven Moray House courses in response to actions detailed in the ASL Action Plan. Our revised [Inclusive Digital Technology](#) Professional Learning course was over-subscribed with 40 participants. Craig's new, free [Learning Modules](#) enhance our learning portfolio and have been very well received.

Assistive Technology Loans and Support

[Evaluation of technology](#) is a vital part of the assessment and support process and the number of [loans](#) increased compared to last year, again reflecting re-opening of schools. Long lead and delivery times for equipment has been a challenge, both for CALL to add to stock, and because we do not retrieve equipment that is on loan until the learner has been provided with their own, which in some cases has taken many months.

Strategic Relationships and Collaboration

CALL has continued to work with colleagues in Scottish Government, Education Scotland, SQA, local authorities and Regional Improvement Collaboratives and third sector agencies such as Dyslexia Scotland and Enquire.

The Covid-19 pandemic and response had major impact upon education in Scotland and has resulted in a reform of the Scottish education system including the recently announced [National Discussion](#), a [review of qualifications and assessment](#) and [reform of SQA and Education Scotland](#). We will contribute to these discussions in 2022-2023.

The [ASL Action Plan](#) was published by Scottish Government in October 2020 followed by a progress report and [updated plan](#) in November 2021 and a revised set of actions are to be published in autumn 2022.

We continued to [work with SQA](#) on the use of assistive technology as Assessment Arrangements and we [published a report](#) in October 2021. A concern is that learners are being provided with iPads and Chromebooks as a 'normal way of working' but for various reasons, cannot use the devices to access examinations.

Several local authorities in Scotland have provided personal digital devices for every pupil in P6 and above and the Scottish Government pledge to "[provide every school pupil in Scotland with a laptop or tablet](#)" by 2026 offers huge potential for learners with additional support needs. This potential will only be realised if the devices are properly accessible for learners with additional support needs, and if staff and learners have the skills to use them. Unfortunately, in some parts of the country, it is clear that devices do not have essential accessibility tools or apps. In our view this contravenes Education, Additional support for Learning and Equality and Accessibility legislation.

We have been working with colleagues, particularly ASLO (Association of Support for Learning Officers) to raise awareness of this issue and to find solutions.

We are calling on Scottish Government to establish baselines and benchmarks for Accessibility so that all learners can achieve their potential with 1:1 technology.

Assessment and Support

A vital component of CALL's work is the assessment and support that we provide for individual learners and we offer some examples in Assistive Technology Assessment and Support. Working directly with learners and practitioners underpins much of our research, development, knowledge exchange and professional learning: by endeavouring to "**Get It Right For One Child**" we identify and develop generalised solutions and products which can be distributed to help educators to "**Get It Right For Every Child**".

Development Priorities 2022-23

Our priorities for 2022-2023 are to:

- Continue to support local authorities, practitioners, parents and learners through assessment, support, information, advice, provision of free resources, loans of equipment and professional learning.
- Work with colleagues and Scottish Government to: progress National Strategic Commissioning; assist with implementation of the AAC legislation; take forward the updated actions from the ASL Review; ensure that personal digital technologies provided through 1:1 programmes are accessible for learners with ASN; work with Scottish Government and AlphaPlus to optimise access to the new SNSA for learners with ASN; work with SQA to ensure that SQA digital question papers are accessible for learners with ASN regardless of which devices are used.
- Align CALL's strategic aims, objectives, structures and processes in response to Scottish education policies and priorities, including the ASL action plan; emerging models and procedures for Commissioning of National Services; and legislation on provision of Communication Equipment.
- Continue to support colleagues in local authorities and ATLAS (Assistive Technology for Learning Across Scotland), while raising awareness of the need for Assistive Technology services.
- Finalise a 3 year plan for CALL Scotland.

Funding

CALL is funded through grants and contracts with around 65% of the annual income provided as a core grant (£367,177) from the Scottish Government Learning Directorate. SQA funds our partnership and development work around use of technology in examinations and assessments.

Assessment and support of individual pupils in schools is funded by partnership agreements with local authorities. We also generate income through delivery of professional learning from CALL and on site in schools and now online.

The core grant has remained static since 2011, while inflation has run at [19.4% to 2021](#). We have recently reduced staffing and costs and increased income from other sources over this time but we will have to generate additional income in 2023 to avoid further staff reductions and a corresponding reduction in activity and impact.

The grant from Scottish Government is provided on an annual basis – we did not receive the actual offer letter for April 2022 to March 2023 until June 2022 – which makes planning very difficult.

CALL's funding from Scottish Government is expected to change with [National Strategic Commissioning](#) but progress has been slow: the [Doran Review](#) was published a decade ago and a [10 year strategy](#) in 2019, and we understand that the timeline for completion has been extended to 2028-2029.

Staffing

Several members of the CALL team have signalled that they intend to retire in 2023 and so we will be seeking to recruit new members to the CALL team in 2022-2023 and plan for a period of overlap. However, if we cannot generate additional income this may not be possible, which will obviously have an impact both upon CALL core-funded activity, and upon our ability to generate income.

3 year plan

In response to the developments in Scottish education and CALL's staffing and funding situation, it is timely to develop a three year plan to recruit new colleagues and provide succession and a positive future for CALL Scotland and the learners and practitioners that we support.

Paul Nisbet, Director.

CALL Staff Team 2021 - 2022

Claire Harrison (1.0 FTE)	Development Officer, Assistive Technology & Complex Needs
Craig Mill (1.0 FTE)	Assistive Technology Specialist
Esther Beeston (0.7 FTE)	Resource Developer/Assistant Administrator
Gillian McNeill (0.8 FTE)	Specialist Speech and Language Therapist
Joanna Courtney (0.8 FTE)	Specialist Speech and Language Therapist
Paul Nisbet (1.0 FTE)	Director; Engineer and Educational Technologist
Robert Stewart (0.9 FTE)	Technology Resources, Web Designer/Manager
Sarah Marjoribanks (0.8 FTE)	Office Manager
Shirley Lawson (0.8 FTE)	Development Officer & Professional Learning Coordinator



**Figure 1. From left to right –
Esther, Sarah, Gillian, Paul, Joanna, Craig, Robert, Claire, Shirley.**

CALL Steering Group 2021 - 2022

We are grateful to the CALL Scotland Steering Group for advice, encouragement and wisdom and particularly to Dr. Mike Gibson, Chair, who has been, and continues to be, a great friend and supporter.

Dr Mike Gibson	Chair of Steering Group
Melanie Lowe	Support and Wellbeing Unit, The Scottish Government
Deborah Lynch	Support and Wellbeing Unit, The Scottish Government
Heather Palmer	AAC Policy Manager, Assisted Communication Team, The Scottish Government
Donna Baillie	Quality Improvement Officer, Glasgow City Council (ASLO representative)
Cheryl Burnett	National Parent Forum of Scotland
Fiona Buttle	Head Teacher, Langlee Special Nursery, Scottish Borders Council (from 09/18)
Fran Foreman	Senior Education Officer, Inclusion, Education Scotland (from 02/20)
Dr Kirstie Rees	Depute Principal Educational Psychologist, East Renfrewshire (ASPEP Representative from Nov. 2020)
Professor Sheila Riddell	Moray House School of Education, University of Edinburgh
Jackie Swan	ASN Service Manager, East Dunbartonshire Council (ADES / ASLO Representative)

Section 1.

Outcomes funded through Scottish Government Core Funding



National Provision of Inclusive Digital Learning Resources

Objective

To provide free Assistive Technologies and resources across Scotland to help local authorities and schools meet obligations under accessibility and equality legislation, and to support UDL.

Expected outcomes

Include provision of:

- accessible curriculum resources for learners (Books for All);
- free Scottish computer voices and readers;
- free symbol resources (Symbols for All);
- greater awareness and expertise in schools; schools and local authorities report that they are better able to meet Accessibility and Equality Act obligations.



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Books for All

Funded by: Scottish Government Learning Directorate Core Grant

Books for All website

The [Books for All website](#) which incorporates our new database of downloadable accessible textbooks received 116,492 page views in 2021-22 compared to 153,197 the previous year. 1,381 new accounts were created on the web site and 5,728 books were downloaded. The number of downloads has fallen significantly since 2019-20, when many schools were closed and teachers took advantage of the web site to provide learners with textbooks at home.

Table 1: Books for All web site

New Books for All web site	2017-18	2018-19	2019-2020	2020-2021	2021-2022
Number of page views ¹	83,782	102,107	190,977	153,197	116,492
Number of user accounts	-	-	3,535	5,507	6,888
Number of books downloaded	-	-	11,144	7,380	5,728

Scottish Book Awards Accessible Books and resources

We again worked with the [Scottish Book Trust](#), publishers and authors to create [accessible digital versions](#) of the P1 Bookbug Picture Book Prize books and the Scottish Teenage Prize shortlist, for pupils who find it hard to read the standard print books. Learners can read the books and so take part in the awards along with their peers in the classroom. Bookbug books are provided free to [every P1 learner](#) in Scotland each year by Scottish Book Trust.

In 2021-2022 the accessible digital Bookbug books were made available in:

- PowerPoint recorded narration and switch prompt versions;
- Keynote format for the iPad;
- Grid 3 files, designed particularly for learners who use eye-gaze technology;
- Grid for iPad files, for learners who use iPads.



¹ From 2021-2022 onwards, we are reporting the number of 'page views' recorded using Google Analytics rather than our previous practice of reporting data from log files from our web servers, because we feel that the Google Analytics data are more accurate over time.

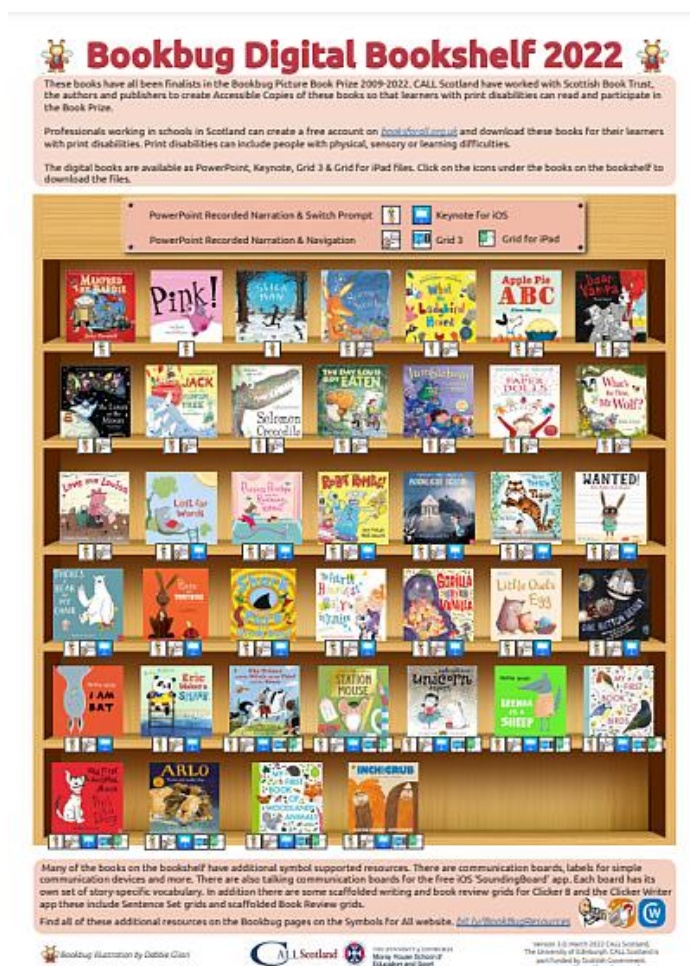


Figure 2: A new interactive poster was created with quick links to the books in all the formats

Joanna, Claire and Gillian created [symbolised resources](#) for each of the Bookbug books. These enable children to participate when reading the books and to talk and and vote for their favourite. The resources consist of:

- overlays that can be used with the *GoTalk 9+* communication aid, or as low-tech symbol boards;
- switch tops for *Big Mack* and *Step by Step* communication aids;
- digital app boards for the free *Sounding Board* communication app for iPad;
- overlays for teaching activities related to the books;
- accessible digital versions of the books and communication resources, together with teaching activities in Grid 3 format for use on Windows and iPad devices.

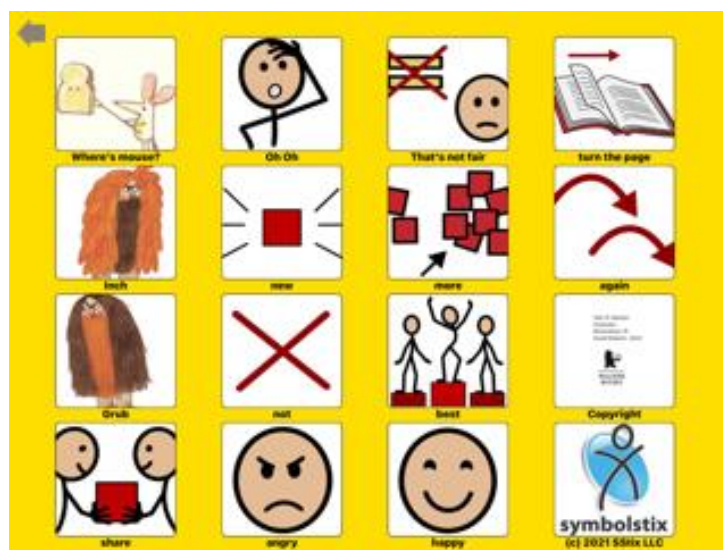


Figure 3: GoTalk 9 overlay

In 2020-21 Claire and Gillian developed new learning activities for learners to communicate and write about the books in Clicker and Grid formats and following positive feedback we repeated the exercise for the 2022 Bookbug books.

The [Clicker](#) resources can be used on Windows, iPad and Chromebook while the [Grid resources](#) are for Windows and iPads. The resources provide children with a means of writing about the story using vocabulary from the communication resources and reviewing the book content.

Clicker and the ClickerWriter app are very effective tools for supporting children's early literacy providing accessibility features such as text-to-speech and large keyboards for learners with physical access needs.

Grid 3 is a communication, computer control and curriculum access environment and is particularly suitable for students with complex access needs who use eye-gaze or switches.

The resources provide a complete toolkit for teachers to include young children so that they can access the books, participate in learning, and join in with voting.

217 books were downloaded this year with 3,029 symbolised resources and files. 856 Explorer Bag symbolised resources were also downloaded.

The 2021-2022 symbolised Bookbug Picture Book Prize resources, as well as our range of Explorer Bag symbolised resources for nursery age children, are all available on the Symbols for All website at

www.symbolsforall.org.uk/bookbug.

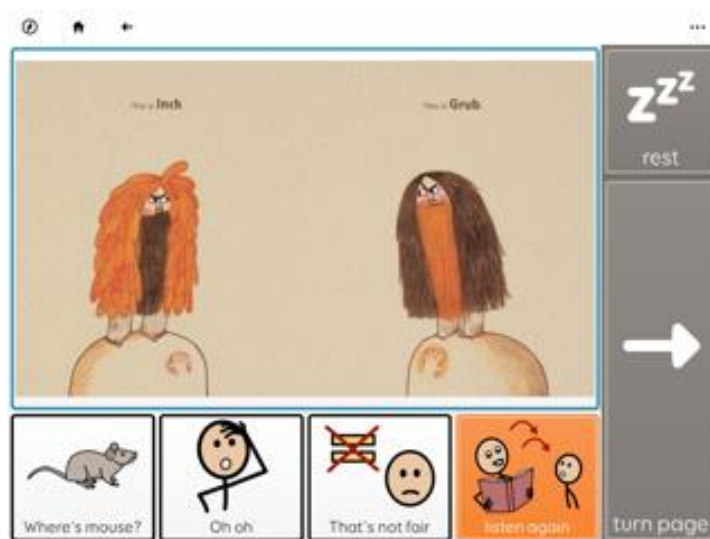


Figure 4: Inch and Grub on Grid 3

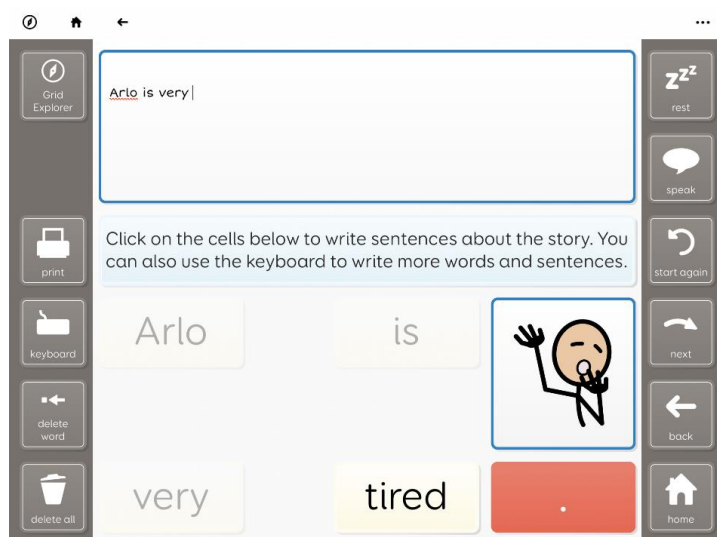


Figure 5: Grid set with writing activity



Figure 6: Writing a book review with Clicker Writer app

We also recorded our first 'Communication Friendly Bookbug Session' on Facebook Live for Scottish Book Trust during Book Week Scotland in November 2021. The video² has been viewed hundreds of times and we hope it will demonstrate how to make best use of our shared reading resources to facilitate communication.

We are excited to be developing our Bookbug work further in the coming year by working with the University of Edinburgh's BSL team to create BSL translated versions of the Bookbug Books, to add to our library of accessible versions on [Books for All](#).

A pilot BSL Translated version of *Gorilla Loves Vanilla*, which we have already created, is being trialled with deaf children in Scotland and we look forward to the feedback and being involved in the development of future BSL versions of the books



Figure 7: Facebook Live Bookbug Session



Figure 8: BSL Pilot Video

Table 2: Bookbug books and resources downloaded

Bookbug books and resources	2018-2019	2019-2020	2020-2021	2021-2022
Number of books downloaded	374	399	249	217
Number of symbol resources downloaded	6,576	3,310	3,313	3,029

Feedback

"Thank you for sharing the fantastic resources. I am excited to share the Bookbug resources with the learners, the grids look amazing!" (Teacher at a Special School)

"I've found the Bookbug resources really engaging and motivating for the children I have been introducing to AAC. It's been great to see how much enjoyment they get from being able to read and participate in the stories with their families and teachers."

(Speech and Language Therapist and AAC advisor)

"Having the resources already prepared has been great for our learners and fabulous for planning lessons. I was able to adapt the resources to meet the needs of PMLD, SLD and MLD learners."

² <https://www.symbolsforall.org.uk/bookbug/using-symbolised-resources/>

(Teacher who found the resources on the website)

“Every learner was able to access these wonderful books.”

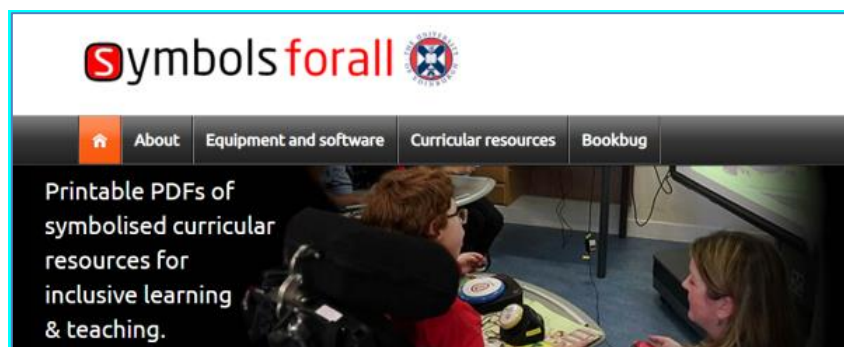
(Teacher on Professional Learning Course)

Symbols for All

The [Symbols for All](#) website provides free symbolised curricular resources organised around the eight Curriculum for Excellence areas and includes materials for use in symbolising the environment and for engineering communication activities across the curriculum.

Research³ and practice demonstrates that symbols and symbolised resources can support learners through:

- improving engagement, motivation & behaviour;
- accessing the curriculum;
- understanding new vocabulary and concepts across the curriculum;
- communication and inclusion;
- sharing their understanding of a concept or idea.



The site provides resources for primary learners created with PCS [Boardmaker](#) symbols and secondary resources made with [Widgit](#) symbols.

