CALL Scotland

Communication, Access, Literacy and Learning

ANNUAL REPORT

1 April 2018 – 31 July 2019

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)

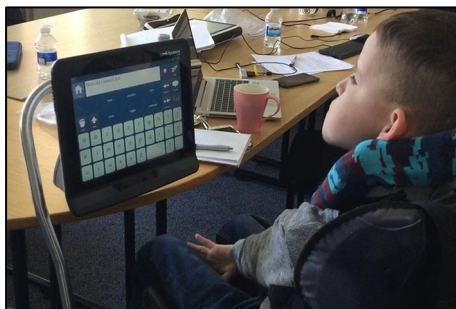THE UNIVERSITY *of* EDINBURGH

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 – in order 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 -

- Strategic Leadership
- Free Assistive Technology resources
- Specialist Pupil Assessment and Support
- CPD and Training
- Information and advice
- Equipment Loans and Technical Services
- Knowledge Transfer, research and development

CONTENTS

Summary

The preparation of an Annual Report involves a great deal of work to collate and analyse data, reflect, and write the document, but we feel it is time well spent because it does help the CALL team, our Steering Group, our funders, and colleagues with whom we work to consider activities over the year and to plan for the future.

Assistive or Inclusive Digital Technologies?

2018 – 19 was another stimulating year with many developments in education and in technology. In recent years we have seen an explosion in ownership of and access to personal digital devices, and the accessibility features and options that are provided in mainstream devices have also developed greatly. 10 years ago the iPad and Chromebooks did not exist, and the accessibility features within consumer technologies were limited. In 2019, digital technology has never been cheaper or more prevalent and accessibility functions are migrating from the specialist to the mainstream. For many years we have used the term *Assistive Technology* to refer to the devices and software that are the focus of our work; we feel that this does not reflect these new mainstream technologies and so to reflect the changing technology landscape we are more commonly using the term *Inclusive Digital Technologies* and we welcome comments on this developing terminology.

Highlights

- The number of visits made to the CALL web sites exceeded 1 million for the second year running.
- The Scottish male and female child and teenage computer voices were launched on 5th August 2019 on the new Scottish Voice web site.
- The Symbols for All project and web site have been very well received and new symbol resources for secondary age learners have been added.
- Our new Inclusive Digital Technology Professional Learning course attracted 13 students from across the UK.
- An award of £30,000 from the Scottish Government Assisted Communication Team to replace obsolete communication aids and technologies in the Loan Bank.

Challenges

- The number of participants on Professional Learning courses in CALL continues to fall.
- We remain concerned about reductions in Assistive Technology teams and practitioners in some areas of Scotland, and about local authorities that do not have an identified Assistive Technology service at all.
- The move towards National Commissioning following the Doran Review has both risks (the possible loss of core funding that CALL has received from Scottish Government since 1991) and opportunities (to develop a more comprehensive strategy for CALL to support the application of Inclusive Digital Technology in Scotland).
- CALL's grant from Scottish Government has remained static since 2011, which is effectively a 20% reduction in real terms. We have successfully diversified and gained funding from several different sources over this time, but as costs rise, we anticipate a need to find additional ongoing income from 2020 to continue to provide the levels of services that are described in this report.

Period covered by the Annual Report

This year we have adjusted the time period covered by the report: previous reports have covered the period from 1st April until 31st March, but we feel that it would be more helpful to report on activities over the academic session. Therefore this document reports on events and developments from 1st April 2018 until 31st July 2019. However, to maintain consistency in terms of numerical analysis, the statistics cover the 12 months from April to March. The 2019-20 report will report both data and activities from 1st August 2019 to 31st July 2020.

Development Priorities 2019-20

Our priorities for development for 2019-20 are to:

- continue to work with Scottish Government to progress National Strategic Commissioning;
- continue to work with Scottish Government and ACER in the development of Scottish National Standardised Assessments;
- continue to work with Scottish Government Assisted Communication Team, and the AAC Advisory Group, to improve access to AAC equipment and services;
- explore options for delivery of the Scottish computer voices on Chromebooks and iOS;
- continue to support colleagues in ATLAS (Assistive Technology for Learning Across Scotland), and raise awareness of the need for Assistive Technology services in areas of Scotland where provision is poor;
- develop a more active research strategy for CALL, to more effectively gain and disseminate evidence based practice in Inclusive Digital Technology.

Paul Nisbet, Director.

CALL Staff Team 2018-19

Paul Nisbet (1.0 FTE)   Director; Engineer and Educational Technologist

Joanna Courtney (0.8 FTE)   Specialist Speech and Language Therapist

Claire Harrison (1.0 FTE)   Development Officer, Assistive Technology & Complex Needs

Shirley Lawson (1.0 FTE)   Development Officer & Professional Learning Coordinator

Gillian McNeill (0.8 FTE)   Specialist Speech and Language Therapist

Craig Mill (1.0 FTE)   Assistive Technology Specialist

Robert Stewart (1.0 FTE)   Technology Resources, web designer/manager

Allan Wilson (1.0 FTE)   Information Coordinator (General Enquiries)

Sarah Marjoribanks (0.8 FTE)   Office Manager

Rebecca Gow (0.9 FTE)   Resource Developer/Assistant Administrator (to November 2018)

We were sorry to lose Rebecca Gow, our Resource Developer and Assistant Administrator, who left CALL in November 2018. Rebecca joined CALL in 2006 and as well as helping our operations and activities run smoothly, she made a major contribution to the Books for All Database in our role as Resource Developer. We wish her well in her future career.

Allan Wilson received an award from Professor Peter Mathieson,
Principal and Vice Chancellor of The University of Edinburgh on December 6th
to mark 25 years of service with The University, and CALL Scotland.

CALL Steering Group 2018-19

Dr. Mike Gibson	Chair of Steering Group
Deborah Walker	Support and Wellbeing Unit, The Scottish Government
Jean Alexander	AAC Operational Improvement Lead, The Scottish Government
Donna Baillie	Quality Improvement Officer, Glasgow City Council (ASLO representative)
Mary Berrill	Senior Education Officer, Inclusion, Education Scotland
Cheryl Burnett	National Parent Forum of Scotland
Fiona Buttle	Head Teacher, Langlee Special Nursery, Scottish Borders Council (from 09/18)
Sam March	Principal Educational Psychologist, North Ayrshire Council (ASPEP representative) (until 02/19)
Joan McKay	Principal Teacher, Eildon Support Centre, Scottish Borders Council (until 06/18)
Professor Sheila Riddell	Moray House School of Education, University of Edinburgh
Jackie Swan	ASN Service Manager, East Dunbartonshire Council
Martin Vallely	Professional Services Manager: Children & Families, City of Edinburgh Council (ADES representative)

Funding

CALL is funded through grants and contracts with around 65% of the annual income provided by the Scottish Government Learning Directorate. The grant is still provided on an annual basis even though CALL has received this core funding from Scottish Government since 1991.

In 2018 we obtained £30,000 from the Scottish Government Assisted Communication Team towards replacement of obsolete communication technologies for the equipment loan bank; in 2019 we succeeded in securing £13,381 to fund research and development of an AAC Implementation Toolkit.

SQA funds our partnership and development work around digital examinations and assessments.

Assessment and support of individual pupils in schools is undertaken via partnership agreements with local authorities. We also generate income through delivery of professional learning in Edinburgh and on site in schools.

The main core grant from Scottish Government has remained static since 2011, while inflation was to 19.7% between 2011 and 2018. If we are to maintain the same levels of research, service and development that are described in this report in future, we will have to source new sources of reliable recurrent funding.

Strategic Leadership & Collaboration 1

Funded by: Scottish Government Learning Directorate Core Grant

OBJECTIVES

Development and delivery of effective policy and good practice in the use of AT and AAC for pupils with additional support needs through:

- Partnership working with colleagues in The Scottish Government, Doran Project Board and National Commissioning Group, Education Scotland, Scotland, SQA, local authorities, Regional Improvement Collaboratives and voluntary organisations.
- Partnership working with Scottish Government Assisted Communication Team, AAC Leads in NHS Health boards and their partners; ACiP:S and SCTCI.
- Collaboration with parents, particularly through the National Parent Forum of Scotland.
- Participation in UK and international committees and working groups.
- Submissions to legislation and policy-making bodies.
- Development of new initiatives & pilot schemes.

OUTCOMES

Assistive and Inclusive Digital Technology Provision in Scotland

Assistive and Inclusive Digital Technology in education is a specialist field and in 2018-19 and we have concerns that in some areas experienced practitioners are retiring and not being replaced while members of ATLAS in other parts of the country report reductions in staffing; and some local authorities do not have anyone with a specific remit or responsibility for assistive technology.

CALL's national services, products and partnership agreements, as evidenced by this report, are clearly having an impact for learners with additional support needs, but the technology needs of some learners are complex and require a skilled and considered local response. We have concern that childrens' needs are not being met due to a lack of staff with expertise.

Assistive Technology and Augmentative and Alternative Communication are recognised as key components of the Convention on the Rights of Persons with Disabilities[1]; as a means of meeting duties under the Equality Act[2] and the Education (Additional Support for Learning) Acts[3]; while Scottish Government guidance on accessibility strategies[4] contains specific detailed advice on accessibility of school ICT and how technology is essential to enable access to learning resources for many children and young people with additional support needs; and now children and adults in Scotland have "*the right to the communication equipment and the support they need to use their communication equipment*"[5].

The lack of Assistive Technology specialists in Scottish education may indicate that the importance and value of assistive and inclusive technology is not understood at policy levels or within schools, and CALL, as a national service agency, has a responsibility to work with partners to address this. We therefore aim to develop accessible resources to raise awareness of the role of assistive and communication technologies in meeting legal and policy requirements for the education of children with additional support needs. We discuss this topic further in the section on **Pupil Assessment and Support**.

Scottish National Standardised Assessments (SNSA)

The CALL team have been supporting and advising colleagues in Scottish Government, Education Scotland and ACER (the providers of the SNSA) throughout the development and introduction of the assessments.

Paul Nisbet is a member of the Inclusion / Additional Support Needs User Assurance Group which met on 16th May and 4th Sept 2018. On 16 May 2018, members of the CALL team undertook a series of practical accessibility tests of the assessments, at Scottish Government premises, and provided verbal and written advice. We tested assessments using a range of devices, assistive technologies and platforms and found some good aspects – for example, questions can be selected and read out with a text reader – but we found that accessibility of the assessments for learners with visual impairments who require larger font sizes, or students with physical disabilities who have difficulty targeting small buttons on screen, was in our view poor. We

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[1] United Nations Article 21 – Freedom of expression and opinion, and access to information

[2] Equality and Human Rights Commission Technical guidance for schools in Scotland

[3] Scottish Government Additional support for learning: statutory guidance 2017

[4] Scottish Government Planning improvements for disabled pupils' access to education: guidance for education authorities, independent and grant-aided schools

[5] Scottish Government Provision of communication equipment and support: guidance

recommended improvements that we felt were required to enable learners with additional support needs to access the assessments. These include:

- increasing the standard font and icon size to improve access for learners with visual impairment or reading difficulties;
- improving screen layout design to improve access for learners with visual impairment, reading difficulties, or physical support needs;
- providing colour adjustments so that text, graphic and background colours can be adjusted for learners with visual impairments or dyslexia;
- improving the response of the assessments for high levels of zoom/magnification.

However, we are disappointed that these improvements have not been made and the SNSA Improvement Activity Plan has no mention of any of these points[6].

In July 2018 CALL was asked by ACER, the developers of the SNSA, to comment and advise on Guidance materials on supporting learners with additional support needs. We felt that the guidance was too technical, with a narrow focus on supporting learners with visual impairments (particularly the very small number of learners who use screen reader technology) and contained insufficient information relevant for supporting learners with needs arising from other factors. We provided comment and offered to develop additional material. Some changes were made but the published guidance[7] is still in our view inadequate.

We are supportive of the SNSA and are keen to help practitioners and learners to access and use the resources. We recognise that the development of the SNSA is a huge project and the implementation and response from teachers has been positive. The assessments are designed to be accessible to learners with ASN and EAL: for example, there is no time limit; any supports that are used in the classroom can be used for the assessments; staff can provide assistance; the assessments are adaptive; and they can be accessed on almost any type of device.

Although we identified areas for improvement in terms of accessibility, we have not been contacted by many teachers or parents raising concerns about difficulties with SNSA and so perhaps the limitations in terms of accessibility are not actually causing difficulty for learners with ASN.

The 2018-19 SNSA User Review Progress Report[8] notes that more than 520,000 assessments were completed by 31st May 2019 and that 61% of teachers report the experience was better than the previous year. The Report notes that a majority of teachers agreed that they were "able to administer assessments to children or young people with ASN/EAL using existing day-to-day classroom tools or strategies" (p.8).

However, if almost a quarter (23%) of teachers responding to this question have difficulties with administering assessments to learners with ASN or EAL, then this must surely be cause for concern.

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[6] Scottish Government (2019) NATIONAL STANDARDISED ASSESSMENT IMPROVEMENT ACTIVITY PLAN – August 2019

[7] SNSA User Guide (2018) ASN and EAL guidance

[8] Scottish Government (2019) Scottish National Standardised Assessments User Review Year 2 2018/19 – Progress Report
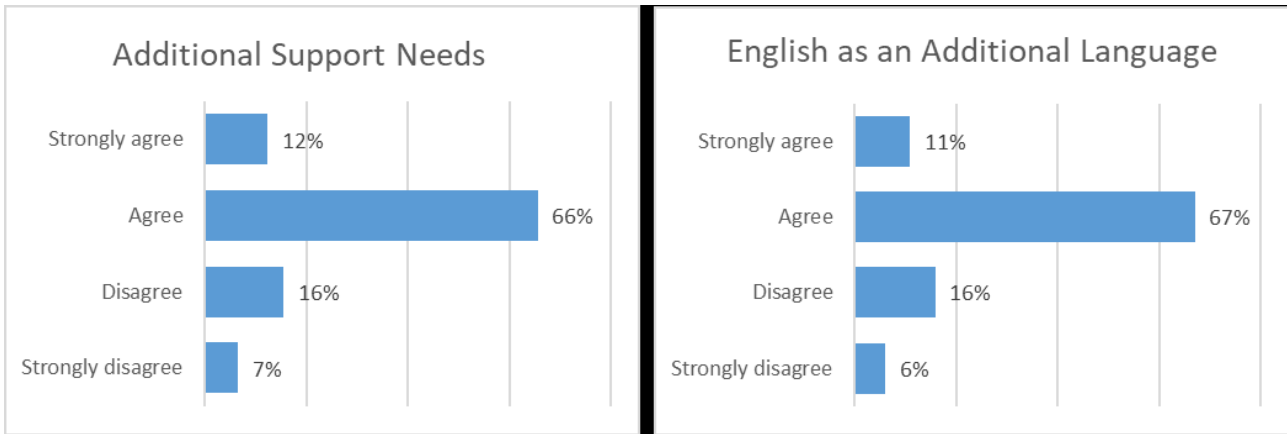
Figure 1: Responses to "I was able to administer assessments to children or young people with ASN/EAL using existing day-to-day classroom tools or strategies"

The Progress Report notes that 84% of the maximum possible number of assessments were completed, so there may be questions about why the remaining 16% were not completed: were learners with ASN unable to complete these assessments?

In June 2019 we met with colleagues from the SNSA team and SAVIE (Scottish Association of Visual Impairment Educators) where concerns regarding the assessments were raised and discussed, particularly difficulties with magnification on iPads and lack of hard copy Braille materials for children and young people who use braille.

In terms of attainment as measured by the SNSA, the national report[9] for 2018-19 finds that learners with ASN generally demonstrate lower capacity for numeracy, literacy and writing than learners who are not identified with an ASN, across all age groups. For example, Figure 1 shows larger proportions reflecting low capacity of reading among P7 learners with ASN, while proportions with higher capacity were notably larger among learners with no ASN.
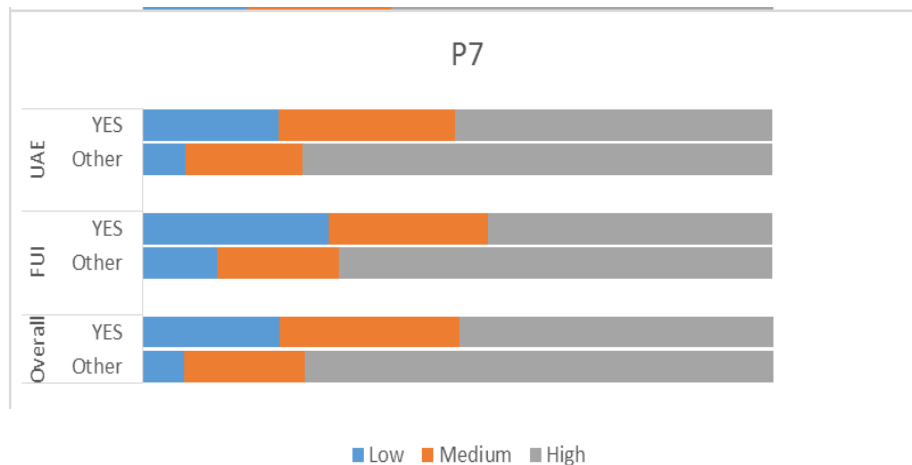
Figure 2: Capacities of P7 learners with/without ASN for Understanding and Evaluating (UAE), and Finding and Using Information (FUI)

We suggest that pro-active research is required to investigate experiences and attainment of learners with additional support needs, to **ensure** that learners are not being disadvantaged.

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[9] Scottish Government (2018) Scottish National Standardised Assessments: national report for academic year 2017-2018

Initially, the SNSA training and support resources were provided within the assessment platform, which required a school log in, and consequently many peripatetic staff (for example, Qualified Teachers of Visual or Hearing Impairment) were unable to access the training. In May 2019, however, Training Materials, a User Guide and Quick Start videos were made available through Glow.

From our perspective we feel that the SNSA ASN guidance does not address assistive technology sufficiently and so in 2019-20 we plan to develop our own online materials. We will also engage with the Scottish Government and Education SNSA teams and with ACER.

Gaelic Medium National Assessments (Measaidhean Coitcheann Nàiseanta airson Foghlam tron Ghàidhlig)

CALL was asked to advise on the accessibility of the Gaelic Medium National Assessments (MCNG)[10], attended a meeting on 27th November 2018 and then undertook accessibility tests on 5th February 2019. Our tests indicated that the MCNG, developed by the Scottish Giglets firm, were more accessible for learners with ASN; for example the text and background colours can be adjusted within the assessment platform itself.

Scottish Government: Doran Review

Following the publication of the Doran Review[11] in 2012 and the Scottish Government response[12], a 10 year Strategy[13] was published for consultation in 2017 and a National Commissioning Group formed to "*oversee the implementation of a 3 year cyclical commissioning plan that supports this Strategy*". Paul Nisbet from CALL represents CALL, SSC and Enquire, the three currently funded National Services for Complex Additional Support Needs, on the Group. Following the consultation, it is expected that the final 10 year strategy will be published in August 2019[14].

The Strategy notes that the "*current grant aid of approximately £11m/annum that is currently allocated to seven Grant-Aided Special Schools (GASS) and three National Centres*" (CALL, SSC and Enquire) "*is being reviewed to ensure that it is targeted on supporting the key areas identified by the Doran Project Board*".

The scope of services to be commissioned include:

- **Direct education, care and health services** for children and young people with complex additional support needs;
- **Research** related to children and young people with complex additional support needs that provides a sound evidence base, alongside other sources of evidence to support national policy development and service provision to improve educational outcomes for children and young people with complex additional support needs;
- **Sustainable, child and young person focused learning and development for those supporting children and young people with complex additional support needs** aligned to a mechanism for sharing practice; and,

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[10] Scottish Government (2019) Gaelic Medium Education Scottish National Standardised Assessments

[11] Scottish Government (2012) The Right Help at the Right Time in the Right Place. Strategic Review of Learning Provision for Children and Young People with Complex Additional Support Needs.

[12] Scottish Government (2012) Meeting the needs of Scotland's children and young people with complex additional support needs. The Scottish Government's response to the Doran Review.

[13] Scottish Government (2017) Learning provision for children and young people with complex additional support needs: 10-year strategy 2017-2026.

[14] It was published on 17/9/19.

- **Broader services which support the education of children and young people with complex additional support needs** including services provided across a number of authority areas, provided by local authorities or voluntary organisations which taken across Scotland may constitute a national need.

The strategy proposes a "phased release of funding" to "*support the move from the traditional recurrent grant funding model to the strategic commissioning model*". The details of this transition have yet to be determined, but for CALL, the core grant that we received since 1991 will cease sometime during the next decade.

In order for CALL to obtain funding under the new commissioning process, the National Commissioning Group must first identify assistive and communication technology as an area in which services, training and research should be commissioned. Government will then issue a specification, and CALL will tender a bid in what we believe is likely to be a competitive grant process. This is therefore both a threat and an opportunity for CALL Scotland and we prefer to view it as the latter, given the increasing demand and use for CALL's products and service, and the fact that our core grant from Scottish Government has fallen by 20% in real terms since 2011.

Education Scotland

- CALL worked with staff in Education Scotland to add information on CALL and a specific resource on Communication Passports to the National Improvement Hub.
- Paul Nisbet provided a workshop on CALL Scotland and Inclusive Digital Technologies to the Education Digital Skills team on 4th February 2019. We were invited to review and contribute to Digital Literacy and Skills Support Package on Reaching all Learners for delivery across Scotland.
- Claire contributed to the development of the Milestones to support learners with cmplex additional support needs.

Scottish Qualifications Authority

In 2018-19 CALL continued to provide advice and support to colleagues in SQA and to practitioners regarding the use of technology as Assessment Arrangements in examinations; further details are in the section on **Assistive Technology in SQA Examinations**. Research into the application of Chromebooks for Assessment Arrangements was completed and a final report published and submitted to SQA: see **Chromebooks and SQA Assessment Arrangements**.

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:

"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."

Scottish Government published *Guidance on the Provision of Communication Equipment and Support in using that Equipment*[15] to support delivery of the legislative duty in May 2018, followed

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[15] Guidance on the Provision of Communication Equipment and Support in using that Equipment
http://www.gov.scot/Publications/2018/05/8091/downloads

by *The National Augmentative and Alternative Communication (AAC) Core Pathway*[16] on 30th August 2018.

The Scottish Government Assistive Communication Team (ACT) have progressed the implementation of the legislation through their work plan 2018-2020. The ***Leadership and Governance*** workstream activity involves partnership working with the AAC Executive Leads for AAC in each NHS Board and the National AAC Advisory Group (NAG).

Gillian and Paul have carried out development work within the plan which has included:

- Development of the Scottish Children's Computer Voices;
- Enhancement of the AAC Equipment Loan Bank (see below);
- Participation in the National AAC Advisory Group (NAG);
- Participation in a Short Life working group (SLWG) on Data and Evidence.

ACT activity within the other four workstreams has included:

Communications and Engagement - capturing service user views and ongoing awareness raising of the provision of AAC and legislation.

Operational Improvement - publication of the AAC Core Pathway[16] and Short Life Working Groups (SLWG's) commissioned for AAC on: Equipment Procurement; Data and Evidence; Learning; Assessment.

Policy and Guidance – a one year Progress report and future plans to continue to review any impact of the legislation (due summer 2019).

Workforce Development and Training - practice development and learning opportunities, including resources for AAC online learning available on TURAS and a Short Life Working Group commissioned for AAC Learning.

This work is of great significance for learners in Scotland with communication support needs who require AAC, and of the services and projects provided by CALL to support them.

The use of Communication equipment and AAC is not just a matter for Health Boards and professionals: language and communication are essential to enable education, participation and education. School staff, as well as visiting professionals, have an important role in providing this support and an inclusive environment where language and communication can be developed. We are therefore very pleased that our online learning module on AAC in Education was completed and made available on 6th September 2018.

The AAC Pathway recommends trial or evaluation of equipment and AAC services including CALL therefore require access to communication aids and technologies. We are happy to report that CALL was successful in achieving £30,344 from the Assisted Communication Team Section 10 fund to invest in technology for the National Assistive Technology Loan Bank. For more details see **Assistive technology Loans and Support**.

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[16] The National Augmentative and Alternative Communication (AAC) Core Pathway
https://www.gov.scot/Publications/2018/08/7472/downloads

Augmentative Communication in Practice: Scotland (ACiP:S)

CALL staff (Allan and Gillian), as members of the ACiP:S executive committee, provide leadership and participation on national AAC issues. Other committee members represent AAC services across Scotland.

During 2018-19 the work of ACiP:S focused on:

- Facilitating the AAC Leads from across Scotland to meet regularly with the ACiP:S committee, to consult on the AAC legislation 2016 and to share good practice and service procedures for supporting people in AAC.

- Holding a Family Fun Technology Day, at Moray House School of Education on 21st April 2018. This provided an opportunity for children with communication difficulties and their siblings to have fun with technology and to take part in activities, while parents had opportunities to find out more about the technology that could support their children. The Day also provided opportunities for parents to meet others in a similar situation and to share experiences.