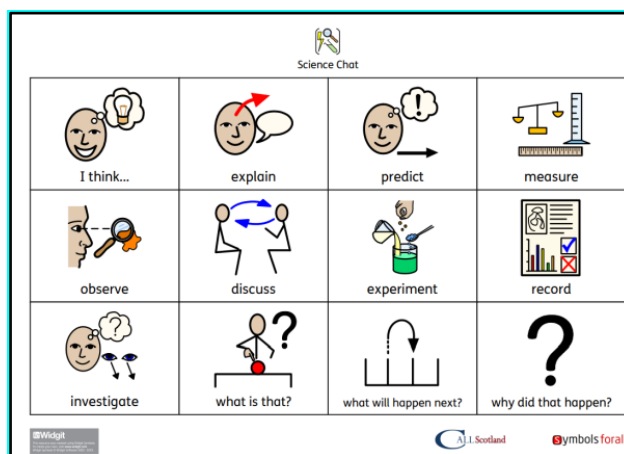


Figure 9: Science Chat communication board with Widgit Symbols

Limited access to symbol software is one of the barriers that prevents practitioners from making symbol resources and Symbols for All provides a core starter set of materials, plus ideas for how

³ Symbols in Education - <https://www.widgit.com/about-symbols/booklets/Symbols-in-Education.pdf>

they can be used, that will enable educators everywhere to get going. The site also provides the original Boardmaker and Widgit files so that practitioners with access to symbol software can edit and adapt them to personalise for their own schools and learners.



Figure 10: Symbols for All Old MacDonald resource in use in a classroom

The number of visits to the site and the number of resources downloaded both increased significantly: page views by 54% and resources downloaded by 72%.

Table 3: Symbols for All page views and downloads

Symbols for all Website	2018-19	2019-20	2020-21	2021-22
Symbols for All web site page views ¹	24,475	42,596	40,695	62,548
Symbols for All downloads	9,001	16,802	16,190	27,869

Symbol resources for learners who use eye gaze and special access

In addition to the symbol materials for printing we had created twelve resource sets for children and young people who use the [Grid 3](#) communication and access environment. We have added to this resource and there are now 40 different grid sets available from the [SmartBox Online Grids site](#). (SmartBox are a UK assistive technology firm that integrated the Scottish computer voices into their products, and we are pleased to extend our partnership through creating these resources.)

The resources can be used to model sentence building, model 'core' communication words, communicate requests and create communication opportunities around various curricular activities from baking to reading and more. PCS, SymbolStix and Widgit grid sets are available.

The grid sets are primarily designed for eye gaze access but can also be accessed by touch, using switches, or with a pointing device such as a joystick.

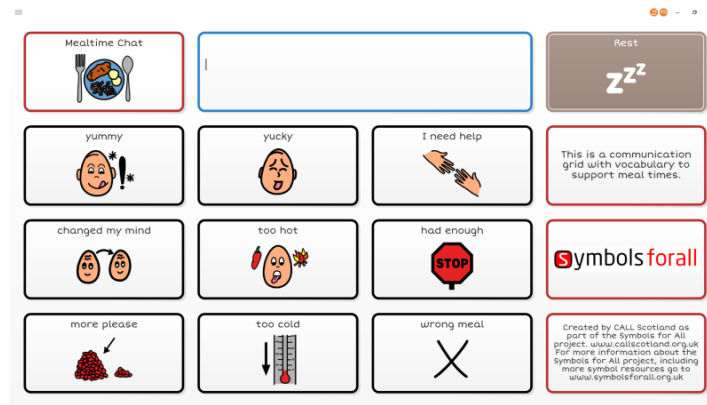


Figure 11: Mealtime communication page

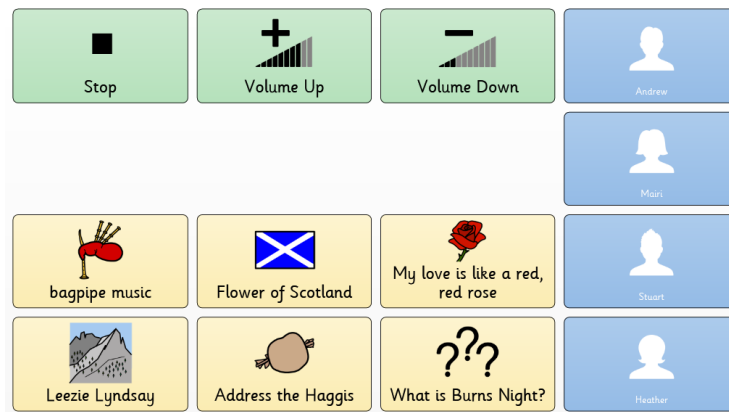


Figure 12: Grid page to control 'Alexa' for Burns night activities

Symbols for All AAC Core Word Toolkit

Scottish Government Section 10 funded our development of the [Symbols for All Core Word Toolkit](#) and one outcome from the project was a physical Kit to help school staff get started with and develop their use of symbols across the curriculum by creating communication opportunities based on the principles of Core Words.



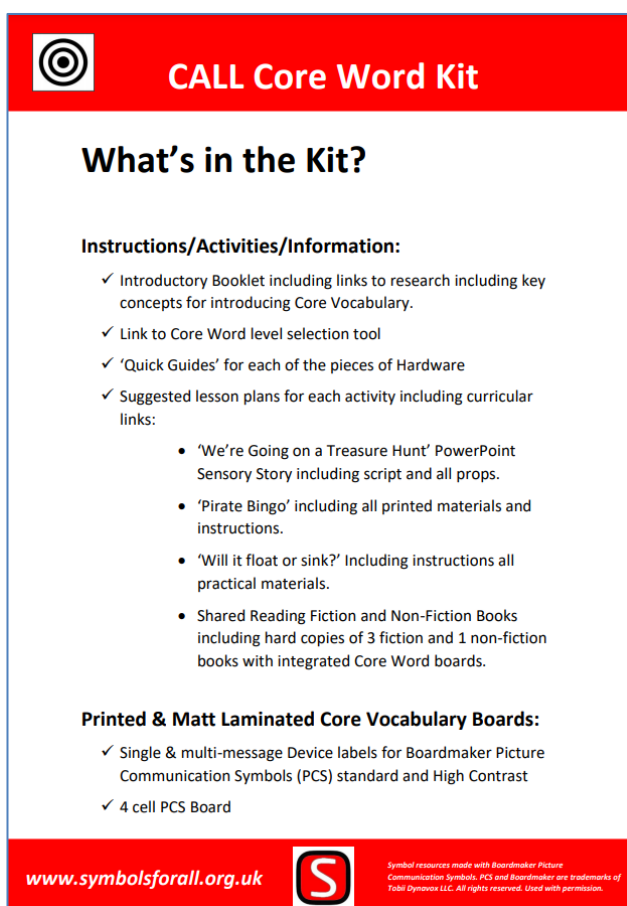
Figure 13: Sample of equipment in the CALL Core Word Toolkit

Core Words are the building blocks of language and makeup around 80% of what we say. When we create teaching and learning experiences using the principles of Core Words, evidence suggests that using them will enable learners who use symbols for communication to communicate more effectively and flexibly.

Core Words can be used across the curriculum, with a few words used repeatedly to communicate in various topics and contexts. By augmenting Core Words with a few more specific topic words, learners can experience and use these Core Words all day, every day.

The kit is available for schools (in Scotland) to borrow from our CALL Scotland loan bank for staff to learn the principles of teaching with Core Words and embed communication across the school day. The kit has everything a teacher will need, from simple communication devices (and batteries!), printed symbol boards in various formats, to digital resources and more.

A set of [Core Word Kit Quick Guide videos](#) was created for borrowers, and a free CALL training webinar took place in October 2021. The webinar has 290 views and has led to conversations and enquiries about borrowing the kit. The kit's contents continue to evolve in response to school feedback and evaluation.



CALL Core Word Kit

What's in the Kit?

Instructions/Activities/Information:

- ✓ Introductory Booklet including links to research including key concepts for introducing Core Vocabulary.
- ✓ Link to Core Word level selection tool
- ✓ 'Quick Guides' for each of the pieces of Hardware
- ✓ Suggested lesson plans for each activity including curricular links:
 - 'We're Going on a Treasure Hunt' PowerPoint Sensory Story including script and all props.
 - 'Pirate Bingo' including all printed materials and instructions.
 - 'Will it float or sink?' Including instructions all practical materials.
 - Shared Reading Fiction and Non-Fiction Books including hard copies of 3 fiction and 1 non-fiction books with integrated Core Word boards.

Printed & Matt Laminated Core Vocabulary Boards:

- ✓ Single & multi-message Device labels for Boardmaker Picture Communication Symbols (PCS) standard and High Contrast
- ✓ 4 cell PCS Board

www.symbolsforall.org.uk

Symbol resources made with Boardmaker Picture Communication Symbols. PCS and Boardmaker are trademarks of Tobii Dynavox LLC. All rights reserved. Used with permission.

Figure 14:

<https://www.symbolsforall.org.uk/core-word-kit/>



Core Kit Quick Video Guides: The Go Talk 9+ Lite Touch

Figure 15: Core Word Video Guide

"...more confident using the different switches available to us and incorporating communication opportunities further into the children's day – in particular group lessons and individual learning opportunities.

It gave the staff a brilliant opportunity to use the switching resources in a variety of ways. It has given us good ideas of how to incorporate these communication systems, and the individual ones that the children have, into different lessons and activities.

The activities and the stories provided excellent and practical ways of incorporating the language into each session."

Principal Teacher in an ASN Primary Provision

Scottish Computer Voices for Scottish schools and public sector

Table 4 gives the number of visits and downloads of the [Scottish computer voices](#). In schools, the voices are usually downloaded once by the local authority technical team and then packaged and made available on all the computers across the entire authority, so the number of actual users is far greater than the number of downloads.

Table 4: Scottish Voice page views and downloads

The Scottish Voice	2017-18	2018-19	2019-20	2020-21	2021-22
Scottish Voice page views	33,922	39,103	43,484	52,424	64,941
<i>Heather</i> downloads	908	775	534	704	709
<i>Stuart</i> downloads	741	603	479	596	618
<i>Ceitidh</i> downloads	259	249	124	147	144
<i>Callum</i> downloads			165	155	123
<i>Isla</i> downloads			161	162	142
<i>Andrew</i> downloads			128	111	95
<i>Mairi</i> downloads			129	107	76

Scottish Voices on Microsoft Immersive Reader

The Scottish Voices can be downloaded from CALL's [Scottish Voice](#) web site and installed on Windows and MacOS computers. However, Microsoft's popular [Immersive Reader](#) and Read Aloud tools are restricted to using Microsoft's own online voices and they cannot read with the Scottish Voices, or with the *Ceitidh* Scottish Gaelic voice.



Figure 16: Irish and Welsh voices are offered in Immersive Reader but not Scottish Gaelic

This is a significant limitation because Microsoft do not provide any Scottish accent voices or Scottish Gaelic voices – so learners in Gaelic Medium Education cannot use Immersive Reader in the language of their learning. Paul Nisbet wrote a blog post⁴ observing that Microsoft provide

⁴ Nisbet, P. (2022) [How Immersive Reader Could be More Inclusive - by Speaking Our Language and with Our Accents](#).

Catalan, Galician, Irish and Welsh voices but not Scottish Gaelic, and suggested that the company might either develop a Scottish Gaelic voice, or develop Immersive Reader so that it could speak with our Scottish voices.

A blog post⁵ from Microsoft Azure Speech Team notes that:

‘There are thousands of endangered minority languages all over the world. They constitute cultural good with historical & social value and impact from human. Although governments & communities are saving languages with cultural heritage, large number of languages are still being declined recent years. In Microsoft, language and cultural preservation is one of our top goals.’

We have a similar situation with Scottish accent voices: Microsoft provide online English language English (6 voices), US (7 voices), Canadian, New Zealand, Irish, Kenyan, Nigerian, South African, and Tanzanian accented voices, but not Scottish. This does not seem acceptable, particularly given that the Scottish Government funds provision of Office 365 for every learner and educator in Scotland.

Paul stimulated a Twitter discussion ([#ImmersiveReaderSpeakScottish](#)) and this led to contact from developers in the Microsoft Azure Speech Team. The team have attempted to develop Scottish accent voices and provided samples to CALL for feedback, but the voices are not remotely Scottish and we have suggested that they try harder.

Alternatives are for Microsoft to either licence the existing voices from CereProc or develop Immersive Reader so that it can speak with our Scottish voices installed on the individual Windows PC. We had a meeting with Angus Robertson MSP to try and promote this action.

Scottish Voices on iPads

The situation on iPads is similar. Learners in P6 and above in Glasgow, Scottish Borders, Edinburgh and Falkirk are being provided with personal iPads. The built-in voices available on iPads are good quality but there are no Scottish or Scottish Gaelic voices so learners with dyslexia or reading difficulties attending the Glasgow Gaelic School, for example, are provided with iPads but do not have a text reader in the language of their learning. Any learners with significant sight loss cannot use VoiceOver to read Gaelic text. We do not think that this is acceptable.

Table 5: iOS 15.5 built-in English voices

English (UK) voices	English (Australia) voices	English (India) voices	English (Ireland) voices	English (South Africa) voices	English (US) voices
Daniel Kate Oliver Serena Siri	Karen Lee Siri	Rishi Siri	Maira Siri	Tessa Siri	Alex Allison Ava Fred Nicky Samantha Siri Susan Tom Victoria

It is technically possible to make the CereProc Scottish and Gaelic voices available on iPads but the voices must be integrated into each individual app by the app developer. We have worked with SmartBox to make the Scottish voices available in their [Grid 3 communication app](#), and we have

⁵ Fei Zuo (2022) [Microsoft expands global language support for Speech-to-Text & Text-to-Speech](#)

been encouraging other developers such as [Crick](#), [Claro Software](#) and [Texthelp](#) to do likewise (particularly as Glasgow have licenced Crick's ClickerWriter app) but as yet we have not had a positive outcome.

Scottish Voices on Chromebooks

Some local authorities such as Highland, Aberdeen City and Stirling are providing personal Chromebooks to learners and unfortunately, Google do not provide Scottish computer voices on ChromeOS either.

The Scottish and Gaelic voices can now be installed on some Chromebooks via an [Android app](#) and we hope that this will offer a solution for Chromebooks that can run Android apps and where apps can be installed. A few years ago, the user experience was very poor and the Chromebook text-to-speech apps were unreliable and inconsistent, but we have been researching and testing voices, extensions and apps during 2021-2022, and the tools are now much better, at least when used on newer Chromebooks.

Currently, there is a cost of £0.59 to install a single Scottish voice on a Chromebook and there is scope to licence and distribute the voices either nationally or across individual local authorities. We will explore this in 2022-2023.

We also liaised with Texthelp, developers of [Read&Write for Chrome](#), which already offers the Gaelic *Ceitidh* voice and so it should be reasonably straightforward, both technically and in terms of licencing, to make the other Scottish voices available in Read&Write. We have had a positive response from our contacts in the company but the voices are not yet available. Aberdeen City, Highland and South Lanarkshire all have authority-wide licences for Read&Write. This at least means that Gaelic learners with Chromebooks in Highland can read text in Gaelic, unlike learners in Glasgow with their iPads.

We will continue to research and test and liaise with developers and suppliers and publish our findings in blogs and on the Scottish Voice web site.

Free Text Reader Technologies

Text-to-speech technology is one of the most effective supports for learners who have difficulties with reading⁶.

CALL provides free text reader technology for Windows OS for learners to use to access digital textbooks and learning resources and also assessments such as the SNSA and SQA Digital Question Papers. The text readers in conjunction with the Scottish computer voices provides a base level of accessibility software across the country, enabling equality of access and saving schools, parents and carers the cost of purchasing commercial software.

WordTalk

WordTalk is a free text reader for Microsoft Word originally created by Rod Macauley in 2005. Remarkably, it still works with some combinations of Word and Windows, but there are many PCs where it does not.

Microsoft's built-in **Immersive Reader** now meets the support needs of many Word users but as noted above it does not work with the Scottish computer voices.

The number of downloads has decreased sharply in recent years. We will monitor the use of the site and may withdraw it in the future if we feel it is not useful.

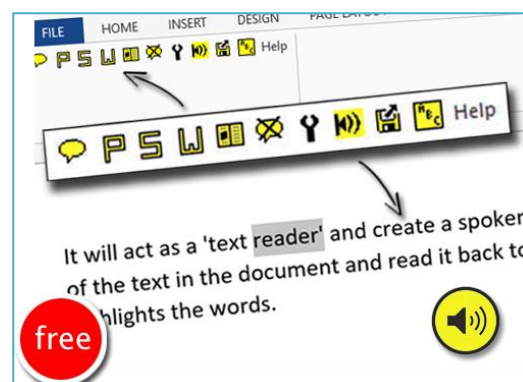


Table 6: WordTalk page views and downloads

WordTalk	2017-18	2018-19	2019-20	2020-21	2021-22
WordTalk page views	157,443	106,327	116,686	124,769	79,507
WordTalk (downloads)	32,731	19,588	7,471	10,506	9,735

Universal text readers

Learners require a general-purpose text reader for accessing the internet, emails and PDF files – for example textbooks or SQA Digital Question Papers. The [CALL website](#) provides information and links to free tools for Windows devices including for example [ATbar](#) and [Natural Reader](#), along with the built-in tools in [iPad](#) and [Android](#) tablets, and [Chromebooks](#).

MyStudyBar 4

Craig Mill's **MyStudyBar 4** was launched on 30 August 2017 and was downloaded 4,623 times in 2021-22. It is a collection of free tools that can support learners with literacy difficulties, particularly in a secondary school or FE / HE setting, in a package that can be used on individual computers, or from a USB memory stick. While there is greater awareness and use of tools such as Immersive Reader in Office 365, there is still a need for a stand-alone option like MyStudyBar. One advantage of MyStudyBar is that it can run from a USB stick and so the tools do not need to be installed on a school computer.

⁶ Wood SG, Moxley JH, Tighe EL, Wagner RK. Does Use of Text-to-Speech and Related Read-Aloud Tools Improve Reading Comprehension for Students With Reading Disabilities? A Meta-Analysis. *J Learn Disabil.* 2018 Jan/Feb;51(1):73-84. doi: [10.1177/0022219416688170](https://doi.org/10.1177/0022219416688170). Epub 2017 Jan 23. PMID: 28112580; PMCID: PMC5494021.



Table 7: MyStudyBar downloads

MyStudyBar 4.1	1.9.17 – 31.3.18	2018-19	2019-20	2020-21	2021-22
MyStudyBar 4.1 downloads	3,346	5,216	5,483	6,379	4,623



National Information and Advice

Objective

To provide an expert Scottish national information and advice service to all those involved in meeting the AT and AAC support needs of pupils with complex additional support needs and make information accessible in a variety of forms.

Expected outcomes

All those involved in meeting the AT and AAC support needs of pupils with complex additional support needs will be able to access the information they need to be successful in their role.



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OUTCOMES

Summary

- 805 significant enquiries were received and responded to between 1/8/21 and 31/7/22, compared with 745 for the same period in 2020-21.
- The nine websites maintained by CALL received 910,897 page views compared to 990,134 in 2020-2021.
- There were 35 blog posts compared to 55 in 2020-2021.
- The CALL Twitter account has 4,850 followers and 497,00 tweet impressions while the CALL's Facebook has 5,351 followers.
- The CALL YouTube channel has 735 subscribers with 61,467 views in 2021-2022.
- The CALL email Newsletter has 3,650 subscribers.

Requests for assistance

CALL provides a free open access advice and information service through telephone, email and social media for anyone in Scotland who wishes to ask about communication or assistive technology. There were 805 requests for assistance in 2021-2022. 35% of requests (285) were from teachers or other school staff and 26% (209) from parents or relatives.