Figure 3: Creating art by melting crayons with a switch operated hair dryer at the Family Day

- Providing funding and support for an AAC user from Scotland to attend the 2018 Communication Matters conference through sponsorship from ACiP:S. Sarah Jane Shearer was the recipient of the Award and found it very useful: *"I wish to thank you again for allowing me to attend the conference I gained friends as well as a few amazing opportunities for the future. Plus I found a new AAC that will suit my needs so much better than the device I have just now. We are already looking into getting me one."* As part of the arrangement, Sarah Jane gave a keynote talk at the ACiP:S Study Day in March.

Figure 4: Target practice with a switch-operated Nerf gun at the Family Day

- Organising a Study Day for teachers, therapists and others with an interest in AAC on *PrAACtical Approaches to Working with Children and Adults: Supporting Communication through Augmentative and Alternative Communication (AAC).* This was held in the Carnegie Conference Centre, Dunfermline on 5th March 2019.

- Working in partnership with Communication Matters to organise a Study Day on *AAC & Literacy Best Practice* on 2nd May 2019. CALL staff provided three presentations on the day.

Communication Matters

Allan, Claire and Gillian attended the annual Communication Matters conference in Leeds (September 2018). Due to increasing costs we were unable to provide an exhibitor stand, but were offered a free Poster display which gave visitors from across the world an opportunity to view information about new CALL resources, particularly Symbols for All and the AAC Online Modules. They also gave presentations on Shared Reading Resources and the work of CALL Scotland, with a focus on the AAC Online Modules. Allan attended the Communication Matters Roadshow in Clydebank on 22nd May 2018. CALL staff worked with Communication Matters and ACiP:S to organise a Study Day on AAC and Best Practice (see above).

Scottish Book Trust

CALL's partnership with the Scottish Book Trust has continued to develop. In 2018-19 we:

- created accessible digital versions of the 3 shortlisted books in the 2019 BookBug Picture Book Prize, in PDF, PowerPoint and Keynote (iPad) format;
- created and made available accessible digital versions (PDF) of the 3 books shortlisted for the 2018 Scottish Teenage Book Prize.
- developed symbolised resources to accompany the P1 Bookbug books, to help learners with physical and communication support needs access the books and participate in reading;
- developed a pack of symbolised resources for the current Explorer pack of Bookbug books, available from the Symbols for All web site;

Further details about these developments are in the National Provision of Inclusive Digital Learning Resources section.

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 19 local authorities and schools in 2018-19; see *Pupil Assessment and Support* and *Career-Long Professional Learning.*

Assistive Technology for Learning Across Scotland (ATLAS)

Shirley Lawson chairs ATLAS, the national group of primarily educational practitioners working in the field of technology to support children and young people with Additional Support Needs and / or disabilities. We have currently got 30 members (including CALL staff) representing 21 Local Authorities.

The group mainly communicates online via a Google Group forum and provides support for each other: answering questions, sharing resources and suggesting solutions to problems posted. The ATLAS group met on 14th November 2018 and 27th March 2019 at the University of Edinburgh which has proven to be a popular central venue easily accessible by public transport. For members who are unable to travel or can only attend for part of the day, they can access the meeting via a live webinar link. The consensus is that meeting twice a year is extremely valuable to discuss a wide range of current issues on the topic of inclusive digital technologies, educational practices, legislation, Professional Learning opportunities as well as hearing from invited guests on new technologies. We continue to encourage Local Authorities who are not represented in ATLAS to join the group.

CALL Assistive Technology Community in Scotland

Managed by Craig, the CALL AT Community in Scotland is 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. The Community was set up in November 2016 and had 158 members by the end of September 2019.

Other collaborations

- Discussions with software and communication aid suppliers, making an input to product development.
- Exhibition and presentations at Dyslexia Scotland roadshows and events (Allan, Craig, Paul, Shirley).
- Working with Edinburgh Festival Fringe Society to provide a workshop on *Using Technology to Support Performers with Dyslexia*.

Data protection

An extensive review of data protection and retention procedures was carried out in preparation for the introduction of the EU General Data Protection Regulation (GDPR) in May 2018.

To enhance data security, as of December 2018 all CALL websites now have SSL (Secure Sockets Layer) technology. SSL is the standard security technology for establishing an encrypted link between a web server and a browser. This ensures that all data passed between the web server and browsers, i.e. a form, remain private and integral.

Advisory and working group memberships

- AAC Advisory Group (Gillian and Paul)
- Augmentative Communication in Practice: Scotland (Gillian and Allan)
- Addressing Dyslexia Toolkit Working Group (Paul)
- Doorway Online Accessible Software Trust (Allan, Craig and Shirley)
- Doran National Strategic Commissioning Group (Paul)
- Education Scotland Complex Learning Needs Curriculum Milestones Working Group (Claire)
- National Digital Learning Forum (Paul)
- Scottish National Standardised Assessments Project Inclusion/Additional Support Needs User Assurance Group (Paul)
- Scottish Qualifications Authority Equality and Inclusion Key Partners' Group (Paul).

National Provision of
Inclusive Digital
Learning Resources

OBJECTIVES

- **Books for All:** provision of learning materials in accessible formats for pupils with additional support needs. (Funded by Scottish Government Core Grant).
- Provision of high-quality **Scottish Computer Voices** for Scottish schools and public sector. (Funded by Scottish Government Core Grant).
- Ensure that **National Standardised Assessments** are accessible. (Funded by Scottish Government Core Grant).
- Development and support for **SQA Digital Question Papers and Assessments**. (Funded by SQA).
- Provision of **free text reader software** (Funded by Scottish Government Core Grant):
  - WordTalk
  - NaturalReader
  - MyStudyBar 4.1.

Books for All

Funded by: Scottish Government Learning Directorate Core Grant

Books for All website

The Books for All website received 124,55 visits in 2018-19, a decrease of 6% on the previous year. The new site, which will incorporate the Books for All Scotland Database, will launch in 2019.

Books for All Scotland Database

34,885 files were downloaded from the Database by 1,331 teachers or practitioners in 2018-19. This is a reduction of 7,870 files compared to the previous year. The number of practitioners that used the database increased slightly.

Table 1: Number of downloaders and books downloaded from the Database

Books for All Downloads	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Number of individual downloaders	523	862	1,230	1,033	1,360	1,373	1,326	**1,330**
Number of books downloaded	3,923	7,257	11,067	31,315	52,569	51,449	42,725	**34,855**
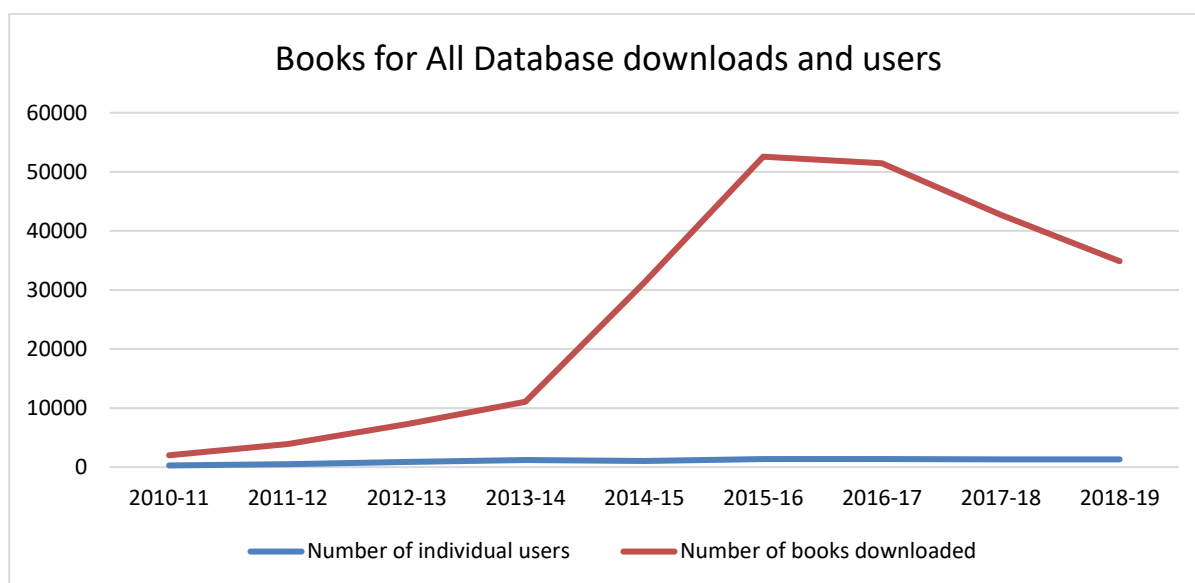
Figure 5: Number of users and books downloaded from the Books for All Database

The number of files downloaded dropped by 18% compared to the previous year and this is primarily due to a reduction in downloads of Hodder Gibson textbooks, from 15,087 to 3,443 (Table 2). This in turn is because access to the Hodder Gibson textbooks ceased in July 2018 following reports of illegal use of downloaded files (see below).

TeeJay and Heinemann are now the most popular publishers. For TeeJay, we surmise that the figures reflect the popularity of the titles in Scottish schools, and the fact that the early, first and second level books have 'answer boxes' where learners can complete exercises on their devices. Similarly, although the Scottish Heinemann Maths books are well out of print, they are still in use in schools and these books are also adapted with answer boxes.

The most popular title was TeeJay's *Curriculum for Excellence Book 1a*: the versions with answer boxes were downloaded 838 times, while the version without was downloaded 699 times.

There are new primary maths teaching resources from Heinemann and Leckie and we will explore the possibility of working with the publishers to adapt these materials so that they are more accessible for learners with additional support needs.

The increase in use of Scholastic titles is primarily due to 251 downloads of *Gorilla Loves Vanilla*, which is one of the titles we adapt and make available in accessible formats so that learners can read it and participate in the Scottish Book Trust's Bookbug Picture Book. *Gorilla Loves Vanilla* by Chae Strathie and Nicola O'Byrne won the 2018 Bookbug prize. The previous year saw a sharp increase in downloads of Nosy Crow titles, particularly *There's a Bear on my Chair* by Ross Collins (265 downloads) although the 2017 Bookbug prize was won by *Shark in the Park on a Windy Day* by Nick Sharratt (158 downloads).

Table 2: Most downloaded publishers

Publisher	Number of downloads 2014-15	Number of downloads 2015-16	Number of downloads 2016-17	Number of downloads 2017-18	Number of downloads 2018-19
TeeJay Publishers	5,692	8,154	9,698	9,793	12,802
Heinemann	4,051	8,125	8,165	6,749	7,817
Hodder Gibson	14,642	18,619	18,392	15,087	3,443
Nelson Thornes	1,473	2,676	2,457	1,780	1,731
Oxford University Press	771	2,812	2,088	1,430	1,636
Puffin	551	1,037	1,268	1,174	985
Bloomsbury	124	345	614	491	486
Collins	316	509	534	458	437
Leckie & Leckie	216	437	368	246	376
Ginn	487	390	641	339	365
Scholastic	14	33	66	174	282
Birlinn	122	138	229	146	250
Nosy Crow	6	46	238	425	232
BrightRED	0	3,650	1,470	0	0

68% of the books downloaded were PDF text files, most of the others were various sizes of Large Print PDF. The last few years have seen significant increases in the number of downloaded PowerPoint files. This is because the PowerPoint versions of the Bookbug shortlisted titles, as discussed above, are now distributed via the database.

Table 3: Downloads by file format

Format	Number of downloads 2014-15	Number of downloads 2015-16	Number of downloads 2016-17	Number of downloads 2017-18	Number of downloads 2018-19
eText	25,264	39,348	38,476	32,317	23,739
Large Print	5,850	7,659	8,614	6,897	7,407
Large Print 24	62	2,238	1,716	1,222	1,292

Format	Number of downloads 2014-15	Number of downloads 2015-16	Number of downloads 2016-17	Number of downloads 2017-18	Number of downloads 2018-19
Large Print 36	43	1,323	732	475	639
Powerpoint	25	48	26	503	584
Large Print 18	25	939	645	476	427
Audio	13	12	194	110	165
Large Print 26	13	211	189	130	148
Large Print 28	0	224	218	134	140
Large Print 48	0	291	166	117	131
Keynote	0	33	226	208	118
Large Print 14	15	206	136	117	87
Daisy	0	5	21	17	7
eText Clicker 5	3	2	0	1	1

New Books for All website

In July 2018 Hodder Gibson instructed us to remove their titles following evidence of illegal use in a secondary school. The publisher had previously contacted us in January 2017 with concerns and on this occasion one of their authors was providing supply cover in a school where learners were given printed copies of a book - not purchased copies - that he had authored himself. We do not know the source of the digital file that was used to print the paper copies – it may or may not have been the Books for All Scotland Database – but Hodder were not willing for their titles to remain available on the database following this event.

We have had discussions with Hodder over measures that we could take to reduce the risks of illegal usage, and these are being built into the new Database website. The changes are:

- **User accounts -** Users will no longer have access with Glow or Scran logins. We are reluctant to take this step because our original concept was to enable access via Glow precisely because all teachers in Scotland would have easy access and we felt we could rely on the integrity of the profession. This is clearly not the case and so the new database will require staff to register individually for an account.
- **Watermarking -** PDF files will be watermarked with the account holder, the date of download and the IP address of the device to which the file was downloaded. This should discourage large scale printing of the sort that happened with the Hodder title.
- **Access and download procedures -** The terms and conditions for download and use will be prominent and remind practitioners of their legal obligations.

The current Books for All Scotland Database is hosted by Scran. The website design is somewhat dated and does not function particularly well on modern devices; CALL pays for the service; and we have very limited control over the design and functionality. The new site, developed by Robert Stewart, has a more modern and accessible design, includes support information, provides helpful thumbnails of the book cover (where available) to help users find the book they want, and we hope will provide improved security and accountability. The new service should go live in Autumn 2019 and will operate concurrently with the old database until the end of the year.
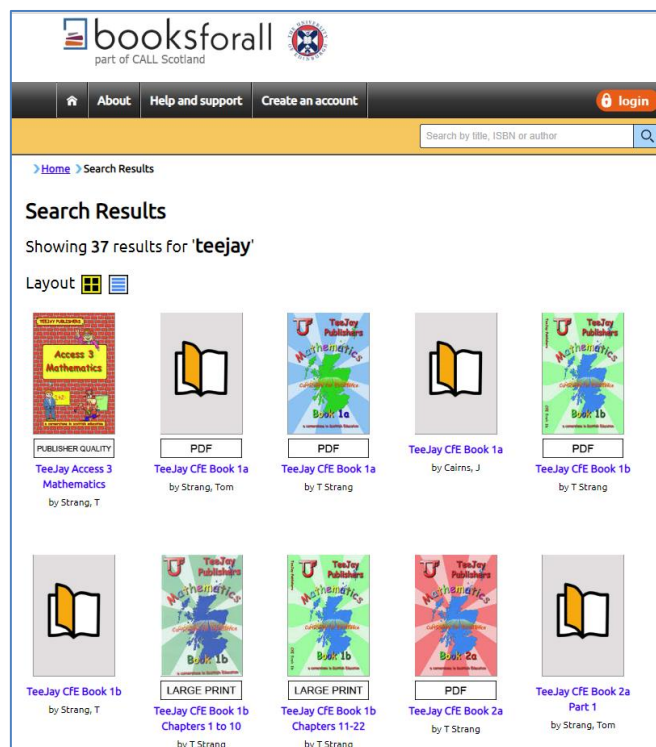
Figure 6: The new Books for All web site and database

Scottish Book Awards

The Scottish Children's Book Awards were divided into two separate votes for 2019: the Scottish Teenage Book Prize[17], and the Bookbug Picture Book Prize[18].

CALL again produced accessible digital versions of the three short-listed teenage books and the shortlisted Bookbug picture books, to enable pupils who find it hard to read the standard print books to take part in the awards along with their peers in the classroom. The Bookbug books are provided free to every P1 learner in Scotland each year by Scottish Book Trust.

The accessible digital Bookbug books were made available in:

- reader-enabled PDF,
- PowerPoint recorded narration and switch prompt versions
- Keynote format, for the iPad.

Joanna and Gillian again created symbolised resources for each of the Bookbug books. These 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 *SoundingBoard* communication app for iPad.

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[17] Teenage Book Prize https://www.scottishbooktrust.com/reading-and-stories/scottish-teenage-book-prize

[18] Bookbug Picture Book Prize https://www.scottishbooktrust.com/reading-and-stories/bookbug-picture-book-prize

Children with physical or communication support needs can use their communication aids to participate in reading the story, and then talk about and vote for their favourite book. Scottish Book Trust filmed an interactive reading session lead by Joanna at Edinburgh's Braidburn School. This video, along with other examples of use and all the Bookbug resources from this and previous years are now located on the Symbols for All website. The SoundingBoard app boards for iPad have been particularly popular over the past year.

374 books were distributed this year in PDF, PowerPoint and Keynote format, compared with 183 in 2018. The number of symbolised resources and files downloaded rose 3,420 in 2018 to 6,576 in 2019. The SoundingBoard files for iPad were the most downloaded symbol resources.

Colleagues at the Scottish Book Trust are very enthusiastic about the benefits of the symbolised resources and requested that we develop equivalent materials to use with the Bookbug Explorer Bag, which is given out at nursery to all three year olds. These have been available since the beginning of 2017 and over 5,000 symbol resources have been downloaded in total. A second Explorer symbol pack was developed later in 2017 and a third pack for 2018's bag was released in August 2018. This third pack has had 1,400 symbol resources downloaded to date. The Explorer resources will continue to be developed alongside the Bookbug P1 resources.

All the symbolised resources can be found on the Symbols for All website at www.symbolsforall.org.uk/bookbug.
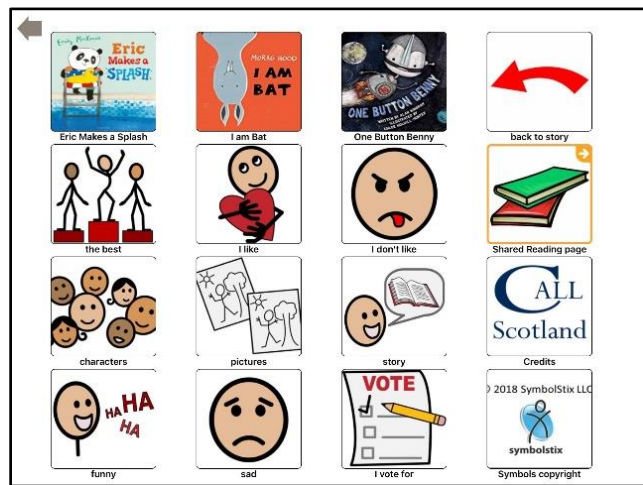

Figure 7: Bookbug books with GoTalk overlay

Figure 9: SoundingBoard app board for voting
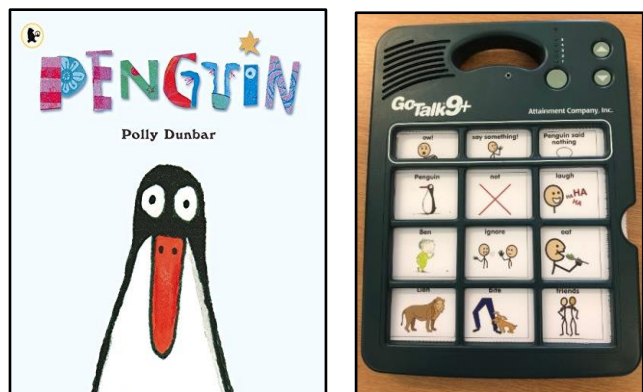
Figure 8: Symbol chart for an Explorer Bag book

Figure 10: Interactive reading session at Braidburn School

Figure 11: Active participation in reading a Bookbug book, using an E-tran frame

"I've transferred everything to our Shared Area. The resources are fantastic."
Fiona McLean, Head Teacher, Drummore School, Glasgow.

"We plan to promote via our universal services e.g. face book and include in our Communication Champions training to help raise awareness."
Joanne Williams, Speech and Language Therapist, NHS Dumfries and Galloway.

"Have been using some of your book resources in a weekly group. Have used it with some older children from the primary and it really has been a successful group with lots of great participation."
Julie Gray, Speech and Language Therapist, Braidburn School, Edinburgh.

Symbols for All

The Symbols for All website that we began developing in November 2017 went live on 11th October 2018. This is a fantastic new resource that we are confident will be beneficial for learners across the country. The resource builds upon the success of the Fife Symbolising Schools project and KeyComm's Visual Support Project and is designed to help schools across the whole of Scotland to build on this good practice and become more 'communication friendly'.
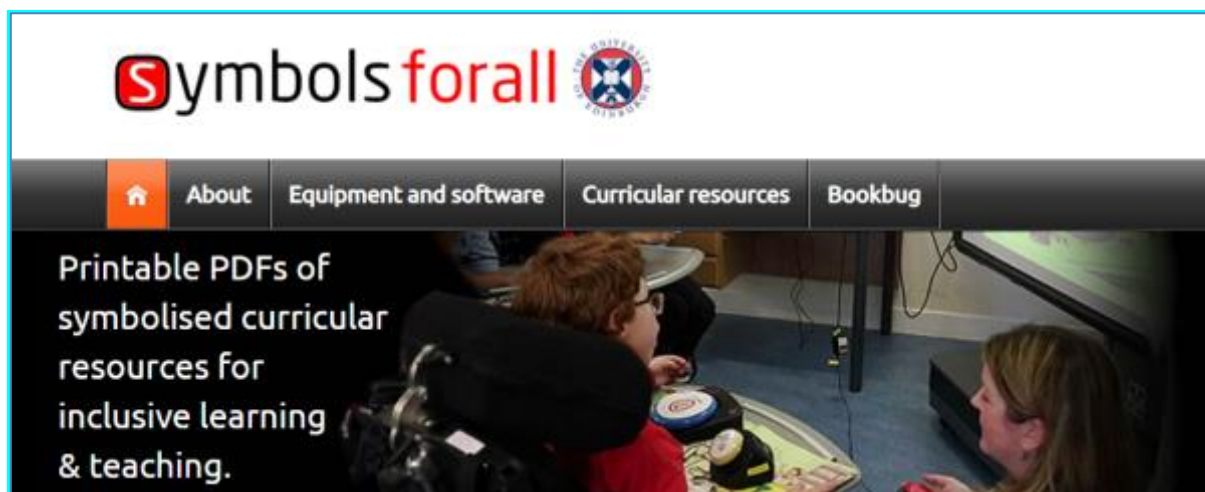
The website provides sets of curricular resources organised around the eight Curriculum for Excellence areas and also includes materials for use in symbolising the environment and for engineering communication activities across the curriculum. Crucially, the symbol resources are free and practitioners and parents do not need to buy symbol software such as Boardmaker, InPrint or Matrix Maker Plus in order to print them out because we have permission from Tobii Dynavox, the publishers of Boardmaker, to distribute the symbol resources in PDF format.

Access to symbol software is one of the barriers that prevents schools making symbol resources and Symbols for All provides a core starter set of materials, plus ideas for how they can be used, that will enable schools everywhere to get going with symbols. The site also provides the original Boardmaker files so that practitioners who do have access to Boardmaker software can edit and adapt them to personalise for their own schools and learners.
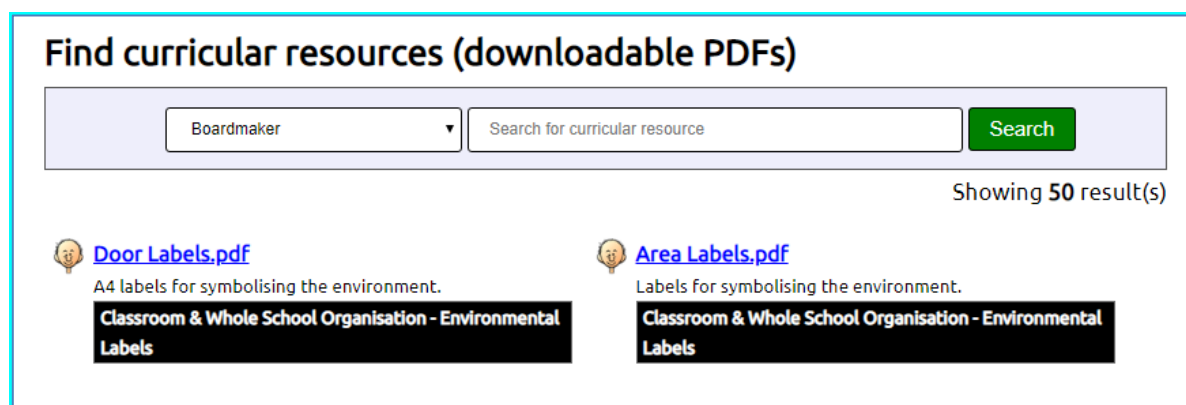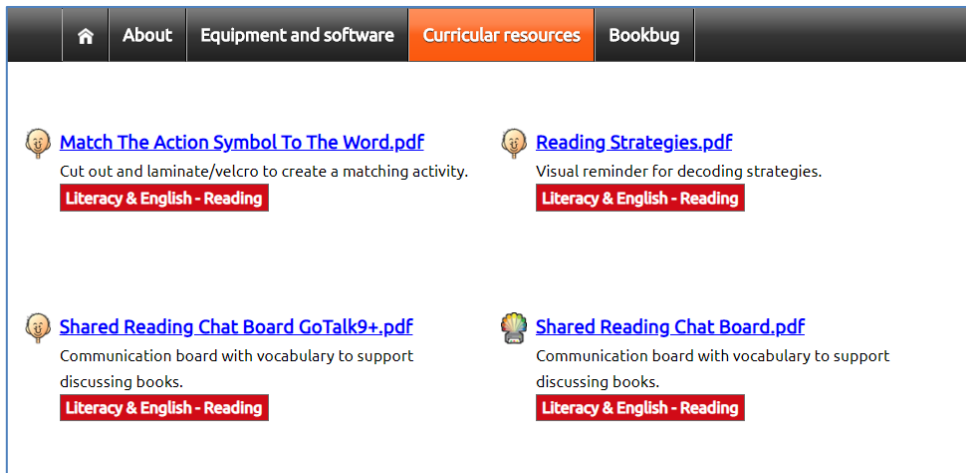
Figure 12: Symbols for All provides environmental and curricular symbol resources