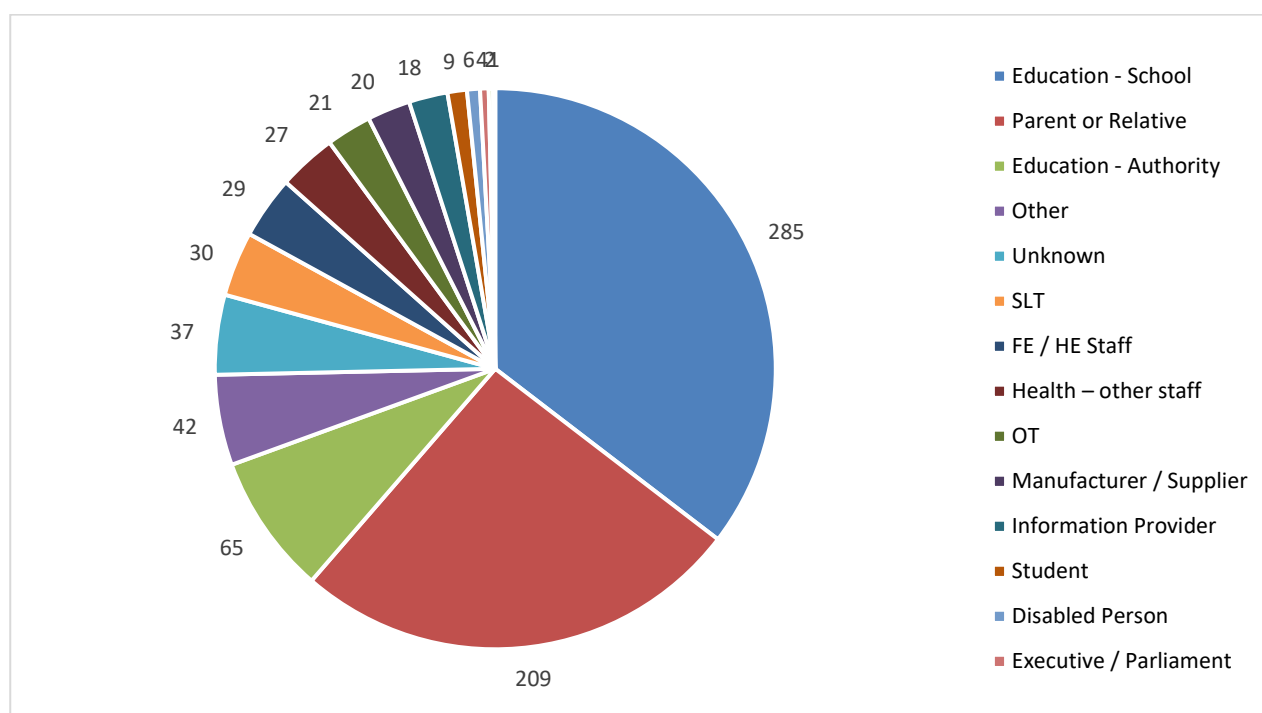


Figure 17: Background of people contacting CALL 2021-2022

The nature and subject of requests varies considerably: they include straightforward enquiries about technology or about a CALL Professional Learning course, a call to ask about equipment for loan, or a more detailed discussion about the application of assistive technology in a local authority, school, class or for an individual learner.

315 of the 805 enquiries (39%) concerned a specific individual learner or person with a disability or additional support needs. Examples from the past year are given below and illustrate the range of additional support needs for which people are looking for assistance.

Hi, I'm looking for some advice please if possible... my son is dyslexic but is gifted in his numeracy skills but is finding it challenging to reach his potential in this area due to the written text surrounding some of his maths questions. We were considering purchasing an e-reader pen to see if this might help him in class, but I wasn't sure if this would be a good solution. If not, could you suggest any alternative resources or tips to help with this challenge?

Parent

My daughter is severely dyslexic and also has autism and ADHD. She is struggling at a school especially with spelling and reading and writing – she is in S3 and is 14 in mainstream. She was using dictation on her chrome book but is not wanting to use it this year which is causing problems – I was looking at scanning pens as maybe a way to help her and someone said you may have ones to try before buying them?

Parent

I wonder if you would be able to help me or to direct me to an organisation who can. I am currently working with a lady who has sustained a C6 spinal cord injury and has no movement in her hands. Her one pleasure in life is reading and I am wondering if there are voice activated kindle where she would be able to read a book and instruct it to turn the page. She has no leg movement so is very restricted. I am keen to help her regain some quality of life

NHS Clinical Psychologist

I'm looking for some advice about a pupil with complex needs that is in our mainstream school. She is in S4 and undertaking Nat3 and Nat4 courses. We are just wondering if there is any new technology that is available to assist her in communicating her answers in assessments.

Currently the pupil communicates verbally and an assistant scribes for her but her speech is very poor so this can be very difficult.

Would be interesting to hear of any other pupils in Scotland who have been in a similar situation in the senior phase of school.

DHT, secondary school

I have a little child who started school August. Bilateral amputation of majority of fingers, despite this quite incredible with regards to managing to hold a pencil and write. I am however conscious that as she progresses through school sustainability of pace may prove a challenge and keen to equip her with all resources she needs to access learning.

Would there be a good time and number to give you a call and chat through in more detail to see if you have any advice and or if referral would be beneficial at this stage?

Occupational Therapist

I'm looking for some help. And advice.

My son is in S2. He has Autism, sensory processing difficulties, hypermobility, dyslexia and dysgraphia. My son is highly able but his writing is illegible. Typing is too painful for him. He tried speech technology in primary school but it didn't pick him up well.

Can you recommend some strategies or technology that may work for a child who has a lot of potential but has a physical barrier?

Parent

My son has just started high school. He has dysgraphia. Whereas there are lots of apps and ways to support written work, we are struggling with maths.

Although He is good at maths, he cannot lay sums out on the page. His teacher is aware of an app: Maths Type but he says this is too advanced for this stage. Are there other lower level apps?

Parent

We have a Primary 5 pupil diagnosed with Dyslexia. Despite additional support interventions, her difficulties with reading and accessing text is becoming more significant related to age

expectations. This is hindering her progress academically and her confidence is impacted as a result.

I should like to enquire as to whether it might be possible to obtain a loan of specific additional support equipment to support her reading difficulties. I was thinking along the lines of a reading pen or similar that would allow her to decode and engage more fully with text within the classroom setting. We are restricted as to what apps we can place on iPads, this being controlled regionally. We also have internet connectivity issues.

If there is any more appropriate equipment you can recommend, I would be very grateful.

PT Support for Learning

We have a pupil in S1 who cannot write for an extended period of time, but finds it easier to type. This works well in most subjects, but has its limitations in Maths – is there any software that you are aware of that could help?

ASN Teacher

I am wondering if there is something out there that can help my daughter with her school work. When she has to think of something to write she often has lots of thoughts come into her head very quickly and it is difficult for her to settle on one thing quickly.

If you had any tips for this I would be most grateful.

Parent

I have been assessing a young man who has significant coordination difficulties and some hypermobile joints. He is finishing p6 and writing is hard going for him. I have advised he should be using a laptop to record his work.

Are you able to advise on any helpful software for literacy and numeracy that will help to make his life easier? He is a bright boy. He is very softly spoken and has some sound substitutions – it can be difficult to make out what he is saying so I'm not sure talking software would be helpful. Any advice you could give would be much appreciated.

Occupational Therapist

I have an unusual request. I am a teacher and I would like to ask if I can download a TJ for my son.

He is currently going through a stem cell transplant and we are in an isolation word. He has been learning online but we are not allowed any textbooks in his room, as he no immune system after chemo and radiotherapy.

If we can download the pdf he can continue and learn concurrently with his class.

Parent

Good morning,

I was given your details by XXXX. They have assessed my twelve-year old son as having slight dyspraxia, and suggested I get in touch with you to see if there are any assistive technologies or other forms of support you might be able to provide.

I should be very grateful for any advice you can offer. My son is generally doing well in school, but is becoming increasingly frustrated because he is more and more aware of the limitations his dyspraxia is imposing on him.

Parent

Most enquiries regarding individuals required a personalised response and in most cases we try and speak to the parent or practitioner by phone or video call. We usually follow up with an email with a summary, and we may signpost to sources of information or offer a loan of technology. If we meet on Teams, we ask if the enquirer is happy for the session to be recorded and we send a link to the recording.

If we feel that we are receiving requests for assistance around a similar topic, we develop posters, blogs or videos that we hope will address the questions that are asked. This both helps parents and practitioners and also helps the CALL team to respond more efficiently to future enquiries.

Feedback

<i>"Wow, thank you so much for all of this and for you call. Really, really helpful. XXXX is literally walking on sunshine, he's singing instead and of talking and is generally, very, very happy! You've just made his day and life. Thank you so, so much."</i>	Parent
<i>"Hi Thank you so much for all this information it's much appreciated its giving me an idea of the next steps to take and will bring up some of your suggestions to the child planning meeting."</i>	Parent
<i>"Thank you so much for this, I really appreciate your insight and experience."</i>	Speech and Language Therapist

Websites

CALL Scotland hosts nine separate websites: [CALL Scotland](#), [AAC Scotland](#), [ASL and Technology](#), [Adapted Digital Assessments](#), [Books for All](#), [Personal Communication Passports](#), [Symbols for All](#), [The Scottish Voice](#) and [WordTalk](#). They all require regular review and maintenance to ensure that content is up to date and relevant. Robert Stewart has continued to develop new features and facilities for the websites.

Table 8: CALL website visits and downloads provides information on the number of page views and downloads from the CALL web sites. From this year onwards, we are reporting the number of 'page views' as measured by Google Analytics rather than the data from log files from our web servers that we have used in previous annual reports, because we feel that the Google Analytics data are more accurate over time.

The total number of page views of the nine sites decreased by 8% and we think that this is most likely due to the end of the pandemic. The web sites received significantly more visits during the pandemic and so usage has perhaps reduced now that schools are open.

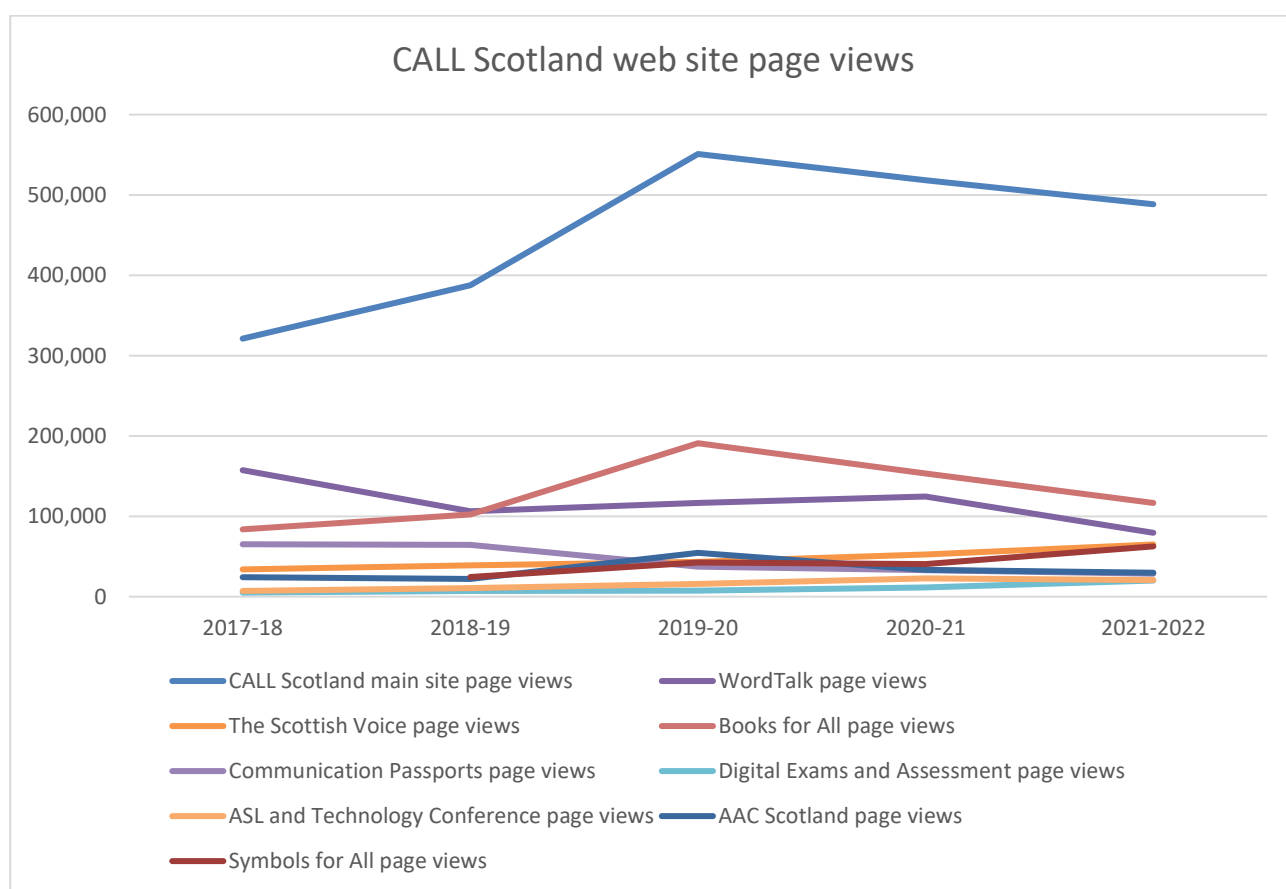
The main CALL site continues to be most visited followed by Books for All, WordTalk and the Scottish voice. The Symbols for All and Digital Assessment web sites saw the largest proportionate increases in activity.

Table 8: CALL website visits and downloads

CALL Scotland Websites	2017-18	2018-19	2019-20	2020-21	2021-2022
CALL Scotland main site page views	321,162	387,663	550,987	518,474	488,513
CALL Scotland (resources downloaded)	NA	NA	55,928	48,874	39,985
WordTalk page views	157,443	106,327	116,686	124,769	79,507
WordTalk (copies downloaded)	32,731	19,588	7,471	10,506	9,735
The Scottish Voice page views	33,922	39,103	43,484	52,424	64,941
Heather downloads	908	775	534	704	709
Stuart downloads	741	603	479	596	618

CALL Scotland Websites	2017-18	2018-19	2019-20	2020-21	2021-2022
<i>Callum</i> downloads	-	-	165	155	123
<i>Isla</i> downloads	-	-	161	162	142
<i>Andrew</i> downloads	-	-	128	111	95
<i>Mairi</i> downloads	-	-	129	107	76
<i>Ceitidh</i> (Gaelic voice) downloads	259	249	124	147	144
Books for All page views	83,782	102,107	190,977	153,197	116,492
Books for All downloads	n/a	n/a	5,528	7,380	5,728
Communication Passports page views	65,203	64,485	37,312	33,057	28,565
Digital Exams and Assessment page views	5,062	7,027	7,557	11,496	20,055
ASL and Technology Conference page views	7,108	10,786	15,697	22,726	20,545
AAC Scotland page views	24,348	22,032	54,504	33,296	29,731
Symbols for All page views	n/a	24,475	42,596	40,695	62,548
Symbols for All (downloads)	n/a	9,001	16,802	16,190	27,869
Total page views	698,030	764,005	1,059,800	990,134	910,897

Figure 18: CALL website page views 2017 – 2022



Posters

The free downloadable CALL posters provide key information about assistive technology and augmentative and alternative communication and continue to be popular. The posters have helped to raise the profile of CALL Scotland both nationally and internationally and have provided useful information for people with an interest in assistive technology and AAC.

A new [Guide to Single and Multi-Message Devices](#) was produced, and the [Bookbug Digital Bookshelf](#) was updated with links to the new 2022 Bookbug books.

A Guide to Single and Multi-Message Devices

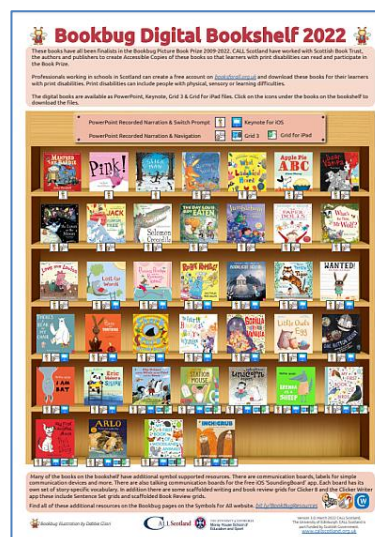
Single and multi-message talking buttons are fantastic tools to teach communication and social interaction skills across the curriculum. Single button communication devices can be used as simple communication aids in a variety of learning and communication activities. Depending on the device, you can have up to two minutes of recording time. Multi-message button devices can be used to record a sequence of messages and depending on the device type, will play messages in order, randomly or by choice. This infographic lists a selection of devices which are sturdy enough to withstand daily classroom use!

Device Name	Approx. Cost (incl. VAT)	Type of Device	Recording Time	How Labels Attach	Power Source	Size and Shape	Features	Additional Features
Big Button	£53	multi-message	10 levels with 6-14 seconds	Clear caps, labels slide underneath	Battery	8.3cm square button	Label storage compartment at rear	Function to edit parts of a sequenced message
BIGmack	£79	single-message	2 minutes total	Clear snap cap for labels	Battery	12.7cm round button	Part for an external switch	Includes cable for controlling toys and appliances
Big Step-by-Step	£121	multi-message	4 minutes total over 3 levels	Clear snap cap for labels	Battery	12.7cm round button	Part for an external switch	Includes cable for controlling toys and appliances
Big Talking Brix	£204	single-message	10 seconds	Clear caps, labels slide underneath	Battery	8.6cm round button	Magnetic	Pack of 3 which can be linked together
GoTalk One	£12	single-message	10 seconds	Labels on beaded secure clear frame	Battery	8.3cm square button	Light weight	Usable with the 'GoTalk Talkbook Four' Vinyl Folder
LITTLEmack	£79	single-message	2 minutes total	Clear snap cap for labels	Battery	6.3cm round button	Part for an external switch	Includes cable for controlling toys and appliances
Little Step-by-Step	£121	multi-message	4 minutes total over 3 levels	Clear snap cap for labels	Battery	6.3cm round button	Part for an external switch	Includes cable for controlling toys and appliances
Little Step-by-Step Choice	£149	multi-message	4 minutes total over 3 levels	Clear snap cap for labels	Battery	6.3cm round button	Part for an external switch	Includes cable for controlling toys and appliances
Smooth Talker	£109	multi-message	8 minutes total	Flip-up label holder	Battery	12.5cm round button	Part for an external switch	Many message playback modes: random, conversational, GSA and more
Talking Brix 2	£160	multi-message	10 levels with 6-14 seconds	Clear caps, labels slide underneath	Battery	8.3cm square button	Magnetic	Pack of 3 which can be linked together

Make sure your devices are labelled with a symbol icon, photograph or tactile cue. Consistent labelling can help your learner understand the meaning of recorded messages. Buying a new device? Spend a little more and purchase a multi-message device to give you the flexibility to use it with one or more messages. Looking for activities and ideas which use single and multi-message devices? Download our "22 Ways to be Excellent" poster from the CALL Scotland website.

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Power Key



Updates to several of the 'app wheel' posters are planned for 2022-23.

Blogs

The CALL Scotland [Blogs](#) feature articles by the CALL team, news about events, technology, Government initiatives and other developments. If people ask for information about a new development in assistive technology on a regular basis, a blog is often a good way to respond and share information.

There were 35 blog posts in 2021-22 covering a wide range of topics such as [Creating Accessible Documents – a Free Online Learning Module](#); [Text to Speech to Support Reading Difficulties](#); [SQA and Assessment Arrangements into the Future](#); [Bookbug Picture Book Prize 2022 Accessible Books](#).

News, research and thoughts

9th Aug 2022

Looking for a Free Photo App that Snaps and Reads ...

The Photos App for the iPad (and iPhone) has been around for a long time.

29th Jun 2022

Microsoft Editor - Now Available for Edge and Chro...

Microsoft Editor is a built-in spelling and grammar checker available in Word and Word Online.

23rd May 2022

Want to Learn More About Dyslexic Learners and Tec...

Despite having so many more laptops, chromebooks and iPads in the hands of learners there is still a...

[More from our blog](#)

Videos from CALL Scotland

Practitioners, learners and parents often ask for advice on using apps and tools and video tutorials can be helpful. Craig created a new set of 20 video guides on [Using Microsoft Word to support learners with Additional Support Needs](#) while Claire produced [four new videos](#) showing how to use Bookbug Symbolised Resources, Accessible Digital Books and the Writing Resources for Grid 3 and Clicker. These are available on the [CALL YouTube channel](#). The CALL YouTube channel has 735 subscribers and received 61,467 views in 2021-2022.

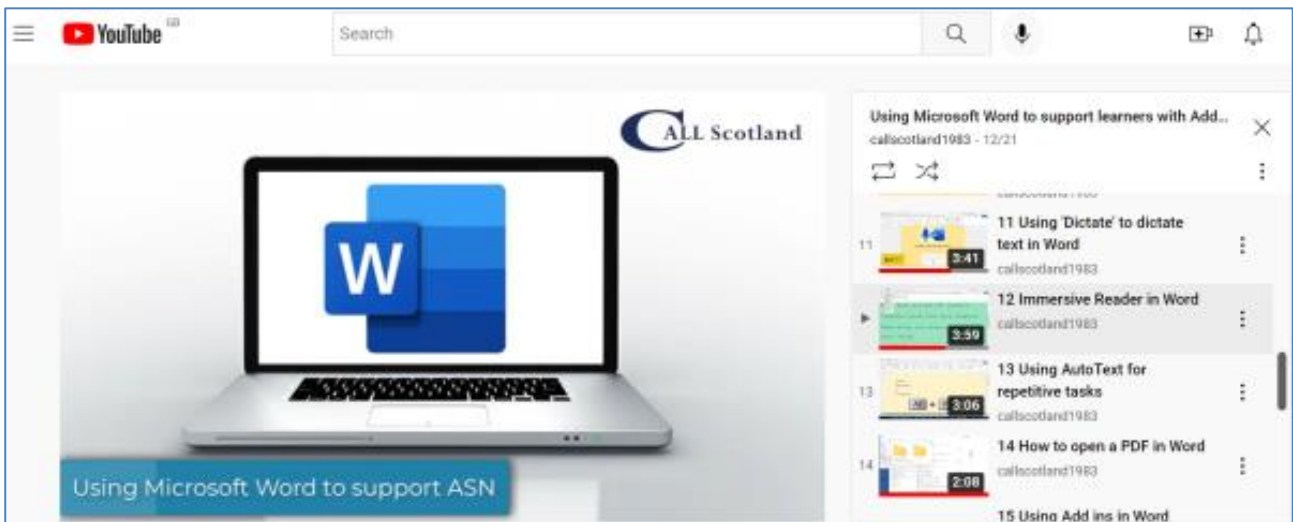


Figure 19: Using Microsoft Word to support learners with additional support needs Playlist

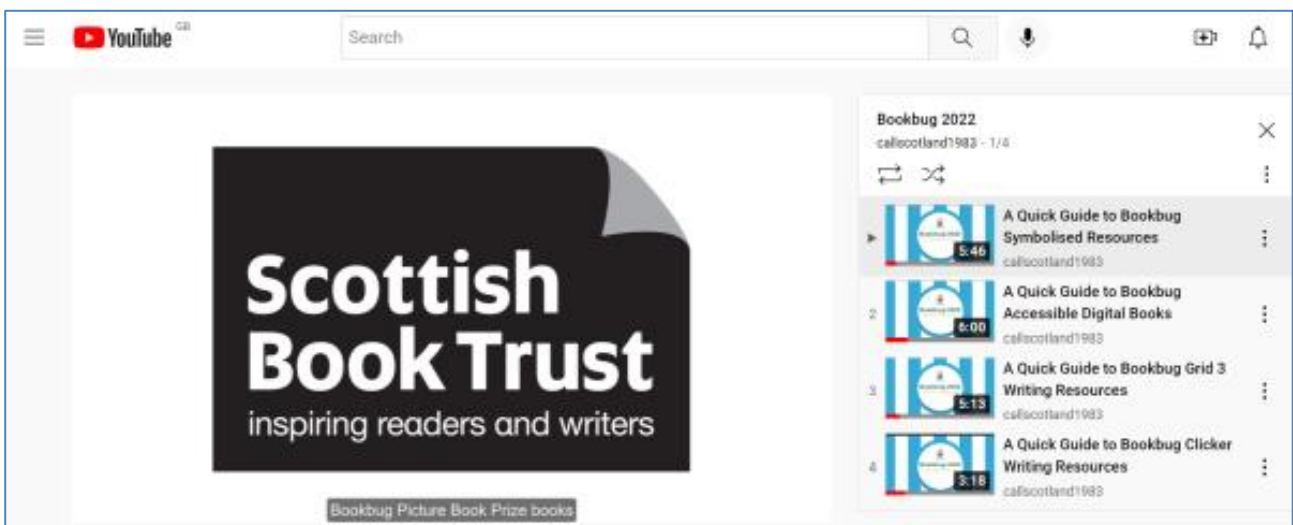


Figure 20: Bookbug books and resources videos

Social Media

From the beginning of the Covid-19 pandemic we expanded our use of social media for communicating with practitioners, parents and learners and for disseminating information about new resources, training courses, webinars and developments in assistive technology and AAC.

The CALL [Twitter](#) account featured 378 tweets, 4,850 followers and 497,000 tweet impressions in 2021-22, compared with 583 tweets, 4,270 followers and 1.022 million tweet impressions in 2020-21. Fewer tweets were posted compared to the previous year because Allan retired in August 2021 and Esther, who has the main responsibility for Twitter, has been on long term sick leave since March 2022.

The CALL [Facebook](#) page has 5,351 followers - an increase of 55% on last year - with a “reach” of 165,338. The reach is the number of people who view or have contact with the page.

Reports and articles

Nisbet, P. (2021) **Assistive Technology Assessment Arrangements in the Context of Covid-19**. Briefing Paper commissioned by Scottish Qualifications Authority. January 2021.

Nisbet, P. (2021) **Assistive Technology and Assessment Arrangements following Covid-19**. Briefing Paper commissioned by Scottish Qualifications Authority. July 2021.

Nisbet, P. (2021) [Assistive Technology and Assessment Arrangements following Covid-19](#). Published Report, commissioned by Scottish Qualifications Authority. October 2021.



Professional Learning

Objectives

To develop and deliver Professional Learning for staff and training for parents on AT and AAC.

Expected outcomes

Include developing and providing Career Long Professional Learning that meets the needs of staff and local authorities, linked to implementing the Code of Practice.



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OUTCOMES

Table 9: Summary of Professional Learning 2015-2022 summarises the professional learning outcomes over the past 7 years. The move to online delivery has enabled larger numbers of practitioners to participate in the CALL programme of professional learning and Insets and the number of participants attending the free weekly webinars has also increased significantly.

Table 9: Summary of Professional Learning 2015-2022

Summary of PL Events	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
PL delivered in CALL							
Number of courses	13	13	13	12	9	14	17
Number of participants	146	212	147	80	138	231	274
PL delivered in schools/authorities							
Number of courses	30	24	28	28	30	31	43
Number of participants	507	475	628	401	661	917	1169
Webinars delivered							
Number of Webinars delivered	22	23	18	20	22	21	24
Number of participants registering	426	738	869	1,243	1,875	5,766	5,598
Presentations at conferences	20	20	26	26	9	12	12
Exhibitions	14	12	10	11	9	2	2
Talks	7	8	8	10	8	14	6
Moray House lectures							
Number of lectures/courses							7
Number of students							300
ASL and Technology – number of participants	215	196	243	162	345	262	195
AAC Introductory Modules – number of completions				576	6,784	2,910	1,698
AAC in Education Modules – number of completions				56	3,169	536	396

Professional Learning at CALL Scotland

CALL's Programme of online Career Long Professional Learning (CLPL) for 2021-22 was distributed to around 2,700 schools via Local Authority intranet systems. Throughout the year there was further promotion of courses via direct emails to schools, Twitter, Facebook, CALL blog posts and e-newsletters.

The Professional Learning programme is led by Shirley Lawson with input from the whole CALL team. Robert Stewart takes the lead for technical aspects, while Esther Beeston and Sarah

Marjoribanks manage bookings, invoicing and administration. Craig Mill was the Lead Tutor of the 2022 Inclusive Digital Learning Masters-level course which ran at a capacity of 40 participants.

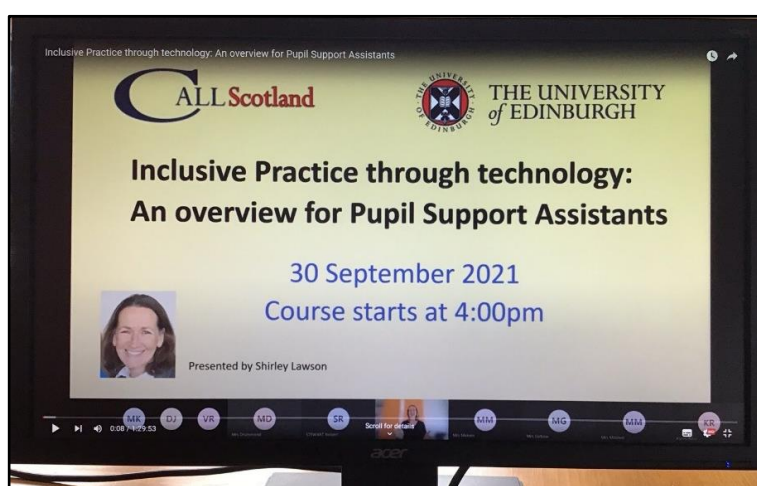
GTCS Standard for Career-Long Professional Learning

CALL Scotland's Professional Learning aligns with the GTCS Professional Standards which were refreshed, restructured and launched on 02 August 2021. We deliver relevant and practical training opportunities for teachers who will then record this as part of their Professional Update. Our Professional Learning can provide the stimulus for teachers to adopt an enquiring, reflective and critical approach to their professional practice and make changes which can result in improved outcomes for their pupils with Additional Support Needs.

We have developed training opportunities for two distinct and sometimes overlooked groups of people: Pupil Support Assistants and students (ITE, PG and MSc) and this has been very well received and appreciated.

Pupil Support Assistants

Pupil Support Assistants are often excluded from whole staff training days or twilight sessions in schools yet these are the people who are more likely to be spending one-on-one time with pupils with Additional Support Needs and need to know how to support them using assistive technology. Their level of confidence using technology may be low and their time very limited. We supported them by developing a bespoke course for Pupil Support Assistants to provide basic assistive technology skills and enable staff to better support their pupils. As with all our courses, the link we make with participants does not stop after the course ends; there is ongoing support on offer and the opportunity for further discussion, advice and to see repeat demonstrations of anything covered in the course.



Student teachers

The ASL Review and Action Plan identifies the need for student teachers to develop understanding and practice in ASL. CALL Scotland endeavours to strengthen the links between our organisation and the University of Edinburgh and share our expertise by offering free online (and in person) awareness raising session on the use of assistive technology to support learners with Additional Support Needs. Due to the success and popularity of previous sessions we have delivered within Moray House, we have been asked to repeat the sessions to new students in 2022-2023 and most importantly, course tutors are now making sure that they have prominence at the beginning of the academic terms so all students can take advantage of what they learn when they are out in school on placements throughout the year.

Professional Learning Delivered Online

Even with fewer Covid restrictions in place, we have not returned to providing our Professional Learning as full-day or half-day courses at our base in Paterson's Land. The success of our online courses and the ability to deliver to a wider, more geographically distant audience has been a positive shift.

Online courses are more convenient for participants further away from the central belt and the timing of courses enables practitioners to attend at the end of the school day. Participants are provided with a link to the recording of the course and handouts for follow up and in case of any difficulties in accessing the live session. Course leaders extend the offer to speak to participants after the course and provide continued support.

Last year we moved from the University Blackboard Collaborate platform to using Microsoft Teams with which more teachers are familiar.

Disadvantages of online training include:

- reduced collegiality and interaction;
- lack of in-person hands-on support;
- limitations on the amount of content that can be covered in 90 minutes, compared to a half or full day;
- online participants do not always have access to the same technology being demonstrated;
- difficulties in providing live support for technical issues.

The average number of participants attending the online courses is far greater than average attendance for full or half-day face-to-face workshops in previous years, perhaps reflecting the reduced cost and greater convenience.

It is unlikely that we will ever return to delivering courses in person at the University and we will continue to develop our skills in delivering successful online training experiences.

Table 10: CLPL Courses delivered online, August 2021 – July 2022.

Date	Courses 2021-2022	Number of participants
02/09/21	How to effectively support autistic learners using technology	30
09/09/21	Technology to support VI	16
23/09/21	Communication and learning activities for pupils with complex needs	23
30/09/21	Inclusive Practice through technology: An overview for PSAs	17
07/10/21	Technology in SQA digital assessments	20
28/10/21	Creating accessible materials	5
04/11/21	Sharing information with other through PCPs	0
11/11/21	UDL and Assistive Technology	5
25/11/21	Using Communication Technology in the classroom	15
02/12/21	Developing numeracy skills for learners with complex needs	26
20/01/22	Back to Basics: A complete beginner's guide to AT	13
27/01/22	Talking to technology: Speech to text for learners with ASN	14
24/02/22	Expressive Arts / Creativity and complex needs	14
10/03/22	Supporting dyslexic learners moving into S1 – O365	22
24/03/22	Developing the early literacy and writing skills of learners with ASN and communication difficulties	23
28/04/22	Communication technologies (AAC) and strategies for learners with ASN	9

Date	Courses 2021-2022	Number of participants
12/05/22	Using PPT creatively to support learners with ASN	10
26/05/22	iPad accessibility tools	12
	Total number of participants	274

Table 11: Number of courses and participants on CALL based courses

PL courses delivered in CALL	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Number of courses	13	13	12	9	14	17
Number of participants	212	147	80	138	231	274
Average number of participants per course	16.3	11.3	6.7	15.3	16.5	16.1

INSET Professional Learning



We provided a wide range of in-service courses in response to requests from school and local authority colleagues. Prior to Covid-19 most sessions were delivered in a school or a local authority base, but now most of these courses are delivered online.

During 2021-22 we provided 43 INSET sessions of Professional Learning for 1,169 people (teachers, Support for Learning staff, classroom assistants, education psychologists, Speech and Language Therapists, parents/carers, etc.) across Scotland. The online sessions are often hosted by the school or local authority and from one log-in there could be multiple viewers so we do not always have accurate figures for the number of participants.

There was a 38% increase in the number of INSET courses requested and delivered in 2021-22. The average number of participants attending online events continues to be greater than that for face-to-face training in previous years. An advantage of the online model, compared to face-to-face, are that larger numbers of participants can attend, and the recordings can be made available for staff unable to attend on the day.

Table 12: INSET Courses provided online for schools and local authorities in 2021-22

Date	INSETS 2021-2022	Organisation	Number of participants
23/08/2021	Assistive technology for learners with dyslexia in Gaelic Medium Education	Dyslexia Scotland	20

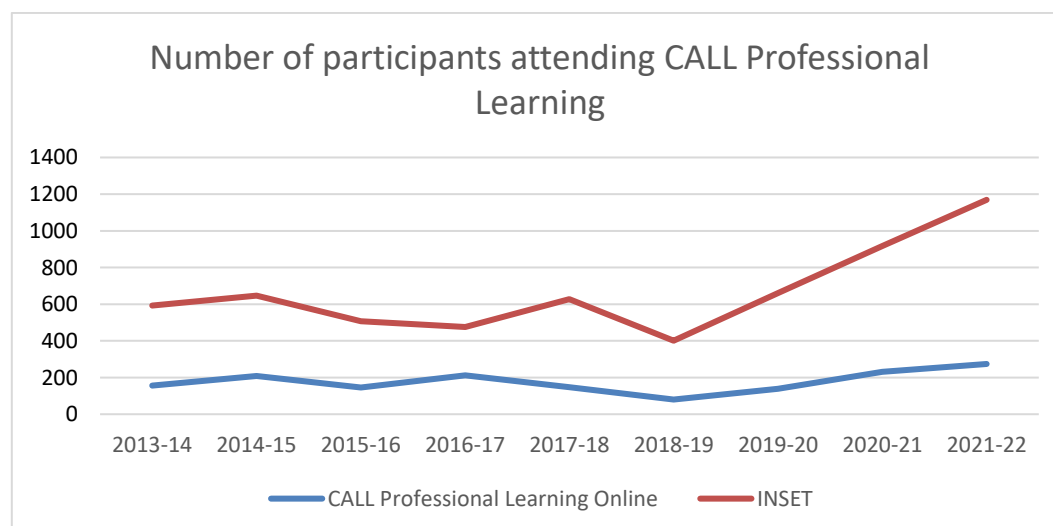
21/09/2021	Using iPads to support dyslexic pupils	Dyslexia Scotland	70
30/09/2021	Assistive Technology to support dyslexia in the High School	Argyll & Bute	10
06/10/2021	iPads to support dyslexia	Glasgow	10
04/11/2021	AT to support pupils with dyslexia in Primary School	Argyll & Bute	35
11/11/2021	Using iPads to support literacy difficulties	Perth & Kinross	14
12/11/2021	Technology for pupils with ASN	Perth & Kinross	22
18/11/2021	AAC Technologies and Strategies for Learners with Communication Support Needs	Argyll & Bute	3
29/11/2021	Technology for learners with complex ASN	Perth & Kinross	28
05/01/2022	Technology to support learners with dyslexia and/or dyscalculia	Scottish Borders	12
25/01/2022	Overview of Assistive Technology	South Ayrshire	114
25/01/2022	Parents supporting parents	South Ayrshire	12
26/01/2022	AT to support learners with dyslexia under 10 years old	Perth & Kinross	25
27/01/2022	Technology for autistic learners	Argyll & Bute	21
01/02/2022	Comm & Learning Activities for Pupils with Complex	Perth & Kinross	17
08/02/2022	Introduction to AT for parents	Perth & Kinross	16
09/02/2022	AAC Workshop – Group 1: Communication Technologies and Strategies for Learners with ASN	Glasgow	12
10/02/2022	AAC Workshop – Group 2: Communication Technologies and Strategies for Learners with ASN	Glasgow	10
10/02/2022	Technology for learners with dyslexia	Dyslexia Scotland	48
14/02/2022	AAC and technology for learners with communication support needs	Argyll & Bute	30
15/02/2022	Inclusive Digital Technology for learners with ASN	Dumfries & Galloway	75
15/02/2022	Assistive Technology for secondary learners and assessments	South Ayrshire	13
16/02/2022	Assistive technology for pupils with ASN: An overview for PSAs	Perth & Kinross	13
16/02/2022	AAC Technologies and Strategies for Learners with Communication Support Needs, South Lanarkshire Schools	South Lanarkshire	60
22/02/2022	Simple AAC technologies and strategies for learners with Communication Support Needs	Aberdeen City	28
01/03/2022	Developing numeracy skills for learners with complex needs	Perth & Kinross	28
01/03/2022	DS Tutors session 1: Supporting dyslexic pupils using technology (ages 7 – 10).	Dyslexia Scotland	24
07/03/2022	AAC Workshop – Group 1: Introducing the Proloquo2Go iPad Communication App to Learners with ASN	Glasgow	9

08/03/2022	AAC Workshop – Group 2: Introducing the Proloquo2Go iPad Communication App to Learners with ASN	Glasgow	10
17/03/2022	DS Tutors session 2: Supporting dyslexic pupils using technology (upper primary and high school).	Dyslexia Scotland	20
23/03/2022	Technology for Learners with Visual Impairment	Highland	5
24/03/2022	DS Tutors session 3: A beginner's session on how to use technology to support dyslexic learners.	Dyslexia Scotland	24
24/03/2022	AT to support dyslexic learners: Beginner's session	Dyslexia Scotland	44
31/03/2022	Making the Most of Clicker Writer	Glasgow	9
19/04/2022	Key iPad apps to access communication and learning	Aberdeen City	15
04/05/2022	AT to support learners with literacy difficulties	Aberdeenshire	50
05/05/2022	AT to support literacy difficulties	Aberdeenshire	40
05/05/2022	O365 tools to support literacy	South Ayrshire	63
05/05/2022	An introduction to creating a communication friendly school	Glasgow	24
26/05/2022	Controlling the Environment, Ideas for Eye Gaze and More!	Aberdeen City	19
22/06/2022	CALL Scotland Assessment and Support Service for AAC	Highland	27
28/06/2022	iPads to support learners with dyslexia	PATOSS	40
	Total number of participants		1169

Table 13: Number of INSET courses and participants

PL delivered in schools / authorities	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Number of courses	24	28	28	30	31	42
Number of participants	475	628	401	661	917	1169
Average number of participants per course	19.8	22.4	14.3	22	29.6	27.8

Figure 21: Participants on CALL Professional Learning events 2013-2022



Evaluation and Feedback

All participants in CALL courses are asked to complete an online evaluation from which we hope to gather information to improve our Professional Learning content and delivery. The response rate was 28.8% (79 out of 274) which is reasonable although we are keen to get as much feedback as possible and so are reviewing the timing of issuing the evaluation forms to optimise the chance of best success.

For the question, “On a scale of 1 to 10 how would you rate this training course?” 64.5% of participants gave a rating of 9 or 10.

For Insets delivered in a school or as part of a Local Authority Service Level Agreement, the dissemination of our evaluation form is carried out by the lead person in the school / Local Authority. We have no control over when this is sent out and therefore returns can be lower as this can take place long after the event.

The evaluation forms are not the only way we gather information. The chat panel in Teams is reviewed after the meeting and comments collated from there. If there is any personal follow up with participants, the Course leader will gather evidence about how the training session met their needs.

Table 14: Participants’ scores for Professional Learning delivered by CALL

On a scale of 1 to 10 how would you rate this training course?	Average Rating 2018-19	Average Rating 2019-20	Average Rating 2020-21	Average Rating 2021-22
Courses as part of the CALL CLPD Programme	9.4 / 10	9.1 / 10	8.7 / 10	8.7/10
INSET courses	9.3 / 10	9.3 / 10	9.1 / 10	8.9/10

‘Thanks so much for the CPD yesterday. It literally opened up a new world to me.’

(Teacher on Technology to support dyslexic students in high school INSET)

‘A great session with supportive modelling to share best practice.’

(SEN Teacher on Assistive Technology to support learners with literacy difficulties INSET for PATOSS)

‘I thoroughly enjoyed this training day and I learnt so much from it. Providing the recording of the training along with sending all the links has enabled, and will continue to enable me to refer back to them over again and I can share with my colleagues too.’