The concept has caught on and Widgit, a UK company that publish a symbol set and associated software, contacted us to offer to create symbol resources designed particularly for learners in secondary school. These were added to the web site in July 2019.
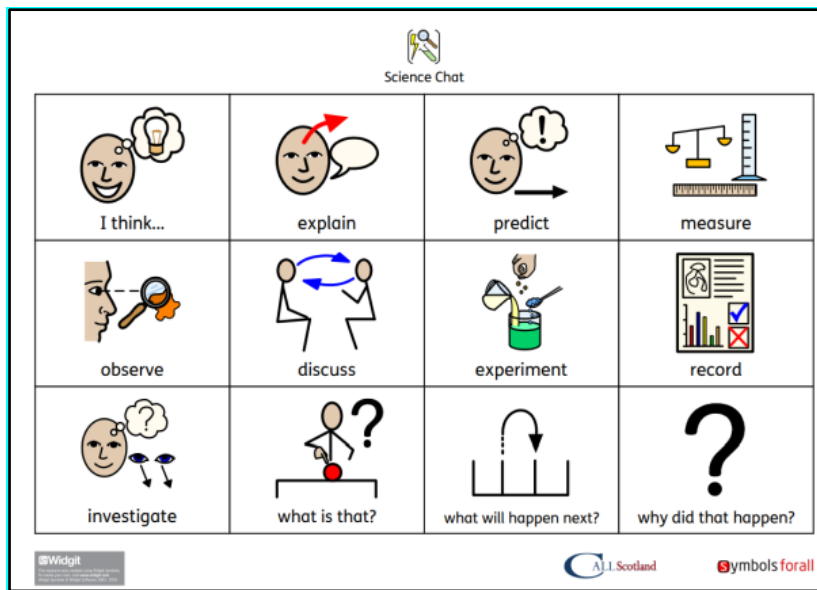
Figure 13: Science Chat communication board with Widgit Symbols

We are currently creating companion resources for Grid 3, one of the most commonly used AAC communication aid applications, and Clicker 7, the primary and ASN literacy software.

Table 4: Symbols for All web site

Symbols for All	2018-19
Visits since September 2018	**16,547**
Downloads	**9,001**

Scottish Computer Voices for Scottish schools and public sector

Heather, Stuart and Ceitidh

Table 5: Scottish Voice visits and downloads 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 higher than the number of downloads.

Many local authorities are upgrading their computers to Windows 10, because Windows 7 will be unsupported from January 2020 and Windows 7 machines are no longer available through Procurement Scotland. There may be a need for CALL and partners to take action to ensure that vital accessibility supports, including the Scottish voices, are made available when devices are refreshed.

Table 5: Scottish Voice visits and downloads

The Scottish Voice	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Scottish Voice web visits	15,487	16,347	13,317	19,973	23,890	26,468	34,432	40,867	**38,238**
Heather downloads	728	588	949	855	786	912	954	908	**775**
Stuart downloads		947	851	742	679	644	722	741	**603**
Ceitidh downloads						288	267	259	**249**

Some local authorities (Highland, Stirling, West Dunbartonshire) are replacing Windows computers with Chromebooks, which do not currently run the Scottish voices, while Glasgow is rolling out 54,000 iPads to every learner in P6 and above. The CereProc voices are only available in a few iPad apps.

We will therefore research options for making the Scottish voices available on iPad and Chromebook.

Scottish Child Voices

Andrew and *Mairi*, the Scottish Child Voices, together with *Isla* and *Callum*, teenage voices, were launched on 5th August 2019 on a new Scottish Voice website. The voices have received a positive response and were featured in the press and media:

- Radio Scotland 20/8/19 (starts around 1 hour 30 mins and features Lachlan Morris, a 10 year old boy who is one of the first boys in Scotland to get the Andrew voice);
- The National 7/8/19;
- Scotsman 6/8/19.

The voices were launched on 5th August 2019 in a CALL blog, and we will be raising awareness with further blogs, with the CALL Newsletter and using social media.

- Scottish Child Digital Voices are now available! 5/8/19
- Do We Need More Voice Choice for AAC? 26/8/19.

The Voices

Heather (adult, English language)
Stuart (adult, English language)
Ceitidh (adult, Gaelic language)
Callum (teenager, English language)
Isla (teenager, English language)
Andrew (child, English language)
Mairi (child, English language)
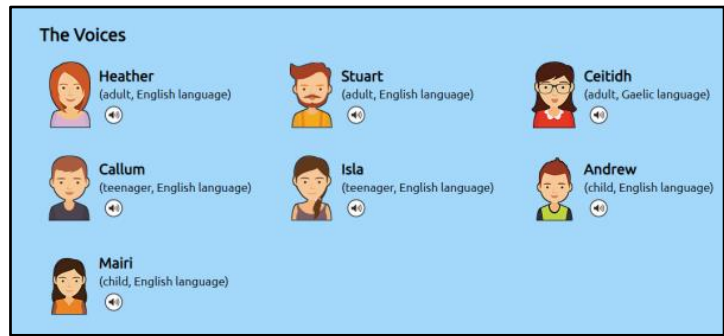
Figure 14: Lachlan featured on Radio Scotland on 20/8/19. He accesses his communication aid with an eye-gaze camera and is one of the first boys in Scotland to speak with the *Andrew* voice.

Assistive Technology in SQA Examinations

Funded by: SQA

Digital Question Papers

CALL continued to work with SQA to refine Digital Question Papers and to provide support and professional learning to SQA, schools and learners.

Details of research and development work are given in Knowledge Transfer, Research and Development

The number of requests for Digital Question Papers (DQP) increased by 13% between 2017 and 2018 while the number of candidates for whom papers were requested increased by 11% (Table 6).

Table 6: Digital Question Papers 2009-2018

Digital Papers	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	% Δ 2017 - 18
Number of requests	1,167	2,000	2,832	3,694	4,291	3,540	3,566	4,802	5,888	**6,662**	**13%**
Number of centres making requests	73	101	149	173	188	191	204	222	230	**245**	**6.5%**
Number of candidates	422	675	1,069	1,327	1,677	1,487	1,599	2,057	2,398	**2,670**	**11%**
Mean number of requests per centre	15.99	19.80	19.01	21.35	22.82	18.53	18.92	21.6	25.6	**27.19**	**6%**
Mean number of candidates per centre	5.78	6.68	7.32	7.67	8.92	7.79	8.28	9.27	10.43	**10.9**	**4.5%**
Mean number of requests per candidate	2.77	2.96	2.65	2.78	2.56	2.38	2.28	2.33	2.45	**2.50**	**2%**

Use of technology compared to other types of support

The use of technology as an Assessment Arrangement continues to increase both in absolute terms and also in relation to the other types of support that are requested by presenting centres (Figure 15). Requests to use technology to write or record answers are now more common than either reader or scribe; while requests for DQPs are more common than scribes. We view this as a positive development since technology offers a more independent method of support.
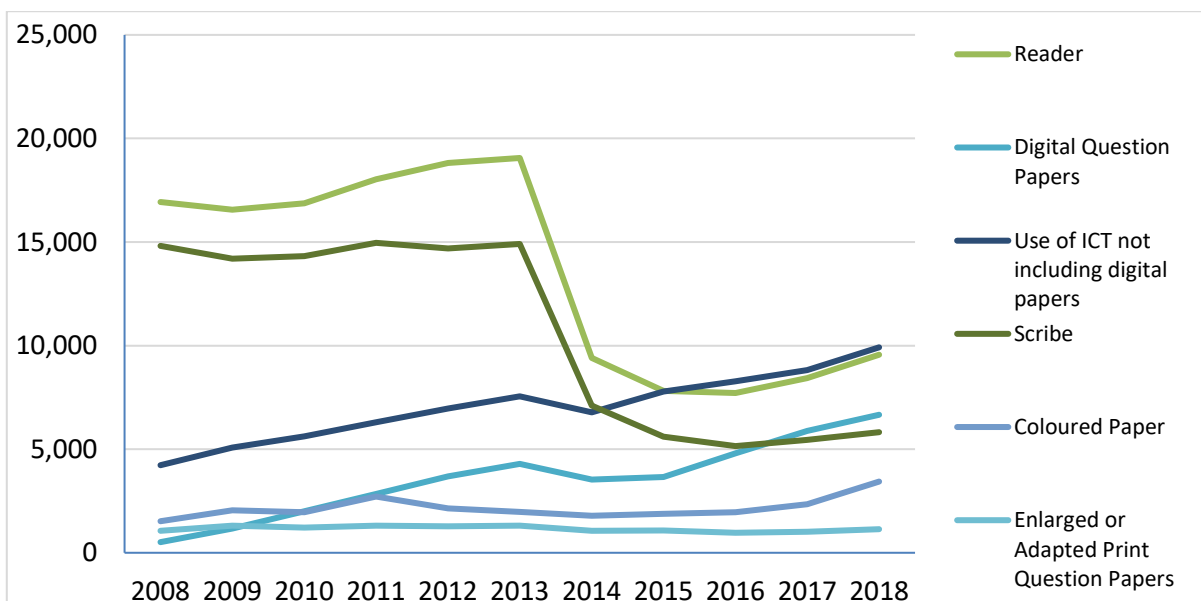
Figure 15: Number of requests for most popular methods of support, 2008-2018

Free Text Reader Software

CALL provides a number of free text reader software tools 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 free base level of accessibility software across the country, enabling equality of access and saving schools (and parents and carers) the cost of purchasing commercial software.

WordTalk

WordTalk is a free text reader for Microsoft Word, created by Rod Macauley in 2005. The current version has been downloaded 225,012 times from the WordTalk mini-site since January 2009. Rod originally programmed it for Windows XP and Word 2003 and it is still functioning on most versions of Windows and Word fourteen years later.
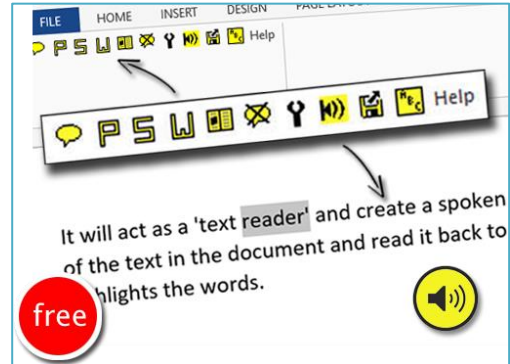
There has been a significant drop in the number of downloads over the past year, possibly because Learning Tools are now available built-in to Word and so there may be less need for WordTalk. There has been a 39% **increase** in visits to the WordTalk site and we suspect that the site is being 'targeted' in some way as there have been hundreds of attempts to download WordTalk using fake email addresses over the past year.

Table 7: WordTalk visits and downloads

WordTalk	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
WordTalk (visits to site)	92,805	97,068	119,562	130,518	208,088	166,240	233,810	**324,804**
WordTalk (downloads)	24,928	21,504	20,826	19,555	21,472	26,395	32,731	**19,588**

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 a number of free tools including for example Ivona MiniReader and Natural Reader.

NaturalReader

NaturalReader is a useful text-to-speech program that we often recommend. We experienced some technical issues with Version 14, so we sought and received permission to allow people to download Version 13 from the CALL Scotland web site.

Table 8: NaturalReader 13 downloads

NaturalReader 13	2017-18	2018-19
NaturalReader 13 downloads	309	**465**

MyStudyBar 4

Craig Mill's MyStudyBar 4 was launched on 30 August 2017 and was downloaded 5,216 times in 2018-19. It provides 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.