(Pupil Support Assistant on AT: An overview for PSAs INSET for Perth and Kinross)

CALL Webinars

Webinars are live, 20 – 30 minute presentations delivered via MS Teams. People who sign up are sent a Teams Meetings room link and can log listen to watch and can engage in discussion and ask questions via the Teams online chat panel.

CALL hosted 24 webinars during the year (21 in 2020-21); 9 by suppliers, 6 by practitioners, 9 by CALL staff which included 3 jointly presented webinars: Ailie Finlay and Joanna Courtney (My Kind of Book), Shirley Lawson and Fran Foreman (Technology and Dyslexia), Gillian McNeill and Stacey Atiyeh (SymbolStix: A symbol communication tool)



CALL Scotland



THE UNIVERSITY of EDINBURGH

Wednesday Webinar

Technology and Dyslexia - Free Accessibility Features




Fran Foreman, Education Scotland
& Shirley Lawson, CALL Scotland

25th May 2022 16.00-16.30 BST

Paul Nisbet delivered a series of 3 webinars on using technology in SQA examinations, each webinar focussing on a different device (iPad, Windows laptop, chromebook).

5,598 people registered for the webinars compared with 5,766 in 2020-21 while 1,076 viewed the live presentations in 2021-22, representing an average of 49 participants for each webinar.

A recording of each webinar is made available via the CALL website the day after the live broadcast. Links are automatically sent to everybody who signed up for the webinar, but the recordings can be viewed by any interested person. Past webinars are stored on the CALL Scotland YouTube Channel in a Webinars Playlist.

Table 15: CALL Webinars 2021-2022

Webinars 2021-2022	Date	Number booked	Number attended
Communication is for all with Twinkl	08/6/2022	305	30
Technology and Dyslexia – free accessibility features	25/5/2022	609	110
SymbolStix: a symbol communication tool	18/5/2022	179	18
Accessible and fun sensory stories!	04/5/2022	359	81
The Impact of Cerebral Visual Impairment on the Communication Needs of Children with Complex ASN	20/4/2022	221	41
Accessible video gaming for all	30/3/2022	129	16
Technology and SQA Assessment Arrangements Conversation – Chromebooks	24/3/2022	58	
Technology and SQA Assessment Arrangements Conversation – iPads	23/3/2022	64	27
Technology and SQA Assessment Arrangements Conversation – overview	22/3/2022	99	70
Music-making for all: Adapted musical instruments and apparatus	16/3/2022	157	27
Speech to text and the iPad Notes App	09/3/2022	696	200
Creating accessible documents	23/2/2022	247	75
Essay Writer: A visual writing tool	02/2/2022	151	
ASL legislation and children's rights	19/1/2022	190	82
Technology and Marginal gains – small changes make a big difference	08/12/2021	194	30
Voice and message banking	24/11/2021	110	12
iPad apps for learners with complex needs	10/11/2021	396	61
Google Action Blocks to support communication and physical impairments	03/11/2021	189	25
Finding and using accessible texts	27/10/2021	256	31
CALL Scotland Core Word Kit: creating communication opportunities	06/10/2021	244	32
Teaching deaf children in a pandemic	29/9/2021	105	21
Low cost digital visual supports	15/9/2021	249	20
Online resources to support literacy	01/9/2021	281	44
Speech recognition for communication impairments	25/8/2021	110	23
Totals		5598	1076

Table 16: Numbers of webinars and participants 2016 – 2022

Webinars	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Number of Webinars delivered	23	18	20	22	21	24
Number of participants registering	738	869	1,243	1,875	5,766	5,598
Number of participants attending						1,076

ASL & Technology Conference



Prior to Covid, CALL Scotland's annual [Additional Support for Learning and Technology Conference and Exhibition](#) was usually held across two days in Edinburgh and another venue in for example Glasgow, Aberdeen, Dundee or Inverness, in June. In 2020 with school closures we experimented with moving the conference online and we have continued this in 2021 and 2022.

The online format is very popular and our 2022 event offered 24 presentations from Assistive technology suppliers, CALL Scotland staff and practitioners. 195 practitioners and parents registered for the event at a cost of £5 which provided access to the live presentations and also the archive of all the presentations at the end of the event. Some teachers registered for the conference knowing that they only had a short break in the day to log in and learn but they were appreciative of having access to the recordings and would be using them as Professional Learning at a later date.

Evaluation forms were sent to participants after the event and 37 (18.9%) were returned. The responses showed the popularity of many of the workshops depending on their area of interest. Craig Mill's presentation on Microsoft Tools to support literacy difficulties was very popular as was Rossie Stone's presentation on Dekko Comics.

Participants were asked to rate the event on a scale from 1 to 10 and gave an overall rating of 8.84 out of 10, compared with 8.7 for last year's conference.

Sample comments from evaluations:

'Excellent day - very much worth the money. It is rare to get so much for so little! Well done to all who made this happen - you are all STARS!'

'Brilliant day. Thanks for organising this. I miss the in person interaction however an online event has the advantage that you do not have to travel.'

'Thank you so much, I came away from yesterday's conference inspired with new ideas. Some being free that I will be able to use straight away.'

'Really appreciate everyone's efforts yesterday - a well run, highly informative and helpful day.'

'I was reminded again today of how great the CALL website and resources are. Particularly the app wheel - I need to go back and look at this again. I will also look at the on-line free webinars available for my CPD. I always feel very inspired after attending this course and it's great to access all of the speakers that have such a great wealth of knowledge to share. Great for picking up ideas too!'

Conference Presentations

- Courtney, J. (2022) Royal Society of Edinburgh Poster Showcase, [Being and Belonging Early Years Conference](#), Online, 2nd March 2022.
- Courtney, J. (2022) Using Simple Communication Technology within the Classroom. [ASL & Technology Conference 2022](#). Online, 16 June 2022.
- Courtney, J and McNeill, G (2022) CALL Scotland – supporting learners with communication difficulties access the curriculum through AAC [Communication Matters International AAC Conference 2021](#). Online, 13 September 2021.
- Harrison, C. (2022) What is Tar Heel Reader? [ASL & Technology Conference 2022](#). Online, 16 June 2022.
- Harrison, C. (2021) Technology Tools for Interactive Schedules. [Closing the Gap Conference 2021](#). Online, 13 October 2021.
- Lawson, S. (2021) Technology to support dyslexic learners. Keynote presentation. [Dyslexia Scotland Conference 2021](#). Online 02 October 2021
- Lawson, S. (2021) Technology and dyslexia – it's a real game changer! Workshop. [Dyslexia Scotland Conference 2021](#). Online 02 October 2021
- Lawson, S. (2022) Technology to support autistic learners. [ASL & Technology Conference 2022](#). Online, 16 June 2022.
- McNeill, G. (2022) Introducing Activity-based AAC Tools to Learners with Complex Communication Needs. [ASL & Technology Conference 2022](#). Online, 16 June 2022.
- McNeill, G (2022) The CALL Scotland Wheel - iPad Apps for Complex Communication Support Needs: AAC – Rationale and Review. [Communication Matters International AAC Conference 2021](#). Online, 13 September 2021.
- Mill, C. (2022) Microsoft Word Tools to Support Literacy Difficulties. [ASL & Technology Conference 2022](#). Online, 16 June 2022.
- Nisbet, P. (2022) Technology for Digital Exams. [ASL & Technology Conference 2022](#). Online, 16 June 2022.

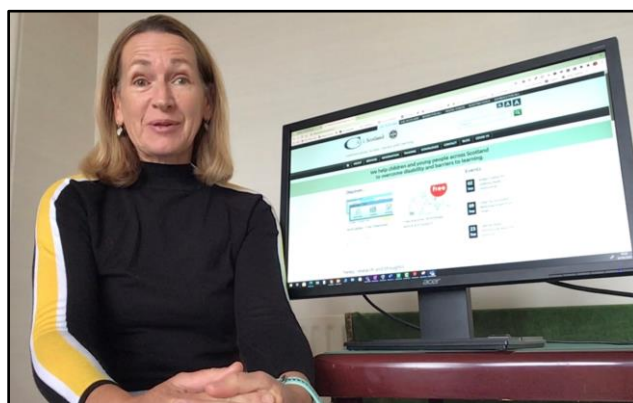


Figure 22: Shirley introduces her Keynote presentation at the Dyslexia Scotland Education Conference

Talks for parents groups and voluntary organisations

In past years we provided talks and informal presentations for parent and special interest groups, particularly for branches of Dyslexia Scotland, either on the work of CALL Scotland, or on how parents and carers can use technology to support their children at home.

In 2022, Shirley Lawson worked with Aberdeen based Parents Supporting Parents group and delivered three evening workshops on Assistive Technology to support children and young people with Additional Support Needs, primarily dyslexia and autism.

Table 17: Talks given in 2021-2022

Title	Organisation	Date	Number of participants
Introduction to CALL Scotland	PDNet (National network for staff working with pupils with Physical Disability)	08/6/2022	12
Eye Gaze Curve and CALL Scotland resources	AAC SIG-Eye Gaze Study Day	16/6/22	20
Using AAC to Support Communication Needs	Grab a Cuppa with Down's Syndrome Scotland (parents and carers group)	2/2/22	15

Introduction to Assistive Technology	Parents supporting Parents	25/1, 2/2, 22/2/22	25
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Exhibitions

In the past CALL regularly exhibited at local and national conferences, study days and other events, giving people an opportunity to find out more about the work of the organisation and raising the profile of CALL. Attending these events gave us a valuable opportunity for networking and dissemination of information and could lead to requests for Professional Learning.

Many face-to-face conferences were cancelled due to Covid-19 and in 2021-2022 CALL only exhibited at the Cerebral Palsy Scotland and Communication Matters online conferences and our own ASL Technology event.

Family Fun Technology Day

The biennial Family Fun Technology Day run in partnership with Augmentative Communication in Practice: Scotland took place online via Zoom on 30th October 2021 after having been cancelled in 2020 due to the Covid-19 lockdown.

There were low numbers for this online event which was perhaps to expected as this type of participative activity is best enjoyed in person. We are hoping to bring families and professionals together for the traditional Family Day in person in the near future.

Under and Post Graduate teaching

Angela Morgan's Review of the implementation of ASL was published in June 2020 and several actions around initial teacher education were identified in *section 5.1 Teacher Education and Development* of the [Scottish Government Additional Support for Learning Action Plan](#). We felt that we could contribute to these actions and Paul gave a presentation to Moray House Programme Directors that led to invitations to teach on several Moray House courses in 2021-2022.

Table 9: Presentations to Moray House students 2021-2022

Title	Moray House Course	Date	Number of participants
Inclusive Digital Technology for learners with ASN	PGDE Secondary	27/9/21	60
Inclusive Digital Technology for learners with ASN	MSc Transformative Learning and Teaching	6/10/21	40
Inclusive Digital Technology for learners with ASN	MA Physical Education	27/10/21	30
Assistive Technology and CALL Scotland	TESOL	3/02/22	70
Inclusive Digital Technology for learners with ASN	MA Primary Education with Gaelic	10/02/22	20
An overview of Assistive Technology for pupils with ASN	PGDE Primary	31/03/22	40
Inclusive Digital Technology for learners with ASN	MSc Bilingual Learners and Specific Learning Difficulties	5/4/22	40
	Total number of students		300

'You have all contributed magnificently to the success of another Professional Learning Week for MAPE students at University of Edinburgh.

Thank you so much for giving time, expertise and dedication to the ongoing professional learning of our future teachers of physical education.'

June Murray, MAPE PL co-ordinator, University of Edinburgh

Inclusive Digital Technology Professional Learning

In February 2022 CALL staff delivered the 10 week [Inclusive Digital Technology](#) (IDT) Professional Learning course, in collaboration with the Moray House School of Education and Sport Professional Learning program.

This year we revised the IDT course from a Masters level learning opportunity to a more practical assistive technology course. The mandatory 3000-word course assignment was replaced with an optional activity and some students opted to complete one of the AAC Learning Module sections or the Creating Accessible Document module. The cost was reduced to £450 from £700.

40 people attended the course (with a waiting list) from across the UK compared to an average of about 15 over the previous years. The majority of participants were teachers from Scottish schools, including primary, secondary and specialist provision.

Everyone commented that they had enjoyed the course and appreciated the level of support they had received. Similar to the previous years, feedback was very positive.

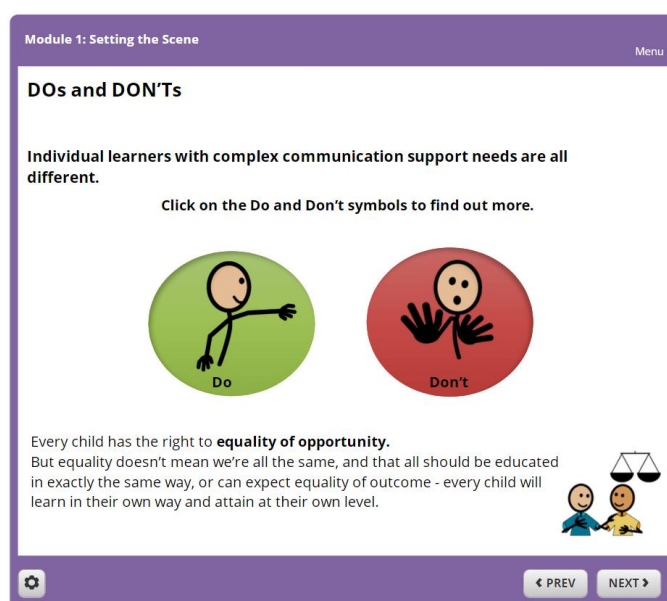
Online AAC modules

The original *Introductory Modules* were made available on the [AAC Scotland](#) website in 2014 and were joined by the more comprehensive *AAC in Education* modules in 2018. The *Introductory Modules* are also available on the [NHS TURAS](#) learning platform.

The modules are aimed at services, teams or individuals to help them review their current knowledge of Augmentative and Alternative Communication, develop best practice and to ensure positive outcomes for people who use AAC.

A wide variety of individuals, from different sectors such as education, health, care and the community, use the modules to increase their knowledge and skills. Many are engaging with or supporting individuals with AAC within Scotland, however evidence shows use much further afield and internationally. While the completion statistics show a sharp rise in 2020-21, probably due to school closures during Covid, followed by a fall in 2021-2022 fall, a trend typical of other online resource use, completions for 2021-2022 are higher than pre-pandemic levels.

People who finish the modules are invited to complete a feedback form and this provides an indication of the number of users who complete the modules and feedback on how they could be improved.



In response to the question “On a scale of 1 to 5 how would you rate this training module? (1 low - 5 high)”, the average responses to 31/7/22 are given in Table 18.

Table 18: AAC Online Module ratings

AAC Online Module ratings overall	Average rating (scale 1 to 5)
Introduction to AAC (11,973 completions to 31/7/22)	4.73
AAC in Education (4,160 completions to 31/7/22)	4.7

Written feedback is overwhelmingly positive, as demonstrated in the following quotes in response to the question “*What did you like best about the module?*”.

<p><i>‘AAC is very well explained with lots of good examples.’</i></p> <p><i>‘I liked that in addition to informing me about the different methods of communication the module also showed real life people using the different communication aids in the real world.’</i></p> <p><i>‘The visual supports were great.’</i></p> <p><i>‘As a new member of staff, I found the Widget section/video very informative and helpful.’</i></p> <p><i>‘By viewing video clips, I understood the development of the child /student in using AAC.’</i></p>
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Table 19: Introductory AAC Online Modules

Visits and completions of the five Introductory AAC Modules					
Module	2018-19	2019-20	2020-21	2021-2022	Totals
Total completed feedback forms	576	6,784	2,910	1,698	11,973

Table 20: AAC and Education Online Modules

Visits and completions of the seven AAC & Education Modules					
Module	2018-19	2019-20	2020-21	2021-2022	Totals
Total completed feedback forms	56	3169	536	396	4,160

Note that we do not have data for use or completions of the *Introductory Modules* hosted on the NHS [TURAS](#) learning platform.

Inclusive Digital Technology Online Modules

Last year we noted that there is a need for free, accessible online learning modules addressing the application of Inclusive Learning Technology. The response to and use of the AAC Modules suggests that practitioners are likely to welcome similar resources targeted at the use of technology to support learners with additional support needs arising from other factors, such as for example, dyslexia, and on specific technologies.

Craig has developed and published an online learning module on [Creating Accessible Documents](#) to accompany [11 videos](#) he created in 2021. As more and more learners are provided with personal digital technology, it is essential that digital learning resources are accessible for learners with additional support needs, and Craig's module provides a comprehensive introduction to the topic.

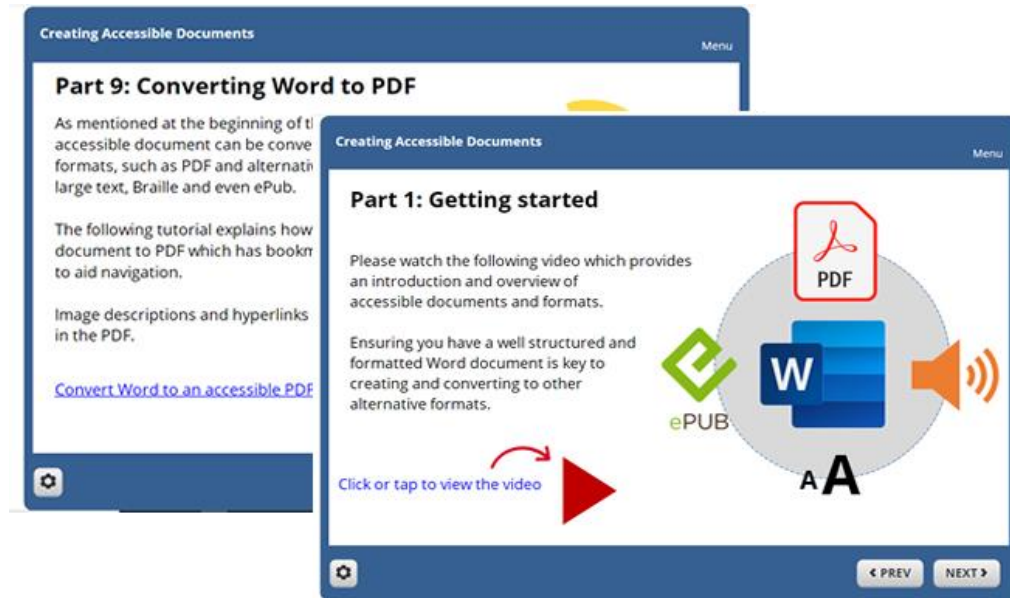


Figure 23: Creating Accessible Documents Learning Module

To date 11 people have completed the module, submitting an 'accessible document' and proof of their work. In addition, 9 staff from Riverside College in South Wales also completed the module as part of a staff development training session. Craig has since asked the College trainer to identify a colleague in the college to mark the assignments. Clyde College in Glasgow use the module as part of their staff Moodle training.

'I wanted to drop you a quick note to say thanks for sharing the Accessible Word training file and YouTube video playlist. These are great - clear and concise! I have been pushing digital accessibility as my training theme at Glasgow Clyde throughout March, and these will work as a great set of resources to revisit these themes during our CPD slots in June. Thanks again for sharing great resources and supporting the community.'



Assistive Technology Loans and Support

Objectives

To provide a National Assistive and Communication Technology Equipment Bank, with technical services to enable learners with complex additional support needs to evaluate specialist technology across Scotland.

Expected outcomes

Learners with additional support can evaluate equipment before purchase.



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OUTCOMES

- **94** devices and software with a total value of £14,008 were added to the Loan Bank last year. This compares with £3,234 spent on 35 new items in 2020-21.
- The most expensive items purchased were 29 new iPads with cases (£8,231) to replace the devices used by staff for research, assessment and professional learning and for loan for evaluation. iPads are now often used as communication aids, and of course are being provided to every learner in some local authorities as part of 1:1 technology programmes. iPads have some features that suit many learners with ASN and so it is important that the CALL team and learners have use of devices that can operate with the current iOS and apps.
- The other items purchased were mostly switches, low-cost communication aids, cases, stands and interfaces.
- **88** items at a cost of £13,552 were purchased through core funding from the Scottish Government. The remaining items were purchased with other funds or provided free by suppliers for evaluation purposes.
- **202** equipment loans with a total value of £47,345 were made for clients in 21 local authorities.
- **127** loans were provided for CALL Scotland assessment clients, representing 63% of all loans.

The number of loans of equipment have increased to similar levels to those pre-Covid, reflecting the opening of schools and greater opportunity for the CALL team to visit and support learners in schools. Arrangements remain in place for enhanced cleaning and sanitisation of equipment prior to a loan and when it is returned.

77% of the borrowers were 'Very Satisfied' with the loan service and the remaining 23% were 'Satisfied'.