Table 9: MyStudyBar downloads

MyStudyBar 4.1	1.9.17 – 31.3.18	2018-2019
MyStudyBar 4.1 downloads	3,346	**5,216**

Doorway Online

Doorway Online[19] is a collection of free and highly accessible educational activities that learners find easy to use independently. Each activity has a range of accessibility and difficulty options. Originally developed in the early 1990s by Philip Whittaker with funding from Scottish Borders Council, it is now managed by the Doorway Accessible Software Trust, a Scottish charity. Allan, Craig and Shirley are all trustees.

CALL Scotland provided advice on accessibility issues when the activities were first created and made available on the web and have continued to work closely with Philip and the Trust to maintain the web site and ensure the continuing availability of the resources. Resources are currently being converted from Adobe Flash to HTML5 as Flash is no longer considered to be a secure platform.

CALL has contributed to the funding costs of hosting the web site in recent years, but this will no longer be required from 2019 as a result of increasing revenue from a small number of discreet advertisements on the web site.

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19 Doorway Online https://www.doorwayonline.org.uk/

Pupil Assessment & Support

Funded by: Partnership Agreements with local authorities (primarily)

OBJECTIVES

Multidisciplinary assessment follow up and support of Individual referred pupils with complex ASN, in mainstream or special settings.

OUTCOMES

- 49 new pupils were referred for assessment and support (48 in 2017-18).
- 54 pupils received a comprehensive assessment for communication and/or assistive technology (48 in 2017-18).
- 104 pupils were supported directly in school through assessment or follow up visits (90 in 2017-18).
- 185 pupils in 21 local authorities were supported directly in school or indirectly through telephone or email advice (163 pupils / 17 local authorities in 2017-18).
- 174 assessment and/or support sessions were delivered in schools (162 in 2017-2018).
- 19 Partnership Agreements or Service Level Agreements (SLAs) were made with local authorities and schools for 203.3 days of work for 2018-19 (17 Agreements / 183.7 days in 2017-2018). The following local authorities had arrangements with CALL: Argyll & Bute, Clackmannanshire, Dumfries & Galloway, East Lothian, East Renfrewshire, Falkirk, Highland, Inverclyde, Moray, North Ayrshire, Perth & Kinross, Renfrewshire, Shetland, South Ayrshire, South Lanarkshire, Stirling and West Dunbartonshire. In addition, agreements have been negotiated with two schools to provide training for staff and limited support for pupils.
- 44% of Assessment and Support staff time was spent in schools (43% in 2017-18); 32% is taken up with support from CALL by telephone and email, equipment preparation, development work, report writing, etc (32% in 2016-17) and 24% is taken up with travel (25% in 2017-18).

Table 10: Assessment and Support 2012-18

Number of …	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
New referrals	43	37	39	42	48	**49**
Pupils assessed/supported on site	85	71	72	99	90	**104**
Assessment/support sessions	118	107	135	188	163	**174**
SLA/Partnership agreements with local authorities and schools	15	16	17	17	17	**19**
(Number of days work)	191.25	196.5	182.75	196	183.7	**203.3**

Learners referred to CALL in 2018-19

CALL supports children and young people in Scotland who may benefit from assistive technology or augmentative communication, due to complex communication, physical, or other additional support needs.

Table 10 gives an indication of the underlying factors giving rise to learners' additional support needs, and the areas in which assistance is requested from CALL. Note that we have updated the terminology used in our referral form so it is not possible to compare numbers with previous years.

Speech, language or communication needs are the most common factors and most pupils have complex support needs arising from more than one condition.

The most common areas where practitioners require support are with assistive technology for writing or recording, teaching and learning software and apps, and 'high tech' communication aids.

Help and advice with teaching and learning strategies was requested for 20 learners (41%); personalised resources for 19 learners – illustrating the need for bespoke individual support – and alternative access also for 19 out of 49 learners.

Table 11: Pupils Referred to CALL in 2018-19

Factors giving rise to Additional Support Needs	Number	Areas where assistance is requested	Number
Speech, Language / communication needs	22	**Augmentative and Alternative Communication**	
Severe / complex learning difficulty	16	- social communication skills	14
Mild / moderate physical disability	13	- low tech, e.g. printed symbols	6
Visual impairment	13	- high tech, i.e. communication aid	26
Autism Spectrum Conditions	12	**Assistive Technology for:**	
Mild / moderate learning difficulty	11	- reading	12
Social, Emotional & Behavioural Difficulties	10	- writing	32
Severe / complex physical disability	9	- numeracy	12
Dyslexia / specific learning difficulty	7	- participation and control	0
Hearing Impairment	6	**Alternative access**	19
Learning environment	4	**Personalised resources**	19
Family circumstances	2	**Teaching & learning strategies**	20

English as an Additional Language	1	**Teaching & learning software / apps**	27
Other	20		

Service delivery

The CALL service delivery model is very similar to the Augmentative and Alternative Communication (AAC) National Core Pathway[20] (as one would expect) and follows a process of referral, discussion, assessment, trial and evaluation with support, provision, training and support, and review.
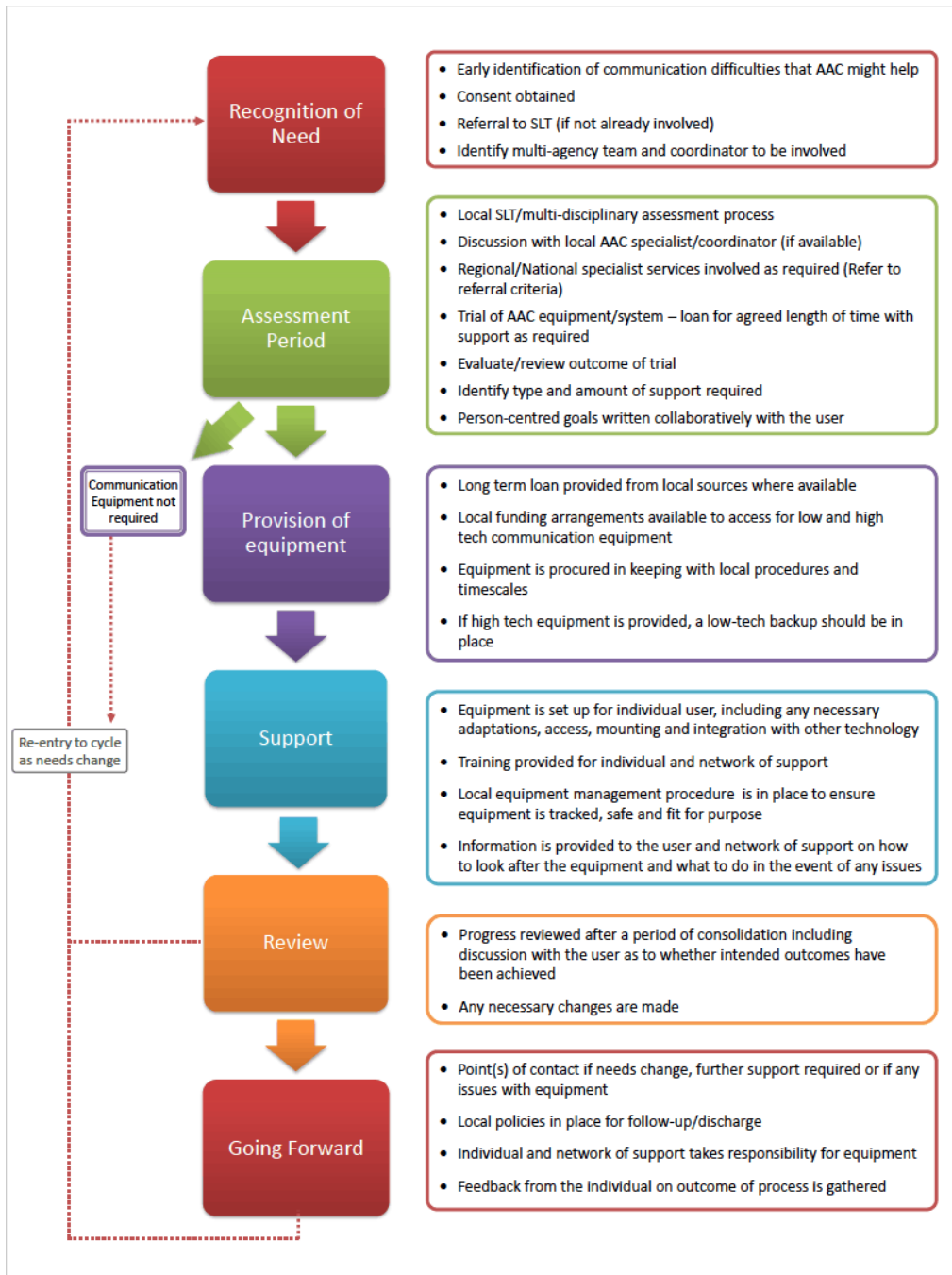

Figure 16: Augmentative and Alternative Communication (AAC) National Core Pathway

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[20] Scottish Government (2018) Augmentative and alternative communication (AAC): national core pathway

The CALL team uses the SETT (Student, Environments, Tasks, and Tools) Framework[21] to guide the assessment and support process. SETT is a well regarded approach used by Assistive Technology services and organisations across the world including for example the QIAT (Quality Indicators for Assistive Technology) Community; SET-BC (British Columbia); while in in New Zealand, practitioners are required to use SETT to undertake an assistive technology assessment[22].

We continue to reflect on methods and approaches to service delivery, particularly implementation for individual learners who require complex technologies and a very bespoke approach to personalised resources.

Learners with complex assistive technologies require the creation or adaptation of digital learning resources and they need teaching in how to use the technology and the strategies. This requires staff with specialist knowledge and experience, or the time to acquire such knowledge and experience.

It is our impression that there are fewer QIOs and Education Officers with responsibility for Additional Support Needs; fewer assistive technology specialists; fewer Speech and Language Therapists; and fewer Support for Learning staff available to implement the recommendations that we provide.

We will be carefully monitoring progress of the learners that we support and reflecting on how we can support the best possible outcomes for them.

Providing Support via Video Link

We consider it is always necessary to visit a learner in school in order to adequately carry out an full assessment of needs and to evaluate possible technologies and strategies, but it may be a more efficient use of time to provide follow-up support online by video link using Skype, or Adobe Connect, in addition to phone or email.

There were four instances of support by video link in 2018-19. There have been occasional technical issues with slow wifi, Adobe Connect being blocked by some local authorities and one school without a functioning microphone.

We will continue to research and develop our practice using the technology and work with colleagues in ATLAS to improve services across Scotland, particularly in rural areas

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[21] Zabala (2019) Sharing the SETT Framework

[22] New Zealand Ministry for Education (2019) Applying for assistive technology

Special School Case Example

- In October 2018, Joanna and Claire began a programme of support to a local Special School through a Service Level Agreement, which comprised:
Initial discussions with the school management team around their development needs and expected outcomes.
- Identifying 'key learners' throughout the school for whom supports, suggestions and advice could be generalised to other learners with similar profiles and needs. For example, 'Andrew', a pupil in the Senior Phase had his own AAC device, but staff felt he wasn't making the best use of it. After working with Andrew, a communication group activity was created which gave him opportunities to use his communication device functionally with other learners in the school who also had their own systems.
- By identifying and signposting existing and new resources and updating skills, the school are now running communication groups weekly.
- Visits to work in class with identified learners and their peers. This enabled CALL staff to observe and work with the learner alongside their peers, discuss and show staff resources 'in situ' and suggest ways of using the resources and strategies more widely throughout the classroom.

GoTalk 9+
Communication Aid

- Identifying existing resources within the school. Assisting staff in doing an audit of the communication and assistive technology already available and to identify what was still useful or what needed upgraded or purchased helped to focus key staff on the school's development needs.
- Twilight training was then provided for staff on the assistive technology and strategies identified such as use of iPads for accessing the curriculum and communication and in extending use of eye gaze technology.

Joanna and Claire felt that this model of support for a special school allowed them to target the needs of individual learners while demonstrating how identified strategies and use of technology could be extended more widely across the whole school.

As special schools are busy environments, supporting the school in this way meant that they were able to identify useful strategies and resources through classroom observation and direct intervention and then provide targeted inset training based on the existing skills observed and assistive technology available.

The school found it a positive model of support, commenting:

Charlie and James from Saltersgate School helped to make Symbol key fobs as part of a short work experience project at CALL Scotland

"It was very worthwhile to have you in school, it built staff confidence and showed us new resources we could use. The chance to discuss future plans in developing ICT in school was very helpful to our future development."

Joanna and Claire plan to follow up and review progress in 2019-20. They found this model of working effective in both building sustainable staff skills and capacity and a good working relationship between CALL Scotland and the school.

Assistive and Communication Technology Assessment and Support across Scotland

Provision and support for assistive and communication technology, devices and equipment is a precondition for equal rights, according to the UN Standard Rules[23], while access to assistive technology is specified in several Articles of the Convention on the Rights of Persons with Disabilities[24] (**bold**):

Article 9 – Accessibility

1. "To enable persons with disabilities to live independently and participate fully in all aspects of life, States Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications, **including information and communications technologies and systems**, and to other facilities and services open or provided to the public, both in urban and in rural areas."

Article 21 - Freedom of expression and opinion, and access to information

"States Parties shall take all appropriate measures to ensure that persons with disabilities can exercise the right to freedom of expression and opinion, including the freedom to seek, receive and impart information and ideas on an equal basis with others and through all forms of communication of their choice, as defined in article 2 of the present Convention, including by:

a) Providing information intended for the general public to persons with disabilities in **accessible formats and technologies** appropriate to different kinds of disabilities in a timely manner and without additional cost;

b) Accepting and facilitating the use of sign languages, Braille, **augmentative and alternative communication, and all other accessible means, modes and formats of communication** of their choice by persons with disabilities in official interactions;

c) Urging private entities that provide services to the general public, including through the Internet, to provide information and services in accessible and usable formats for persons with disabilities;

d) Encouraging the mass media, including providers of information through the Internet, to make their services accessible to persons with disabilities;

e) Recognizing and promoting the use of sign languages."

Article 24 – Education

1. "States Parties recognize the right of persons with disabilities to education.
2. In realizing this right, States Parties shall ensure that:
   a. Persons with disabilities are not excluded from the general education system on the basis of disability, and that children with disabilities are not excluded from free and compulsory primary education, or from secondary education, on the basis of disability;

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[23] Standard Rules on the Equalization of Opportunities for Persons with Disabilities [A/RES/48/96]

[24] Convention on the Rights of Persons with Disabilities – Articles

b. Persons with disabilities can access an inclusive, quality and free primary education and secondary education on an equal basis with others in the communities in which they live;

c. Reasonable accommodation of the individual's requirements is provided;

d. **Persons with disabilities receive the support required, within the general education system, to facilitate their effective education**;

e. Effective individualized support measures are provided in environments that maximize academic and social development, consistent with the goal of full inclusion.

3. States Parties shall enable persons with disabilities to learn life and social development skills to facilitate their full and equal participation in education and as members of the community. To this end, States Parties shall take appropriate measures, including:

a. Facilitating the learning of Braille, alternative script, **augmentative and alternative modes, means and formats of communication** and orientation and mobility skills, and facilitating peer support and mentoring."

According to the House of Commons Work and Pensions Committee, "*Assistive Technology (AT) already makes a huge difference to the lives of disabled people. It helps them live more independently and enables many to work. But it has vast untapped potential.*[25]"

In Scotland, the 2016 *National Strategy for enhancing learning and teaching through the use of digital technology*[26] aims to:

- "Develop the skills and confidence of educators in the appropriate and effective use of digital technology to support learning and teaching.
- Improve access to digital technology *for all learners*.
- Ensure that digital technology is a central consideration in all areas of curriculum and assessment delivery.
- Empower leaders of change to drive innovation and investment in digital technology for learning and teaching."

The *Independent Literature Review on the Impact of Digital Technology on Learning and Teaching*[27] commissioned by Scottish Government found that "*There is promising evidence that the use of digital equipment and resources can help learners with additional support needs to improve their skills and competences in literacy and numeracy*" but that "*Successful utilisation of digital technology depends not just upon sufficient access to equipment, tools and resources, but also on the availability of sufficient training, and knowledge and support networks for teachers.*"

The *Doran Review* of 2012 reported that "*The increasing availability of technological aids greatly improves the learning experiences of children and young people*" but warned that "*the provision of the most appropriate technological aids and appliances is a highly specialized field where mistakes can be extremely costly*" and "*concern was expressed to the review that staff and parents did not always get the help they required to support the effective use of that technology*". The report recommended that "*the expertise and specialist experience that exists in organisations such as CALL, Scottish Centre of Technology for the Communication Impaired (SCTCI) and Fife Assessment*

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[25] House of Commons Work and Pensions Committee (2018) Assistive technology: Tenth Report of Session 2017–19

[26] Scottish Government (2016) Enhancing learning and teaching through the use of digital technology.

[27] Scottish Government (2015) Independent Literature Review on the Impact of Digital Technology on Learning and Teaching.

Centre for Communication through Technology (FACCT) could be made more available and accessible to all authorities" ([28] p. 27).

The vision for provision of communication technology for Scotland is that "*People who have difficulty speaking and who can be assisted by communication equipment have the right to get the equipment and support they need to use it, when they need it, whoever they are and wherever they live in Scotland, enabling them to participate in their communities and be fully included in society*" ([29] p. 2).

Speech and Language Therapists are the practitioners best placed to provide ongoing support for learners, practitioners and parents regarding AAC and communication (although not necessarily communication technology, as this does require specialist knowledge and experience), but a submission from the Royal College of Speech and Language Therapists found that "*The Scottish Parliament Health Committee report (Feb. 2014) showed there had been an overall 8.8% decrease in funding for SLT in Scotland since 2011 – with cuts coming from both health boards (up to 21.1%) and local authorities (up to 20.6%). 3 local authorities have withdrawn 100% of funding (secured through service level agreements) for SLT services by April 2016*."

The 2014 *Making Sense* report from Education Scotland found that "*It is increasingly rare for local authorities to employ officers who can advise schools on appropriate ICT solutions for children and young people with additional support needs and lend them equipment*" ([30] p. 13).

In summary:

- We know that access to appropriate assistive and communication technology, and support to learn to use it, is vital if many children and young people are to become confident individuals, successful learners, responsible citizens and effective contributors.
- We know that digital technologies have never been more inclusive or prevalent. Increasingly, schools and local authorities are implementing 1:1 device programmes: Highland have completed a 1:1 Chromebook program for learners in P6-S6; Stirling is providing Chromebooks to all learners in S1; Glasgow is provisioning every learner in P6 and above with their own iPad, and Scottish Borders plan to do the same.
- But even though digital technology is everywhere and used by almost everyone, we cannot assume that practitioners, learners and parents have the knowledge and skills to identify the most appropriate technology, or how it can be successfully implemented in class.
- Yet at this crucial time, we believe that many local authorities are reducing services for this crucial service.

Assistive Technology and its application in schools is a specialist field and practicing it effectively requires expertise, experience, time and resources. There is a need to research the provision of Assistive Technology services across Scotland, and if services are found to be lacking, to support local authorities to develop their capacity.

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[28] Scottish Government (2012) The Right Help at the Right Time in the Right Place. Strategic Review of Learning Provision for Children and Young People with Complex Additional Support Needs.

[29] Scottish Government (2018) Provision of communication equipment and support: guidance

[30] Education Scotland (2014) Making Sense: Education for Children and Young People with Dyslexia in Scotland

Specialist Information & Expert Advice

Funded by: Scottish Government Learning Directorate Core Grant

OBJECTIVES

- Open access national information and advice service delivered in response to enquiries by telephone, letter, email.
- Publication and circulation of e-News, newsletter, books, information leaflets.
- Maintenance and development of CALL Scotland web sites.
- Provision of a specialist library and web search facility for enquirers.
- Provision of online Professional Learning resources on AAC (funded primarily by NHS Education Scotland).

OUTCOMES

Information and Advice

- 765 significant enquiries were received and given a response, compared with 638 the previous year.

- 52% of enquiries were from education (58% in 2018-19); 23% from people with disabilities, parents and relatives (23%); 11% from health/social work (9%), and 14% were from other sources (10%).

Websites

CALL Scotland now hosts nine separate websites. They all require regular updating to ensure that content is up to date and relevant. In addition to this daily maintenance, there has been progress with various developments for the websites:

- The new Symbols for All site was completed and formally launched in September 2018. The site hosts printable PDFs of symbolised curricular resources for inclusive learning and teaching, and also provides a home for the various symbolised resources created to support the Scottish Book Trust's Bookbug books in recent years.

- Work on the new Books for All site has been completed. It will include the accessible books currently located within the Books for All Scotland database, though the files have not yet been transferred. It includes a download system that will watermark every page on a downloaded book to allow traceability.

- The AAC Scotland website was updated to coincide with the launch of the new **AAC in Education** online learning modules.

- A tracking system was created for downloads from the Scottish Voice website to get a better idea of how the site is being used.

- Work continues on the new CALL Scotland website to make it more mobile friendly. 30% of our audience now access the website from a mobile device.
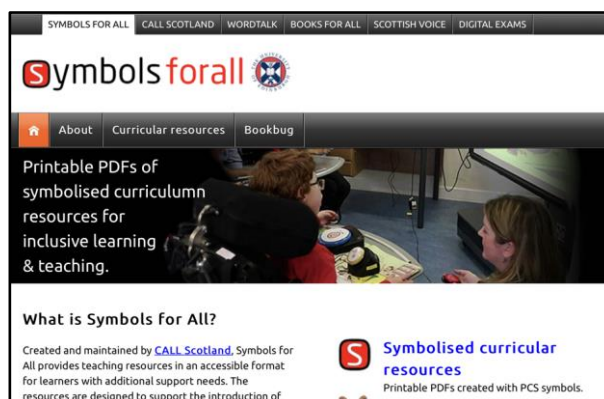
The total number of visitors to the nine CALL websites has increased by 1.4% to 1,116,755. This apparent consistency of overall visitor numbers to the various CALL websites hides considerable variation in numbers for some of the individual sites. This year, the most surprising change is the 39% **increase** in visitors to the WordTalk site, coinciding with a 40% **decrease** in the number of downloads. Curiously, almost every day we have confirmation emails bouncing back from fake email addresses that people have used when attempting to download the free software.

A summary of figures for visitors to the CALL websites and downloads between 2014 and 2019 is provided in Table 12.

Table 12: CALL website visits and downloads

CALL Scotland Websites	2014-15	2015-16	2016-17	2017-18	2018-19
CALL Scotland main site (visits)	338,840	428,899	392,536	540,301	**494,161**
CALL Scotland (resources downloaded)	146,146	286,192	269,357	245,644	**252,862**
WordTalk (visits)	130,518	208,088	166,420	233,810	**324,804**
WordTalk (copies downloaded)	19,555	21,472	26,395	32,731	**19,588**
The Scottish Voice (visits)	23,890	26,468	34,432	40,867	**38,238**
Heather downloads	786	905	954	908	**775**
Stuart downloads	679	646	722	741	**603**
Ceitidh (Gaelic voice) downloads	-	288	267	259	**249**
Books for All (visits)	112,318	90,530	103,155	132,505	**124,555**
Books for All Database (downloads)	31,315	52,569	51,449	42,725	**34.855**
Communication Passports (visits)	53,528	54,603	57,703	64,435	**70,444**
Digital Exams and Assessment (visits)	28,760	27,279	54,515	32,117	**33,231**
ASL and Technology Conference (visits)	8,424	11,407	12,019	13,446	**15,252**
AAC Scotland (visits)	15,363	25,412	34,214	43,729	**45,523**
Symbols for All (visits since Sept. 2018)					**16,547**
Symbols for All (downloads)					**9,001**
Total visits	**711,641**	**872,686**	**854,994**	**1,101,210**	**1,116,755**