Table 21: Summary of Equipment Loans 2016 - 2022

Summary of Loans	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Number of loans	232	228	307	215	144	202
Value of loans	£69,000	£53,450	£44,960	£40,466	£24,723	£47,345
Number of Loans to Assessment Clients	163	104	195	134	82	127
Number of instances of technical support	53	54	48	17	11	1
% "Very Satisfied" with CALL Loan Service	96	77	76	93	95	77

Table 22: Categories of Equipment Loaned

Type of Equipment	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Computer	16	17	22	12	5	6
Computer Accessory	7	13	22	7	5	5
Keyboard / Alternative	13	11	12	14	18	14

Type of Equipment	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Mouse / Alternative	24	24	35	24	16	17
Tablet	25	24	35	20	16	30
Tablet Accessory	44	24	42	25	16	30
Communication Aid	30	23	21	25	12	18
Interface / Mount / Switch	41	59	69	60	36	41
Reading / Writing Aid	12	18	13	10	9	9
Toy	11	9	20	12	3	20
Other	9	2	2	6	3	11

Table 23: Investment in Technology Bank 2016-2022

Investment in Technology Loan Bank	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Scottish Government Learning Directorate	15,400	10,035	12,796	3,970		13,552
Other income	2,658	2,186	500	-	-	
Scottish Government Health and Social Care Integration Directorate			30,345	3,589		
Number of items added	157	107	148	68		94
TOTAL	£18,058	£12,221	£43,641	£7,559		

Technical Support

According to our Activity Database, only 1 instance of technical support was recorded but this is not accurate: the CALL team spend a great deal of time preparing and configuring equipment to meet individual needs, and developing bespoke activities. It is likely that this activity is recorded as 'Support' for learners in the database. We will 'retire' this category of activity in future reports as it is not representative.

Evaluation and Feedback

Borrowers are asked to complete a feedback form when returning equipment. There was feedback on the outcome of a loan for 36 of the 94 loans returned in 2021-22 (38%). The table below summarises the outcome.

Table 24: Outcome of loans

Outcome of loan	Number	%
Equipment met the client's need	21	58%
Did not meet the client's need	8	22%
Inconclusive	7	19%

21 feedback forms gave an indication of future action to be taken.

Table 25: Future action

Future action	Number	%
Buy this system	8	38%
Borrow/try something else	7	33%
Seek further information	3	14%
Don't know	3	14%

Borrowers were asked to provide feedback on the loan service itself and the table below summarises responses.

Table 26: Evaluation of the CALL Loan Service

Future action	Number	%
Very satisfied	43	77%
Satisfied	13	23%
Dissatisfied	0	0%
Don't know	0	0%

Thank you for the loan, which was very successful. My daughter has now purchased a big trackball for her own use. As its quite an expensive item, she wouldnt have wanted to buy it without testing it for a few seeks first. Thanks again for a great service.

(Parent borrowing BigTrack trackball)

Really useful piece of equipment. Had to borrow 'extension' section to make long enough. pupil now moved on but new establishment intend to buy as far as I know.

(OT on borrowing Flexzi switch mount)



Strategic Relationships and Collaboration

Objectives

To align CALL's strategic aims, objectives, structures and processes in response to Scottish education policies and priorities, emerging models and procedures for Commissioning of National Services and legislation on provision of Communication Equipment.

Expected outcomes

Include strengthened relationships with key stakeholders in respect of CALL Scotland's national impact and role.

To develop a transition plan to manage changes as a result of implementation of the Doran Review recommendations in relation to National services.



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OUTCOMES

Scottish Government

Doran Review and National Commissioning

An objective for 2021-2022 was to “align CALL’s strategic aims, objectives, structures and processes in response to Scottish education policies and priorities, emerging models and procedures for Commissioning of National Services”.

The [National Commissioning Group](#) (NCG) last met on 28th April 2021 and there has been little progress on models or procedures for commissioning of national services, which limits scope for developing CALL’s aims and objectives. Paul Nisbet represents CALL, Scottish Sensory Centre and Enquire on the NCG and we have a good relationship with the group. We understand that the 10 year Strategy timeline has been extended to 2028-2029.

A tender for qualitative research was prepared to investigate “ways in which support for pupils with complex additional support needs is provided within Scotland to reach their full potential”. A tender⁷ for the project was listed on 7th October 2021 and 10th June 2022⁸ and the contract has been awarded to [Humanly](#).

ASL Review

Angela Morgan’s *Review of additional support for learning implementation* was published in June 2020⁹ followed by the Scottish Government *Action Plan* in October 2020¹⁰ and a progress report on the actions in November 2021¹¹.

A direct outcome of the action plan has been provision of teaching by the CALL team for students on Moray House courses – see Under and Post Graduate teaching.

The [Additional Support for Learning Implementation Group](#) (ASLIG) oversees progress on the plan and an ASL Network was created in Spring 2022 to which CALL colleagues are contributing. A second iteration of the Action Plan is to be published in Autumn 2022. CALL’s Annual Reports of [2019-20](#) and [2020-21](#) provide commentary on the Review and Action Plan and we will work to make sure that the potential of communication and assistive technology is reflected in the revised plan.

Scottish Education Reform

Following the report from OECD¹² around the implementation of Curriculum for Excellence, Scottish Government [announced intention to reform](#) SQA and Education Scotland and a report by Ken Muir was published in March 2022¹³. Recommendations include stimulating a national discussion on the vision for Scottish education, establishment of a new qualifications and assessment body to replace SQA, formation of an executive agency for education and a new inspectorate body. CALL will contribute to the discussions around the national vision and seek to

⁷ Scottish Government (2021) [Research into provision for pupils with complex additional support needs in Scotland](#) tender notice, 7/10/21.

⁸ Scottish Government (2022) [Research into provision for pupils with complex additional support needs in Scotland](#) tender notice, 6/10/22.

⁹ Scottish Government (2020) [Review of additional support for learning implementation: report, 19/6/20](#).

¹⁰ Scottish Government (2020) [Additional support for learning: action plan, 21/10/20](#).

¹¹ Scottish Government (2021) [Additional support for learning action plan: progress report, 1/11/21](#).

¹² OECD (2021), Scotland’s Curriculum for Excellence: Into the Future, Implementing Education Policies, OECD Publishing, Paris, <https://doi.org/10.1787/bf624417-en>.

¹³ Scottish Government (2022) [Putting Learners at the Centre: Towards a Future Vision for Scottish Education](#). 9/3/22

work with the new bodies to ensure that the needs of learners who require assistive and inclusive digital technology are addressed.

1:1 Digital Technology

In March 2021 John Swinney said *“Just as in my day, the teacher handed out a jotter to all, so in this internet age, we will hand each child the device they need to learn and prosper”*¹⁴. Scottish Government has begun working with local authorities *“to provide every school pupil in Scotland with a laptop or tablet”* and is considering *“how to deliver consistent digital infrastructure across Scotland’s 2,500 school buildings”*¹⁵.

We know from our work in and with practitioners that different local authorities are at different stages in the 1:1 programme, and we also carried out research in 2021-2022 as part of work for SQA, to map the type of devices (Chromebooks / iPads / Windows OS) that are being deployed. Some local authorities are far forward with a 1:1 deployment: pupils in Primary 6 and above in Edinburgh¹⁶, Falkirk¹⁷, Glasgow¹⁸ and Scottish Borders¹⁹ are being provided with iPads; while learners in Aberdeen²⁰, Highland²¹, Stirling²² and West Dunbartonshire²³ are receiving Chromebooks.

Providing a personal digital device to every learner has huge potential for learners with additional support needs. The accessibility tools that are built into modern Chromebooks, iPads and Windows devices are improving continually and so learners are more able to access learning through technology on a par with their peers. As digital learning becomes more common, students and educators will develop more effective working practices and skills. Any stigma that might have been associated with specialist assistive technology is less likely to occur when all learners are using the same digital devices.

However, the potential of 1:1 technology will only be realised by ensuring that the 1:1 devices are accessible for learners with additional support needs; that learning resources are accessible; that reliable digital infrastructure is in place; and that educators, learners and parents/carers have digital skills to use the technology for teaching and learning (Figure 24: Components of Inclusive Digital Technology).

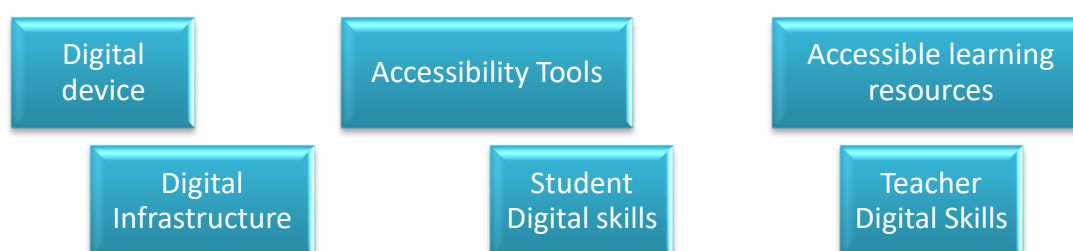


Figure 24: Components of Inclusive Digital Technology

¹⁴ SNP (2021) [A laptop or tablet for every school child](#). 28/3/21.

¹⁵ Scottish Government (2021) [Devices for 700,000 children](#). 16/8/21.

¹⁶ City of Edinburgh Council (2021) [Digital boost for pupils with 39,000 iPads in 1:1 roll out](#). 1/4/21.

¹⁷ Falkirk Council [Connected Falkirk](#). Accessed 19/2/22.

¹⁸ Glasgow City Council (2018) Digital Glasgow Strategy. Available at:

<https://www.glasgow.gov.uk/councillorsandcommittees/viewSelectedDocument.asp?c=P62AFQDN2UUTDNUT81>.

¹⁹ Scottish Borders Council (2019) Inspire Learning FAQs. Available at:

https://www.scotborders.gov.uk/info/20009/schools_and_learning/914/inspire_learning_faqs.

²⁰ LendED (2020) [Aberdeen schools make curriculum accessible to all learners with Read&Write](#).

²¹ Highland Council (2015) [Final ICT in Learning Strategic Action Plan 2015](#).

²² Stirling Council (2018) [Chromebooks and G Suite](#).

²³ West Dunbartonshire Council (2016) [2016/17 Administration Strategic Budget and Capital Plan](#)

Accessibility Standards, Equality and GDPR legislation

We have had discussions with colleagues in Scottish Government and local authorities who are involved in these digital learning programmes throughout 2021-2022 and with teachers and educators in schools because we need to ensure that accessibility tools are available on the devices that are being given to learners.

There is a challenge around the need to undertake a Data Protection Impact Assessment (DPIA)²⁴ on software, apps or digital learning resources. The DPIA process is complex and time-consuming and practitioners report that it can take up to two years for an app or resource to be made available. As a result, it seems that resources required for learners with disabilities or additional support needs are not being made available.

For example, a Qualified Teacher of the Visually Impaired emailed about difficulties with accessing the free Microsoft Seeing AI app on iPads that were provided to learners with visual impairment:

“Within authority we have been trying hard to get Seeing AI installed on I-pads for our VI pupils however our learning team are currently encountering some hurdles regarding setting this up due to GDPR as it scans and stores information relating to individuals. Has anyone managed to overcome this?”

A teacher who works in a special school and who attending the CALL Inclusive Digital Technology Professional Learning course wrote that:

“We are having big issues with the lack of apps we are able to download on ours and the pupils iPads, as from what I can see there are no communication apps approved by XXXXX council and getting approval is taking months. So I have lots of ideas about things I want to implement with my pupils and am not able to access them as yet. It is extremely frustrating!”

A striking example relates to the use of iPads for students with disabilities or additional support needs as Assessment Arrangements in SQA examinations. Our research suggests that very few, if any, students in Edinburgh, Glasgow or Scottish Borders used an iPad to access SQA Digital Question Papers in the 2022 examination diet, and one reason is that the iPads supplied to students do not have a suitable app to access the digital papers. The situation with Chromebooks is also very poor although this is because satisfactory apps for accessing digital papers do not exist, unlike the iPads in the three local authorities, where they do exist but are not available to learners.

It does not seem satisfactory to provide learning tools to learners with disabilities or additional support needs that cannot be used for external assessments.

In March 2022 we held webinars on this topic and two teachers expressed their frustration with the situation:

“I think the biggest thing for me is that it shouldn't be this complicated for learners that already struggle to access the curriculum and evidence their learning. If they are used to using a particular device that is what they should be able to use for exams.”

“the experience that a pupil gets in exam situations, HAS to replicate what they have in school”

²⁴ Information Commissioner's Office. [Data Protection Impact Assessment..](#)

This situation is not confined to authorities that are provisioning iPads – the requirement to undertake DPIAs is on all local authorities and the difficulties of meeting the duty, for learners with additional support needs who use technology, has been raised by colleagues at ATLAS, ASLO and CALL Steering Group meetings.

Compliance with GDPR legislation is essential but so is compliance with the Equality Act 2010 and with the duty to provide adequate and efficient provision of school education and to provide additional support for learners with ASN. We argue that the system as it is currently implemented in some authorities appears to restrict access to facilities that are necessary for children with disabilities to access education, and therefore may be discriminatory under the Equality Act 2010.

In October 2014, the Scottish Government published Statutory Guidance for education authorities on planning improvements for disabled pupils' access to education which recommends that:

“Procurement decisions for hardware and software have due regard to accessibility and reasonable adjustment duties under the Equality Act. In particular, no extra cost should be charged for changes made to systems as part of reasonable adjustments made.”²⁵

What practical steps can be taken to address this situation and ensure that **all** 700,000 learners in Scotland are able to benefit from the promised 1:1 digital technology?

One outcome of our discussions with ASLO is that colleagues report that the [Glow Key Contacts](#) from each local authority are aware of the issues around DPIA and are trying to share DPIAs in an effort to reduce the time it takes to complete them. This may help to address the issue.

However, the situation highlights that the processes for provision of digital technology for learning must be **designed** such that accessibility tools, apps and resources can be made available for learners with disabilities and/or additional support needs.

As part of the programme of provision of 1:1 digital technology, we suggest that Scottish Government should develop **statutory Guidance on Accessibility Standards** to support local authorities and responsible bodies.

The DPIA process for apps and digital learning resources must not discriminate against learners with disabilities and additional support needs. Practically, local authorities might ‘fast-track’ the process for resources that are required by learners with protected characteristics as a reasonable adjustment.

Scottish National Standardised Assessments

The [£17 million contract](#) to provide SNSAs from April 2021 to August 2024 was awarded to [AlphaPlus](#), a UK firm based in Manchester. The new assessments are scheduled to be live in autumn 2022. It is clearly essential that the assessments are accessible for learners with ASN: trials were planned with learners with ASN for June and we understand that these will happen at the start of the 2022-2023 session.

Paul is a member of the ASN User Group and has given comment and assistance to the Scottish Government, Education Scotland and AlphaPlus development teams.

²⁵ Scottish Government (2014) [Planning improvements for disabled pupils' access to education: guidance for education authorities, independent and grant-aided schools](#).

Education Scotland

- Paul is a member of the [Addressing Dyslexia Toolkit](#) working group funded by Scottish Government and chaired by Fran Foreman, Senior Education Officer, Inclusion, Educational Scotland.
- Fran Foreman represents Education Scotland on the CALL Scotland Steering Group.
- Paul presented to a meeting of the Raising Aspirations in Science/STEM Education (RAiSE) ASN network in May 2022.
- The CALL team engaged with a team from Education Scotland and Scottish Government investigating how Glow can be improved to better support educators and learners (February 2022).
- The CALL team are in regular contact with the Education Scotland [DigiLearn team](#).

Scottish Qualifications Authority

In 2022-2023 we continued to work with SQA to provide advice, support and professional learning on use of technology as Assessment Arrangements to SQA, schools and learners. This work is funded by SQA and discussed in ***Assistive Technology and National Qualifications*** and involves provision of advice and information to colleagues in SQA, local authorities and schools, learners and parents, and research, development and knowledge exchange through for example the CALL Adapted Digital Assessments web site²⁶.

We undertook research into the use of technology for Assessment Arrangements and submitted a report to SQA on 6th August 2021. This was felt to be of interest to all stakeholders and a revised version was published in October 2022²⁷.

2022 saw the return of traditional external examinations and this was a new and unfamiliar experience for many learners (and staff). The digital learning context has also changed, with large scale 1:1 device programmes and the development of digital teaching and learning more generally.

SQA commissioned further research into the use of technology as Assessment Arrangements and we delivered a report to SQA in August 2022.

Paul is a member of the SQA Equality and Inclusion Key Partners group.

Regional Improvement Collaboratives

CALL staff liaised with Education Scotland staff and others involved in Regional Improvement Collaboratives on a range of topics.

Association of Support for Learning Officers Scotland (ASLO)

Paul regularly attends monthly ASLO meetings which are extremely valuable for environmental scanning, to gather intelligence across Scotland, and to disseminate information about CALL Scotland services and products.

Implementation of 2016 AAC Legislation

The Health (Tobacco, Nicotine Etc. And Care) (Scotland) Act: Provision of Communication Equipment was commenced on 19th March 2018. The Act places a duty on Scottish Ministers to:

²⁶ CALL Scotland (2021) [Adapted Digital Assessments](#).

²⁷ Nisbet, P. (2022) [SQA and Assessment Arrangements into the Future](#).

“meet all reasonable requirements, provide or secure the provision of
a) communication equipment, and
b) support in using that equipment,
to any person who has lost their voice or has difficulty speaking.”²⁸

Scottish Government published [Guidance on the Provision of Communication Equipment and Support in using that Equipment](#)²⁹ to support delivery of the legislative duty in May 2018 followed by *The National Augmentative and Alternative Communication (AAC) Core Pathway*³⁰ on 30th August 2018.

Implementation of the legislation by health boards and AAC services has developed over the year with guidance from the Scottish Government Augmentative and Alternative Communication and Sensory Loss Team and the National AAC Advisory Group. The AAC Work Plan for 2022 has been discussed and is due to being finalised soon.

Visit by Kevin Stewart MSP, Minister for Mental Wellbeing and Social Care

Kevin Stewart MSP, the Minister for Mental Wellbeing and Social Care with responsibility for AAC took up an invitation to visit CALL in April this year. He had expressed an interest in finding out about AAC services and the personal stories of AAC users, and CALL were delighted to host his visit. Mr Stewart met with Dr Laura Colucci-Gray, Head of Institute for Education, Teaching and Leadership at Moray House and the CALL team, who shared their roles in assessing and supporting learners who use AAC. Paul, Gillian and Joanna presented case stories to demonstrate the assessment and support requirements and experiences of learners who use AAC. The Minister later wrote:

“I was genuinely delighted to have the opportunity to hear from you and the team about the services you are delivering to support children and young people across Scotland. I was particularly pleased to hear the personal stories of some of the children you support and to hear the positive impact Augmentative and Alternative Communication (AAC) is having on enabling those children to participate, not only in an education setting, but also socially and at home. I welcomed the opportunity to see the communication devices in action and to personally try them out.”

Working Groups

Several work strands from the AAC work plan have progressed over the year, including developing national data and evidence, and identifying AAC learning needs and provision of resources.

A User Engagement Group was convened, and Gillian has participated in this, to develop a strategy for collecting information from AAC users on the impact of the 2016 legislation. The outcome will inform future implementation of the legislation. A leaflet inviting AAC users and their families/carers to participate was widely distributed online and 23 people made contact and offered involvement. Interview strategies including questions, are being piloted in September 2022 with interviews to begin soon after.

²⁸ Scottish Parliament (2016) Health (Tobacco, Nicotine Etc. And Care) (Scotland) Act: [Provision of Communication Equipment](#)

²⁹ Scottish Government (2018) [Guidance on the Provision of Communication Equipment and Support in using that Equipment](#)

³⁰ Scottish Government (2018) [The National Augmentative and Alternative Communication \(AAC\) Core Pathway](#)

Augmentative Communication in Practice: Scotland (ACiP:S)

[ACiP:S](#) is a national network linking specialist AAC services and professionals; children and adults who use AAC (and their families); statutory services and voluntary agencies; and that provides resources, information and support.

Gillian is the current Chair for this network group and Joanna is a committee member. Other committee members represent AAC services across Scotland.



During 2021 - 2022 the work of ACiP:S focused on facilitating the AAC SLT Leaders Network from across Scotland to meet regularly with the ACiP:S committee to discuss the implementation of the 2016 AAC legislation and share good practice and service procedures for supporting people who use AAC. One topic discussed was the need to undertake Data Protection Impact Assessments (DPIA) for AAC equipment (see above) which is particularly relevant given that personal data is most often stored within AAC devices. The Fife AAC service has undertaken extensive investigation and the findings are now being discussed with Scottish Government; it is hoped that a national approach can be implemented.

Communication Matters

The annual [Communication Matters International Conference](#) in September 2021 was held online using a mixture of live and pre-recorded videos. Speakers were drawn from the UK as well as international contexts, sharing research, professional or personal perspectives on AAC. Gillian presented a workshop on *The CALL Scotland Wheel - iPad Apps for Complex Communication Support Needs: AAC – Rationale and Review*, and Gillian and Joanna jointly presented on *CALL Scotland – supporting learners with communication difficulties access the curriculum through AAC*. At the awards ceremony CALL Scotland received a Highly Commended award in the Group of the Year category.

CALL was grateful to share testimonials in support of the award entry, including this from Cara Chalmers who is a Speech and Language Therapist in NHS Forth Valley.

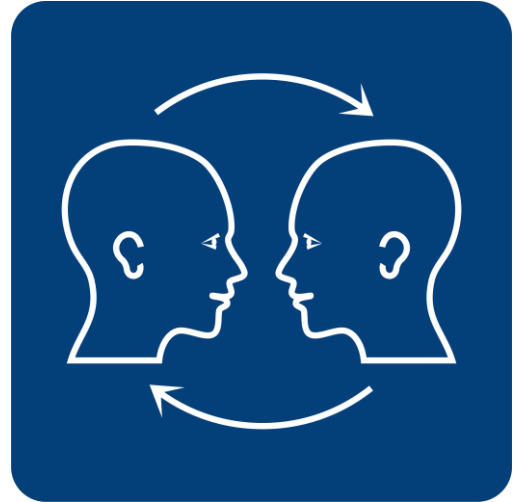
"I have had the pleasure of working with Gillian, Paul and the team at CALL Scotland, largely around the support needs of a young person on my caseload who is an eye gaze AAC user, for almost 10 years now and cannot praise their support for myself, the young person, his family and the team around him in education enough. When I first started to support the young person, the use of eye gaze technology to support communication and access to learning was brand new to all supporting him. Thanks to the innovative support, training, advice and guidance that has been offered by the CALL team from the start in a practical and hands-on way, in particular from Specialist Speech and Language Therapist Gillian McNeill and Director Paul Nisbet, the local team has grown in knowledge and confidence in meeting his evolving communication and learning needs.

The impact on my young person in terms of increased independence and inclusion through access to CALL's innovations can't be overstated. This has included the young person being one of the first to benefit from the development of new child and teen Scottish dialect voices developed by CALL and Cereproc, finally enabling him to communicate using a voice more appropriate to his age and cultural identity, as well as improved access to learning through resources such as the Books for All digital books database and a variety of bespoke adaptations to his assistive technology for communication and learning as he has grown and developed.

I know that the lives of countless children and young people the length and breadth of Scotland have been changed thanks to the unique contribution of CALL within their sector and the highly specialist assessment, support and access to equipment they provide, and have no hesitation in endorsing their entry for the Group of the Year Award."

Communication Access UK

Communication Access UK is an initiative developed in partnership by charities and organisations that share a vision to improve the lives of people with communication difficulties. The purpose to facilitate organisations and individuals to adopt inclusive communication strategies when communicating with people who use AAC and make this visible to the public through displaying the Communication Access Symbol. The CALL team completed the necessary training and as an organisation, CALL made a set of commitments and received accreditation in May 2022. The actions are to recognise communication support needs, find out what support is required by an individual, provide support in an inclusive and accessible way, and to display the symbol in our office, on our websites and within online communication.



Local authorities

CALL continues to provide assessment and support for individual learners, professional learning and technical expertise tailored to individual local authority contexts through partnership agreements with 20 local authorities and schools in 2021-22; see **Section 2**.

Outcomes funded through Partnerships.

Assistive Technology for Learning Across Scotland (ATLAS)

ATLAS is the national group of practitioners working in the field of technology to support children and young people with Additional Support Needs and / or disabilities. The group is convened by Claire Harrison and currently has 24 members (including CALL staff) representing 21 Local Authorities. Group membership is declining and we continue to have concern that some local authorities do not have a named contact with specific responsibility for assistive technology for learners with additional support needs.



The group communicates online via a Google Group forum: posting and answering questions, sharing resources and suggesting solutions to problems. The ATLAS group met by video conference on 3 November 2021, 23 February 2022 and 1 June 2022. The meetings provide a valuable opportunity to share best practice, engage in Professional Learning and provide feedback via representatives from Assistive Technology companies and discuss a wide range of current issues.

The impact of DPIA on access to apps and software has been a main concern and discussion topic throughout the year.

Other Topics included:

- Roll out of 1:1 devices and how to ensure they are configurable to meet the needs of learners with ASN.
- Practical issues related to SQA examinations and the use of assistive digital technologies.
- Practical issues related to Boardmaker 7 software.
- AAC visual supports for Ukrainian refugees and other learners with English as an Additional Language.

Claire surveyed the ATLAS membership and gleaned useful information about the group and what they feel is helpful in their roles:

The meetings have been very helpful and informative and have given loads of advice and information.

It is useful to hear what is going on elsewhere in Scotland & to have a network of contact for advice.

The practical strategies of supporting learners with diverse needs are really useful

It's a really important forum for supporting AT practitioners across the country.

CALL Assistive Technology Community

Craig manages the [CALL AT Community in Scotland](#) - an online forum for teachers, parents and other professionals with an interest in the use of assistive technology in education, including further and higher education. It allows members to share ideas and resources, to ask questions and post answers. Many people in assistive technology work in relative isolation and value opportunities to interact with colleagues with a shared interest.

Other collaborations

- Discussions with software and communication aid suppliers making an input to product development.
- Presentations at Dyslexia Scotland online events (Allan, Craig, Shirley).

2021-2022 advisory and working group memberships

- AAC Advisory Group (Gillian and Joanna).
- AAC Advisory Group User Engagement working group (Gillian).
- AAC Leads for Scottish Health Boards (Gillian and Joanna).
- Addressing Dyslexia Toolkit Working Group (Paul).
- Augmentative Communication in Practice: Scotland (Gillian and Joanna).
- Doran National Strategic Commissioning Group (Paul).
- National Digital Learning Forum (Paul).
- DfE Access Consultation Forum (Paul).
- Scottish Government ASL Network (Paul).
- Scottish Qualifications Authority Equality and Inclusion Key Partners' Group (Paul).
- SNSA ASN user Group (Paul).

Section 2.

Outcomes funded

through

Partnerships.



Assistive Technology Assessment and Support

The Scottish Government core grant funds CALL's information and advice service (see ***National Information and Advice***) which provides free telephone, email and online support in respect of individual children and young people.

Some local authorities in Scotland wish more intensive assistive technology assessment and support for individual learners and we can provide this under a Partnership Agreement.



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OUTCOMES

Table 27: Assessment and Support 2016-2022 summarises activities to directly support children and young people.

Pupils

- **59** pupils were referred for assessment and support compared to 40 in 2020-2021. This may be a result of referrals being delayed over the past few years as a result of Covid.
- **51** pupils received a comprehensive assessment for communication and/or assistive technology (20 in 2020-21). The number of learners who received assessment for assistive an/or communication technology this year returned to pre-Covid levels.
- **85** pupils were supported through personal CALL team visits to school or home visits compared to 11 pupils in 2020-21, reflecting the re-opening of schools over the past year.
- **49** pupils were supported through online support sessions (41 pupils in 2020-21).
- **222** pupils in **22** local authorities were supported directly in school or indirectly through telephone, online or email advice (209 pupils / 24 local authorities in 2020-21).

Assessment and support sessions

The CALL team provided **57** assessment sessions either in person or online in 2021-2022 compared to 31 the previous year, again reflecting increased access to schools following Covid closures.

Similarly, the number of personal visits to support learners following assessment increased from 32 in 2020-21 to 83 in 2021-22.

The number of support sessions provided online give a good example of the development of online working that has occurred as a result of Covid: from 17 in 2019-20 at the start of Covid, to 187 in 2020-21 when schools were closed for part of the year, to 127 over the past year. We think that online support is likely to continue to provide an effective means of supporting learners, practitioners and parents.

Partnerships with local authorities and schools

16 Partnership Agreements or Service Level Agreements (SLAs) were negotiated with local authorities and schools: Aberdeen; Argyll & Bute, Clackmannanshire, Dumfries & Galloway, East Renfrewshire, Falkirk, Glasgow, Highland, North Ayrshire, Perth & Kinross, Renfrewshire, Shetland, South Ayrshire, South Lanarkshire, Stirling and West Dunbartonshire. We also had agreements with Dundee, East Dunbartonshire and Inverclyde to provide support for learners as required on a 'pay as you go' basis.

210 days of assistance was charged for in 2021-22 (204 days in 2020-21).

The number of online support sessions decreased to 127 from 187 in the previous year, again reflecting a shift from online support to more in-person visits. Online support is likely to remain a significant mode of contact: it enables the CALL team to participate more easily in Child's Plan and Review meetings and to provide direct (non) hands-on remote support and training for staff. This is particularly valuable when many of the learners we support are some distance from Edinburgh – for example, living in Stranraer or Shetland.

Table 27: Assessment and Support 2016-2022

Number of ...	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Pupils referred for assessment and support	42	48	49	36	40	59
Pupils supported through assessment			54	45	20	51

Pupils assessed/supported on site	99	90	104	90	11	85
Pupils assessed/supported online	1	1	4	10	41	49
Pupils supported in total	131	163	185	202	209	222
Assessment sessions in person or online	63	59	45	47	31	57
Support visits in person	77	87	121	90	32	83
Support sessions online	2	4	8	17	187	127
SLA/Partnership/consultancy agreements with local authorities and schools	17	17	19	19	16	16
Number of days work	213	184	203	216	204	210

Learners referred to CALL in 2021-22

Table 28 gives an indication of the underlying factors giving rise to learners' additional support needs and the areas in which assistance was requested from CALL.

Speech, language or communication needs are the most common factors followed by mild/moderate learning difficulty, dyslexia, severe/complex learning difficulty and then autistic spectrum condition. Most pupils have complex support needs arising from more than one condition: on average each pupil referred has 2.59 conditions identified in the referral form.

Table 28: Pupils Referred to CALL in 2021-2022

Factors giving rise to ASN	Number of pupils 2020-2021	Number of pupils 2021-2022
Speech, Language / communication needs	18	25
Mild / moderate learning difficulty	16	20
Dyslexia / specific learning difficulty	7	18
Severe / complex learning difficulty	10	17
Autism Spectrum Conditions	8	16
Visual impairment	16	13
Social, Emotional & Behavioural Difficulties	6	13
Severe / complex physical disability	8	8
Other	6	6
Mild / moderate physical disability	12	4
Family circumstances	2	4
Learning environment	2	4
Hearing Impairment	3	3
English as an Additional Language	0	2

Table 29: Number of learners and the outcomes for which assistance is requested details the outcomes for which referrers hope to receive support. The most common outcome identified was assistive technology for writing or recording, followed by software and apps and then teaching and learning strategies and personalised resources.

Where assistance was required for Augmentative and Alternative Communication, the main focus was on the provision of a high-tech communication aid, as we would expect. Most students who were referred for assistance with AAC device also require technology for accessing curriculum materials and for writing and creating.

Table 29: Number of learners and the outcomes for which assistance is requested

Outcomes where assistance is requested	Number of learners 2020-2021	Number of learners 2020-2021
Alternative access	12	23
Personalised resources	22	34
Teaching & learning strategies	27	36
Teaching & learning software / apps	30	41
Augmentative and Alternative Communication		
- social communication skills	16	17
- low tech, e.g., printed symbols	3	6
- high tech, i.e., communication aid	11	21
Assistive Technology for:		
- reading	21	24
- writing or recording	34	43
- numeracy	18	18
- participation and control	8	9

Examples of Inclusive Digital Technology in practice

Assessment and support is a significant part of CALL's work and underpins much of our research, development, knowledge exchange and professional learning. We therefore felt it would be useful to provide some examples of how technology has had an impact on learners in this annual report.

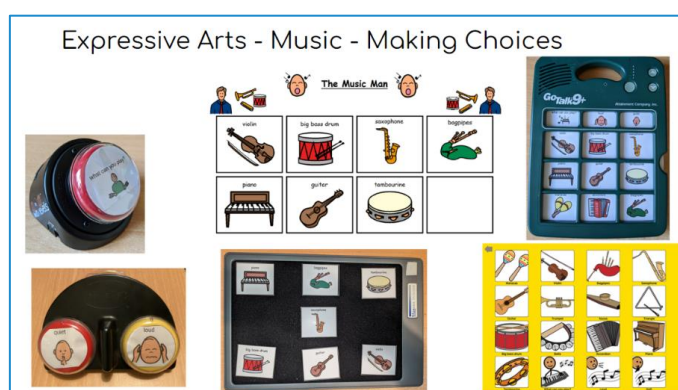
Special School – Gillian and Claire

In October 2021, Claire and Gillian began a programme of support to a Special School through a Service Level Agreement. This work builds on similar support to other special schools provided by Claire and Joanna. The establishment is an all through free standing special school for pupils aged 3-18 years with profound, multiple and complex needs. The focus of the input was to assist the school to develop an inclusive digital strategy for learning and communication.

The support comprised:

- Initial discussions with the local authority Quality Improvement Officer and school management team around their development needs and expected outcomes.
- A detailed audit of assistive technology available in the 18 classrooms/curricular areas, as well as shared across the school, carried out by the Principal Teacher PEF (ICT).
- A two-day school visit by Claire and Gillian: one day of classroom observations and collecting information from classroom staff on needs and priorities, and the second day to meet with key teaching and management staff members, to identify areas for development in technology use and to consider the existing knowledge and skills of the staff.
- Loan of assistive technology from the CALL loan bank for school staff to view and trial with pupils, and recommendations of new items of technology for school to purchase.

- Delivery of four online 90-minute training workshops, for school teaching, support and management staff, as well as in-school and visiting specialists such as Speech and Language Therapists
- Workshops were delivered one a month over a four-month period on the following topics:
 1. Simple AAC (Augmentative and Alternative Communication) Technologies and Strategies for Learners with Communication Support Needs.
 2. Accessible Digital Tools for All.
 3. Key iPad Apps to Access Communication and Learning.
 4. Controlling the Environment, Ideas for Eye Gaze and more!



Feedback on the content and usefulness of the sessions was overwhelmingly positive:

'I really liked how APEC (Assessing and Promoting Effective Communication) was referenced and different switches linked to bandings and the practical ideas for switch use including info about different handouts that would be useful for our children and families.'

'Lots of really good ideas about how to use technology in the classroom.'

'Really useful content - loved the apps and their ease of use and can really see the potential for using this with our learners.'

School staff indicated that further professional learning would be desirable and preferably in-person with practical 'hands on' using technology with smaller targeted groups of staff.

Impact of the support:

Claire, Gillian and Joanna feel that this model of support for a special school allows them to target the needs of the learners and the staff, building on the technology and skills already in place.

Special schools are busy environments and supporting the staff in this way means that they are able to identify useful strategies and resources through classroom observation and discussion, and then provide targeted training workshops based on the existing skills observed and assistive technology available.

Following the positive impact of the support for the school staff during this first year of the Service Level Agreement, it will be continuing for another year in 2022-23, to include follow up and to review progress in the use of technology and outcomes.

This model of working has proved effective in assisting school staff to develop their digital strategy, build sustainable skills and capacity, and a good working relationship has been created between CALL Scotland and the staff.

Primary learner with writing support needs - Shirley

This story details a technology assessment by Shirley for 9-year-old pupil with communication impairment, fine motor skill difficulties and attention/focus challenges. Most of his work is scribed for him in his mainstream classroom and although able orally, he has a high level of adult support to produce any written or word-processed work.

He has been using a stand-alone PC at the back of the classroom, Clicker 7 software and a [Big Keys Clevy keyboard](#). The PC is located on a non-standard computer desk and a soft backed armchair does not support a good posture when typing. The Big Keys keyboard is historic and the young man was keen to move away from it. He typed up some of his stories in a Clicker document but was not using the full assistive features of the software and certainly not the tools that would make the task easier for him - for example, word prediction, to reduce the number of keystrokes he has to generate when typing.

As part of the assessment, I compared the pupil writing a short sentence using four different methods: (a) handwriting, (b) word processing (c) word processing with word prediction (d) speech recognition. The four videos linked below show the pupil using each of these strategies.

- [Handwriting a short sentence](#) (50 seconds).
- [Typing the same short sentence](#) (22 seconds).
- [Typing the same short sentence with word prediction support](#) (28 seconds).
- [Dictating the same short sentence using Siri](#) (4 seconds).

Capturing and reviewing videos is an essential part of the assessment process because it allows me, the team and the learner to identify important factors that may have been missed during the interaction. For example, I realised that there should have been further exploration of the pupil writing using a low tech pencil grip to see if that made the task any easier.

The fastest method of text production was dictation but the pupil's speech was not clear enough for anything other than the simplest of sentences.

I usually expect that word prediction increases typing speed because fewer keystrokes are required but this tool was new to the pupil; I hope that his typing speed will improve as his skills with the tool develop. The learner becomes very lethargic in the afternoon and finds it tiring to type so the word prediction should be a huge support to him and give him more confidence with his spelling and quality of work overall.

Research by Evmenova, Graff, Jerome, & Behrmann (2010)³¹ suggests that word prediction software may have a positive effect on users' typing speed, accuracy, and productivity, while also reducing the number of grammatical and spelling errors and the cognitive load required to produce written text.

I also recommended that the pupil should have a laptop available to him at all times on his desk, which was at the correct height, and that he should use it while seated in his high back supported seat. Class teacher and Pupil Support Assistant will undertake training to learn how to use all the assistive features in the literacy support software and teach the pupil how to use them. Word prediction will be a key assistive feature as will the use of ready made word banks.

³¹ Evmenova, A. S., Graff, H. J., Jerome, M. K., & Behrmann, M. M. (2010). Word prediction programs with phonetic spelling support: Performance comparisons and impact on journal writing for students with writing difficulties. <https://doi.org/10.1111/j.1540-5826.2010.00315.x>

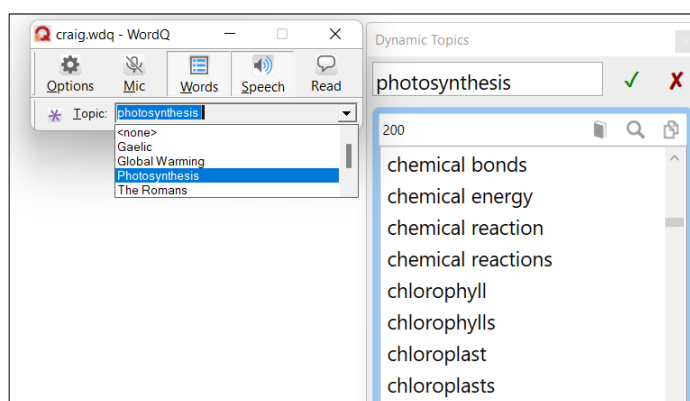
Secondary pupil with writing support needs - Craig

John was referred to CALL when he was in P5 to address the difficulties he was experiencing with reading and writing and particularly with spelling and grammar. The school had tried different strategies such as [Toe By Toe](#) (a systematic, phonics-based decoding program) to help develop his reading skills, and a sloping board to aid his writing.

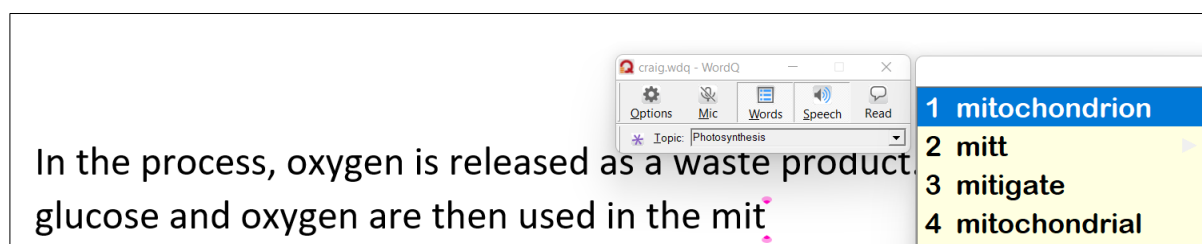
Despite the additional support put in place for John, he was falling behind his peers, which concerned his teacher and also John's mum, who played an active role in encouraging the school to place a referral to CALL.

An assessment visit to the school was arranged and this involved a meeting with the school's head teacher, the pupil's teacher, parents and time with the pupil; a mix of classroom observations and evaluation of different assistive technologies.

John responded extremely well to the support provided by word prediction and text-to-speech which allowed him to write with increased accuracy and speed. With word prediction, John could see and hear words appearing in a list after typing one or two letters. [WordQ](#) best suited John's needs as it included both prediction and speech as well as an option to create topic lexicons or word lists for different curriculum subjects.



Topic specific word lists would help him to correctly spell terms in subjects such as biology, such as 'photosynthesis', 'chloroplast' and 'mitochondrion' - words he ordinarily would be unable to spell or write. A further benefit of topic lexicons is that WordQ predicts words from a specific database of words, rather than a generic word list, so the correct or intended word appears towards the top of the prediction list, as shown in the illustration below.



The text-to-speech feature in WordQ had a two-fold impact; he could proof read his own written work and also use it to read digital books, e.g., from the Books for All web site, and class materials.

John is now in secondary school and will be sitting his National 5 assessments in 2023, hopefully using [adapted digital papers](#). CALL has provided ongoing support since the original assessment, responding to challenges such as technical support and resolving queries from teachers and his parents. A recent example is when John received a new laptop and the word prediction software required a new licence and activation code. CALL contacted the software supplier and, working collaboratively with the local authority speedily resolved the issue, reducing any negative impact on John's learning.

Both school and parents have stated that John is more confident, his reading and writing have both improved and the use of a personal device coupled with the appropriate software and support have allowed him to attain and become a more successful learner.

P2 pupil with physical support needs - Paul

Hamish is in primary 2 and attends his local school. He has cerebral palsy which impacts significantly on his fine motor skills and he finds it difficult to write and draw and he gets tired quickly. He is a very able learner and he was referred to CALL for advice on technology because staff wanted to ensure that he did not become frustrated or de-motivated as a result of his challenges. I visited Hamish at his school, with his occupational therapist, and we worked with his teacher and assistant to explore assistive technologies.

The main aim for the assessment was to identify a suitable 'alternative pencil' for Hamish to use in class. We created a set of age-appropriate activities to evaluate different methods of accessing technology and we found that Hamish could use his thumb and first finger of one hand to navigate some activities and tasks on a tablet computer. We tested different keyboards and while Hamish had a lot of difficulty with a standard laptop keyboard, he was fairly successful with the [Keedogo](#) on-screen keyboard on iPad. However, a [Clevy](#) large key keyboard turned out to be the most effective device. Hamish found the large 2 cm keys easy to target, and his tone and posture improved considerably. We turned off the keyboard repeat and we turned on [Sticky Keys](#) which enabled Hamish to type capitals and use the modifier keys (CTRL, ALT etc) without having to hold two keys at once.

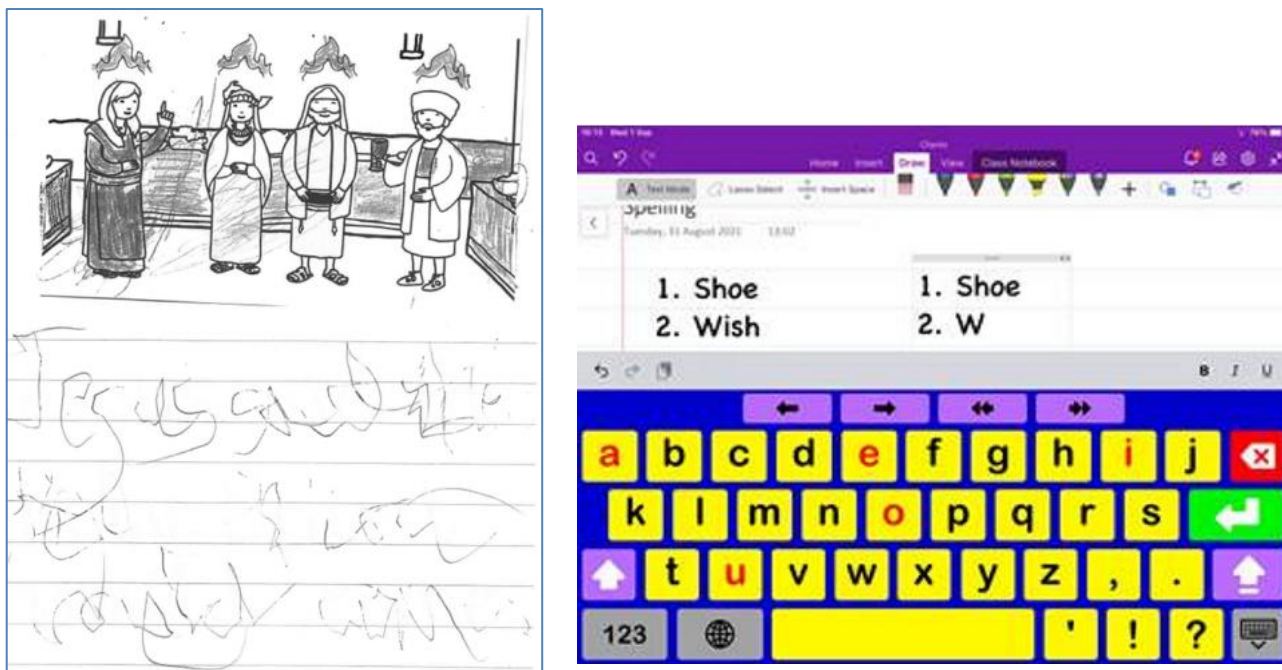


Figure 25: Hamish found it much easier and faster to write with a keyboard compared to handwriting

Although Hamish could use the touch screen successfully for some tasks, he found it hard to accurately access small targets or place the text caret and so we evaluated pointing devices including trackballs and joysticks. An [Optima joystick](#) provided Hamish with excellent control and he worked through a [Doorway Online](#) number activity by himself, completing all the calculations successfully. It was encouraging to see him tackling the activity independently, without needing help from an adult, and he was rightly pleased with his success.

We all agreed that Hamish really required his own personal device and we considered the relative merits of an iPad compared to a Windows tablet. Both have strengths but on balance we felt that a Windows Surface Pro tablet was most appropriate tool to meet Hamish's needs; one reason for this was that Hamish's teacher had created many learning activities using [ActivInspire](#) which does not run on iOS. When we meet and work with young people and their educators and parents, we

use the SETT (Student, Environment, Task, Technology) framework³² to guide our thinking and it is important to consider the physical, learning and digital environment as well as the skills and needs of the student, the learning tasks, and the technology.

Evaluation is a vital part of the assessment process and so we loaned the Surface Pro tablet, keyboard and joystick, with the required software.

The evaluation was successful and the equipment was subsequently ordered by the local authority.



Figure 26: Hamish's tablet, keyboard and joystick

The Depute Head Teacher reported:

Hamish is doing really well. The equipment is making a significant difference to his ability to work independently and his confidence is growing every day.

Early Primary Learner with Complex Communication and Physical Support Needs - Joanna

Alice is now in Primary 2 within an enhanced provision of her local Primary School. She was referred to CALL Scotland at nursery and has complex communication and physical support needs. At nursery school she was introduced to a [Little Step by Step Communicator](#), accessed with a [Specs head switch](#) on a [flexi mount](#) attached to her wheelchair from the [CALL loan bank](#). She used this to relay messages to and from nursery and home, tell news, jokes and join in with songs and stories.

An earlier trial of eye gaze technology was not successful due to her physical and medical barriers and variation in visual skills and attention. In comparison, the simple communication technology accessed with the head switch relied more on auditory skills and controlled head movement and

³² Zabala, J. (2005). Ready, SETT, go! Getting started with the SETT framework. Closing the Gap: Computer Technology in Special Education and Rehabilitation, 23(6), 1-3.

provided her with an immediate positive communication partner response to her communication efforts.

As Alice made the transition into Primary 1, her physical and medical needs developed and she had also been making good use of the simple communication technology both at nursery and home. However, she now needed to expand her expressive communication and to have access to a more comprehensive language system, functional vocabulary and also access to the alphabet, so she could start to develop her literacy skills as she began her early primary education.

We decided to trial eye gaze again because of the improvements in her physical and overall developmental profile, and set up a Tobii Eye Mobile Plus AAC device with [Grid 3 software](#) and [Supercore](#) vocabulary for Alice. She was able to achieve a good eye calibration on the device and was more focused and keen to communicate using this advanced digital technology.



Figure 28: Tobii EyeMobile Plus

We started by modelling use of the Supercore Learning Grids within structured activities like 'doll play' and 'arts and crafts' and also introduced some accessible picture books made in Grid 3 from our [Bookbug Digital Library](#). Alice loved being able to read the books, make comments and turn the pages independently with her eyes and the books were a real motivator in her use of the eye gaze device, as well as in developing her access and communication skills.

Alice's eye gaze and communication skills have continued to develop and we have now started producing accessible Oxford Reading Tree resources using the Grid 3 software, as well as personalising her own communication vocabulary on Supercore 30. Close partnership working between CALL Scotland and the local SLT, school team around the child and family, as well as flexibility in adapting to the learner's changing needs have led to this successful trial within the [National AAC Core Pathway](#).

A recommendation of purchase of Alice's own eye gaze equipment, written by CALL Scotland, will now be made to the local authority and AAC Partnership.



Figure 27: Arlo the Lion accessible book



Figure 29: Oxford Reading Tree accessible book

"I saw Alice today and she was on great form, using her eye gaze really well. I had a student with me and she used her friends page to answer questions about her friends/sister, she was able to pick out the right people." Local SLT

"She was very excited when she saw it, engaged well with the screen, and explored the messages. She looked at the message bar and smiled when she heard the messages back. She also sometimes used the 'sleep' button then looked around the screen. We modelled language with her using the pages and she joined in a craft activity selecting paper and crayon, and choosing what to draw." Local SLT

From GIRFOC to GIRFEC

These examples illustrate the inter-connected way in which CALL Scotland works, where we endeavour to **Get It Right For One Child**, and in the process identify and develop generalised solutions and products which can be distributed to help educators to **Get It Right For Every Child**.

Alice

The [accessible Bookbug books](#) and learning activities that were so motivating for Alice were originally created for another learner and then made generally available for any pupil through CALL's Books for All web site. Now production of the resources is part of our core grant funded activity and we can use the books with other learners who are referred to us for assessment and support, like Alice.

Alice's story also illustrates the extended nature of the assessment and support process: her technology needs changed rapidly between nursery and primary 1 (as we would expect) and it is vital to be able to provide continuity and a rapid response over this time. Her needs will continue to develop and based on our experience with other learners, we expect to be involved with Alice throughout her entire school career (and perhaps beyond).

The narrative also illustrates the importance of local Speech and Language Therapy and educational expertise: although the CALL team can provide online support, it is extremely important to be able to work with an experienced Speech and Language Therapist who can visit and work regularly with the young person, her parents and teaching and support staff.

Hamish

For Hamish, we draw out the need to evaluate technology prior to purchase and the importance of being able to lend technology from the CALL National Assistive and Communication Technology Equipment Bank. The team around the child reported a successful outcome 8 weeks after the technology was provided on 23 September 2021. However, delays in ordering and long lead times meant that Hamish's own system was only provided at the start of the August 2022 school term. This type of delay is not uncommon and presents a real challenge for CALL, because we have a very limited budget and hence restricted stocks of systems for loan, but we clearly cannot ask for equipment back when it is providing a learner with a successful means of accessing education, until the local authority has provided it.

Technology for addressing writing support needs

Our two learners who experience challenges with writing were both helped through word prediction, which is a relatively mature assistive technology support. Word prediction (or predictive text) is now built into most technologies from mobile phones to laptops to tablets and so the technique is now commonplace, but both learners were successful with software (Clicker 8 and WordQ) that have additional features such as text-to-speech, [speech feedback and phonetic prediction](#) (where the predictor offers words based on the sound as well as the letters typed) and [topic lists](#) for writing about specific subjects.

In working with learners, the CALL team gain valuable insights and experience about how assistive technology can support learners and we then try to create learning resources for teachers, parents and learners to help them use these tools more widely. An example is Craig Mill's [Guide to Word Prediction](#) which outlines the various features and tools found in modern word prediction programs and apps and his companion [webinar](#) and the [YouTube video](#) about the iPad predictive text tool.

Support for Special School Staff

An individual assessment model is often not the most appropriate in specialist provision where many of the learners have additional support needs and over recent years we have developed a model of support that includes strategic audit and planning with senior management and practical, classroom-based professional learning where the CALL team support practitioners to address the needs of learners in the class. The model also includes online professional learning for specific tools and technologies. By focussing on the needs of learners in class, the professional learning is highly contextual and the combination of personal visits and online support seems to work well.



Assistive Technology and National Qualifications

CALL has collaborated with colleagues in the Scottish Qualifications Authority around the use of technology in examinations and assessment since 2005. The partnership is funded by SQA and has led to the development of Digital Question Papers and assistive technologies such as free text readers and the Scottish and Gaelic computer voices.



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Background

In 2005, CALL was commissioned to research the use of assistive technology for learners in external examinations. At that time, the most requested type of support for examinations (after extra time and separate accommodation) was a human reader and/or scribe, and our research focussed around whether technology could provide learners with a more independent method of support.

We researched and developed Digital Question Papers and conducted trials with learners between 2005 and 2007³³, and following these successful pilots, Digital Question Papers were first offered as an Assessment Arrangement by SQA in 2008. Most of the other UK awarding bodies followed SQA's lead by offering digital papers in 2014.

The use of technology as assessment arrangements has since developed considerably and technology is now a more commonly requested arrangement than readers and scribes (Figure 30). 30% of all requests for Assessment Arrangements included technology or Digital Question Papers in 2022.

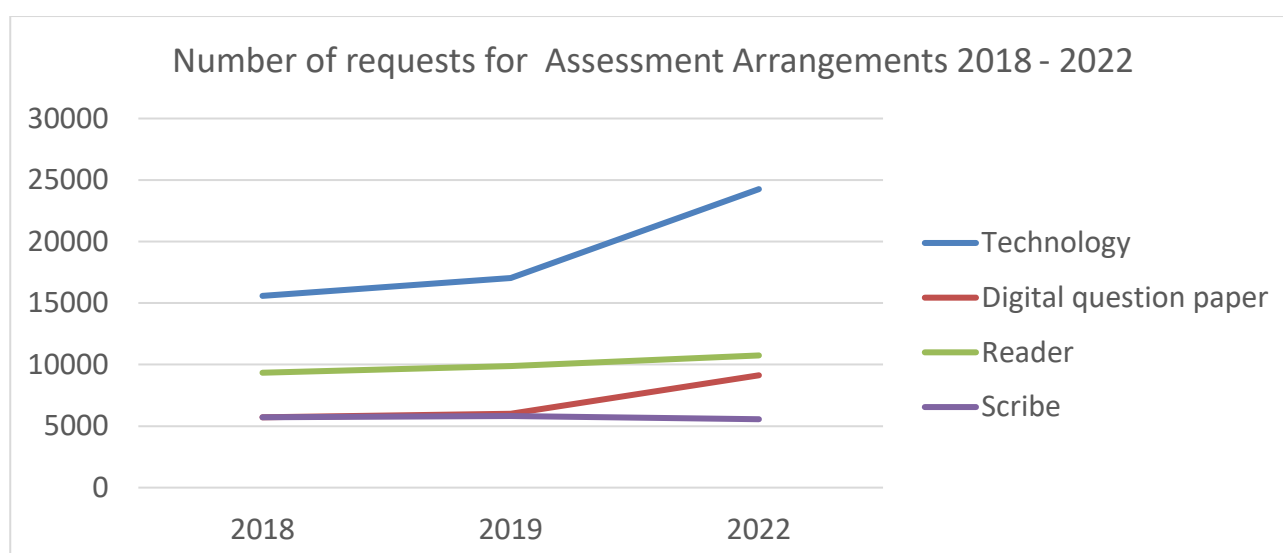


Figure 30: Number of requests for Assessment Arrangements 2018 - 2022

This is a positive development in terms of the four capacities of curriculum for excellence: for many learners, sitting external examinations is their final action before leaving school and in our view, having your examination questions read to you and your answers written down by a teacher is not optimum in terms of developing confidence and responsibility. Relying on support from a human reader or scribe to access education and learning in general is less likely to result in successful learners and effective contributors than enabling young people to access learning independently through assistive technology.

The uptake of technology support in assessments is therefore a positive outcome and it is vital that it continues as new devices and assessment systems are developed.

³³ CALL Scotland [Reports on the development, evaluation and introduction of digital question papers](#).

2021- 2022

Our work funded by SQA includes providing advice and support on the use of assistive technology as Assessment Arrangements to colleagues in SQA and to teachers and practitioners. Technology is continually developing and so monitoring and developing new methods and tools is ongoing. The Covid-19 pandemic resulted in the Alternative Accreditation Model (ACM) which saw external examinations replaced by teacher-assessed assessments and CALL undertook research and environmental scanning, the results of which were reported to SQA in 2020 and 2021^{34 35 36}.

Our work in 2021-2022 followed on from these reports and focussed on:

- the role of internet-based technologies in examinations, and;
- which devices are for assessment purposes.

The second question arises because many local authorities are provisioning iPads and Chromebooks for learners in Senior Phase. Digital Question Papers were originally developed for the Windows OS and so it is important to understand the current technology landscape in schools.

The first question is important because our previous work indicated that access to the internet is necessary in order to manage iPads and Chromebooks in examinations, but at the present time, SQA policy is that access to the internet is not permitted.

The research involved discussions with colleagues and practitioners; desk research into devices and local authority digital learning policies and strategies; online surveys; and online webinars.

A report with findings was submitted to SQA in August 2022.

We found that most candidates used Windows OS devices in the 2022 examination diet, even when iPads or Chromebooks were provisioned on a 1:1 basis in the school. There are several underlying reasons: devices could not be configured and managed to meet security requirements; there are challenges with printing completed assessments; apps necessary to access Digital Question Papers are not available on devices or do not function adequately.

Concern was expressed by some colleagues that candidates may be disadvantaged by having to use less familiar technology in examinations and that this did not meet with the SQA principle that *“Assessment arrangements should reflect, as far as possible, the candidate’s normal way of learning and producing work”*³⁷.

Addressing the challenges requires action by SQA, local authority technical teams, colleagues responsible for Assessment Arrangements in schools, and CALL and we hope to progress these actions in 2022-2023.

There is of course an ongoing [review](#) of National Qualifications and Assessment and it is expected that externally marked exams will be part of the new system. It is essential that any new examinations are accessible to learners with additional support needs who use technology to access learning.

³⁴ Nisbet, P. (2021) **Assistive Technology Assessment Arrangements in the Context of Covid-19**. Briefing Paper commissioned by Scottish Qualifications Authority. January 2021.

³⁵ Nisbet, P. (2021) **Assistive Technology and Assessment Arrangements following Covid-19**. Briefing Paper commissioned by Scottish Qualifications Authority. July 2021.

³⁶ Nisbet, P. (2021) **Assistive Technology and Assessment Arrangements following Covid-19**. Published Report, commissioned by Scottish Qualifications Authority. October 2021.

³⁷ SQA (2021) Assessment Arrangements Explained: Information for Centres
https://www.sqa.org.uk/sqa/files_ccc/AssessmentArrangementsExplained.pdf

GLOSSARY

AAC	Augmentative and Alternative Communication
ACiP:S	Augmentative Communication in Practice: Scotland
ADES	Association of Directors of Education in Scotland
ASL	Additional Support for Learning
ASLO	Association of Support for Learning Officers
ASN	Additional Support Needs
ASPEP	Association of Scottish Principal Educational Psychologists
AT	Assistive Technology
ATLAS	Assistive Technology Leaders Across Scotland (formerly ICTSLS)
B4A	Books for All
BETT	British Education and Training Technology Exhibition
CALL	Communication, Access, Literacy and Learning
CfE	Curriculum for Excellence
CFS	Communication Forum Scotland
CLA	Copyright Licensing Agency
CLPL	Career-long Professional Learning
CM	Communication Matters
CPD	Continuing Professional Development
ES	Education Scotland
FAACT	Fife Augmentative and Alternative Communication Team
FE	Further Education
GASS	Grant Aided Special Schools
GIRFEC	Getting It Right for Every Child
HE	Higher Education
HI	Hearing Impairment
ICT	Information and Communication Technology
IDT	Inclusive Digital Technology
JISC	Joint Information Systems Committee (in FE/HE)
Keycomm	Edinburgh & Lothians AAC service
LA	Local Authority
MH/MHSES	Moray House/Moray House School of Education and Sport
PL	Professional Learning (previously referred to as CPD)

QMU	Queen Margaret University
RCSLT	Royal College of Speech and Language Therapists
RNIB	Royal National Institute for Blind People
SAVIE	Scottish Association for Visual Impairment Education
SCTCI	Scottish Centre for Technology for the Communication Impaired
SG	Scottish Government
SIG	Special Interest Group
SLA	Service Level Agreement
SLF	Scottish Learning Festival (Education Scotland run event every September)
SNSA	Scottish National Standardised Assessments
SQA	Scottish Qualifications Authority
SSC	Scottish Sensory Centre
TASSCC	Technological Assessment and Support Service for Children and the Curriculum (Aberdeen)
UoE	University of Edinburgh
VI	Visual Impairment
VIP	Visually Impaired Persons
VQ	Victoria Quay



Communication, Access, Literacy and Learning

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