**Figure 17: Visits to CALL web sites 2012 - 2019**
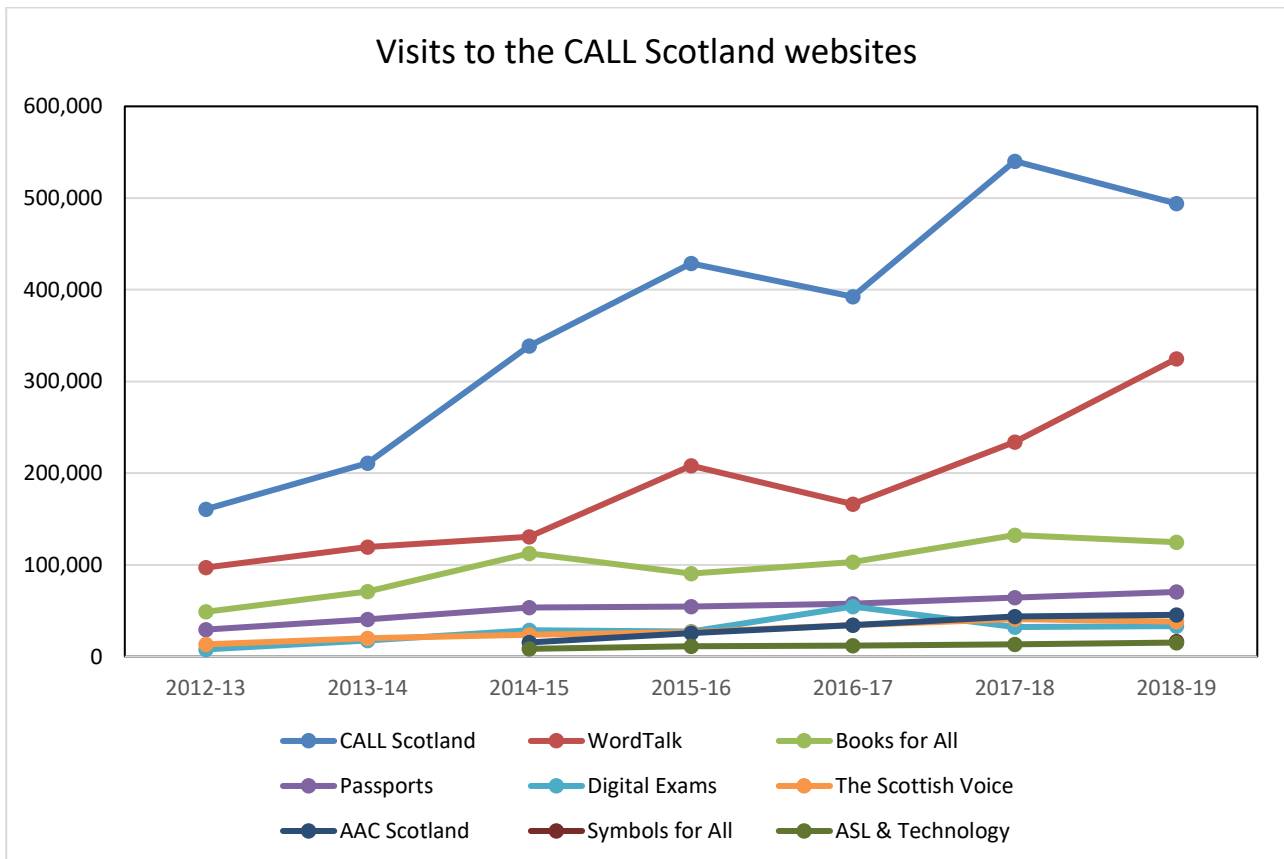
Posters

CALL posters, which provide key information about a variety of topics relating to assistive technology and augmentative and alternative communication in an attractive, visual format, continue to be popular (Table 13), with a total of 62,880 downloads in 2018-19.

The posters have helped to significantly raise the profile of CALL Scotland, both nationally and internationally in recent years. Previous posters have been updated as required and four new posters were produced in 2018-19:

- Raising Attainment with Microsoft Learning Tools (April 2018)
- Chromebook Accessibility and Learning Tools (January 2019)
- iPad Apps for Learners with Complex Additional Support Needs (January 2019)
- MyStudyBar (March 2019)
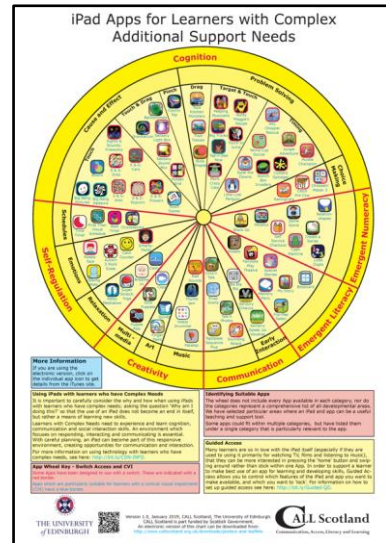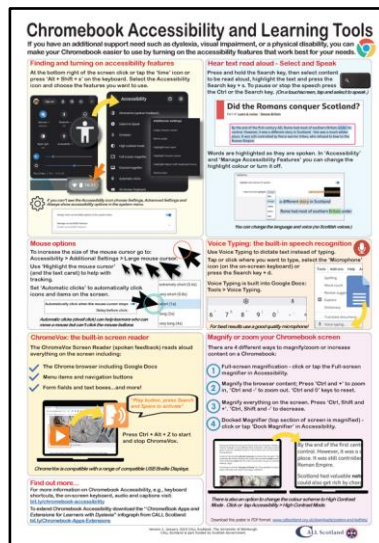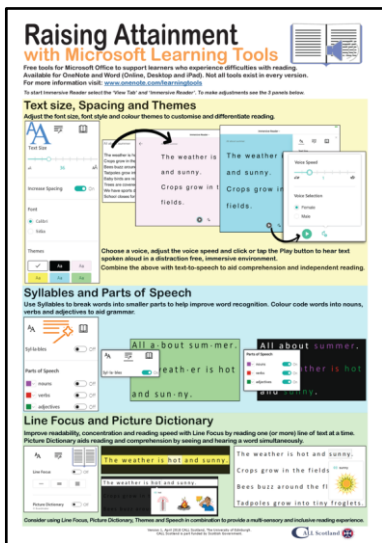
Feedback on Posters

'This is a huge thank you for sending out the new CALL Scotland posters! I can't express how valuable this information is and must compliment the brilliant layout of the wheel. Your link to all the CALL Scotland posters is also greatly appreciated. You have truly made a vast amount of research accessible to educators and students. Your email will be forwarded to all of our special education teachers and service providers and I look forward to studying the information more closely.

With much thanks and good wishes.'

(Assistive Technology Coordinator for School District, Arizona, USA.)

'What a fantastic, well designed resource. Will use this in my OT practice. Thank you for sharing.'

(OT on iPad Apps for Learners with Complex Additional Support Needs poster.)

Table 13: Downloads of CALL Scotland Posters

Downloads of CALL Scotland Posters	2018 - 19	Total
20 Ways to be Excellent (leaflet) (Published 2017)	698	1,277
20 Ways to be Excellent (poster) (Published 2017)	773	1,414
A Guide to Single & Multi-Message Devices (Published 2017)	972	1,659
Addressing Reading Difficulties (Published 2015)	1,967	8,678
Android Apps for Complex Communication Support Needs (Published 2016)	3,341	4,152
Android Apps for Learners with Dyslexia (Published 2015)	4,602	10,029
Are you Meeting your Legal Requirements for Computer Accessibility? (2016)	474	1,395
Chromebook Accessibility and Learning Tools (Published January 2019)	311	311
Chromebook Apps and Extensions for Learners with Dyslexia (Published 2016)	4,332	8,418
Eye Gaze Setup Guide (Published 2018)	746	946
Eye Gaze Software Curve (Published 2015)	1,797	7,543
ICT to Support Learners with Dyslexia (Published 2017)	897	2,500
Inclusive Learning Resources (Published 2016)	794	1,916
iPad Apps for Complex Communication Support Needs (Published 2014)	9,318	61,917
iPad Apps for Learners with Complex Additional Support Needs (Published January 2019)	1,226	1,226
iPad Apps for Learners with Dyscalculia/Numeracy Difficulties (Published 2017)	4,484	7,338
iPad Apps for Learners with Dyslexia (Published 2013)	13,287	136,966
iPad Apps to Support Creativity (Published 2015)	1,329	6,821
Keep Talking! (Published 2014)	2,258	9,657
Making the Most of Notes (Published 2017)	485	889
Making the Most of PDFs and Adobe Acrobat Reader for Learners with ASN (Published 2017)	362	607
MyStudyBar (Published March 2019)	71	71
PowerPoint Books for Young Readers (Published 2016)	1,163	5,094
Raising Attainment with Microsoft Learning Tools (Published April 2018)	803	803
Reading and Writing Support on a Mac (Published 2017)	450	903
Supporting Writing Difficulties (Published 2014)	1,734	11,172
Using Book Creator (Published 2017)	968	11,461
Using the iPad to Support Dyslexia (Published 2015)	1,556	9,036
Using the iPad to Support Learners with Physical Difficulties (Published 2016)	558	2,810
Using the iPad to Support Learners with Visual Difficulties (Published 2016)	684	2,441
What's New in iOS 10 (Published 2016)	440	1,100
	62,880	**320,550**

Information Resources

Table 14: Other Resources downloaded from the CALL website in 2018-19.

Other Downloadable Resources	2017-18	2018-19
Electronic Books and Reports		
Making the Most of Microsoft Word 2016 to Support Learners with Reading Difficulties (Revised 2018)	375	1,354
What's new in iOS 11 (Revised 2017)	692	368
Talking in Exams Project Report (Published 2016)	502	469
iPads for Communication Access Literacy and Learning (Revised 2014)	2,472	2,502
Keep Talking! (Published 2012)	352	2,006
Accessible Text: Guidelines for Good Practice (Published 2010)	3,035	1,177
Selected Quick Guides and Info Cards		
Mathematical and Scientific Symbols (Published 2014)	4,303	4,747
Chromebook Accessibility Features (Published 2016)	1,550	2,079
Using Calibre to Read E Books and Convert E Pub Files for the Kindle (Published 2014)	4,008	2,790
Guided Access for the iPad (Published 2017)	491	417
Speak Selection and Speak Screen Info Card (Published 2016)	872	643
Using Siri Speech Recognition Info Card (Published 2016)	784	646

Blogs

The CALL Scotland website has for many years included a Blog section, where information about forthcoming events, new equipment, Government initiatives and other developments can be provided. CALL staff also use the blog for short articles about the use of assistive technology and AAC in education that don't necessarily fit within the main structure of the website. 33 blogs were published in 2018-19, compared with 65 in 2017-18. We are now able to provide statistics on the number of times each blog published in 2018-19 has been viewed.

Table 15: Blog views 2018-19

Views of CALL Scotland Blogs, 2018-19		
Immersive Reader's New Picture Dictionary	2/4/18	**493**
Very Inclusive Play Club	11/5/18	**60**
National Digital Learning (for All) Week 2018	14/5/18	**29**
National Digital Learning Week-Digital Bookbug Resources	15/5/18	**40**
Dyscalculia and Assistive Technology	16/5/18	**168**
Laptops or iPads to Help Pupils with Reading Difficulties?	16/5/18	**298**
Getting Funding for Equipment	19/6/18	**326**
Using Technology to Support Artists with Dyslexia	16/7/18	**98**
Rice Krispies with Ketchup...coming to a Theatre near You!	13/8/18	**18**
New Learning Opportunities - 2018/19	20/8/18	**178**
Hodder Gibson Textbooks on the Books for All Scotland Database	23/8/18	**101**
Grid 3 Speaks Scottish! on iPad Too!	24/8/18	**87**
Predictable also has that Caledonian Twang	24/8/18	**45**
Inclusive Digital Technology - a New Professional Learning Course	31/8/18	**353**
AAC in Education: Online Learning Modules Now Available	6/9/18	**435**
Online Learning Opportunities 2018	12/9/18	**251**
New Symbols for All Website Launched!	11/10/18	**800**
Halloween Resources	25/10/18	**249**
SQA Digital Question Papers Focus Group 2018	5/12/18	**75**
Free Modern Language Computer Voices	13/12/18	**65**
Chromebook Accessibility and Learning Tools	8/1/19	**99**
New Webinar Schedule (January to June 2019)	9/1/19	**284**
Half Day Professional Learning Opportunities for the New Year	10/1/19	**38**
Census Question for AAC Users	14/1/19	**20**
AAC Study Day - 5 March 2019	14/1/19	**421**
Get Your Own Symbols for All Fob	17/1/19	**168**
New Wheel of Apps for Learners with Complex Needs	18/1/19	**542**
Can't Run Programs on Windows 10? Switch Out of 'S' Mode	20/1/19	**200**
Free Conference: ASL and Technology 2019	5/3/19	**421**
Windows 10 Tools to Support Visual Difficulties	8/3/19	**121**
Create Accessible Games with Tar Heel Gameplay	12/3/19	**112**
Scottish Computer Voices and Microsoft Immersive Reader	18/3/19	**51**
MyStudyBar - a New Poster	18/3/19	**233**

Other Information Services

- 15 CALL publications from previous years were sold, with Personal Communication Passports (6 copies) and Keep Talking! (6 copies) accounting for most of the sales.

- Six issues of CALL's email newsletter were distributed during 2018-19. The email newsletter had 2,926 subscribers by the end of March 2019, with several hundred defunct addresses being removed in April and May 2018 to comply with GDPR.

- We continue to use social media for disseminating information, particularly on courses and webinars, but also for passing on general news of developments in technology and education. CALL makes regular use of Twitter (501 tweets to 2,629 followers) and Facebook (1,360 followers). We currently follow 184 Twitter accounts, mostly those of key individuals and organisations involved in assistive technology, AAC and education.

- 4 items were added to the CALL library in 2018-19. 6 journals are currently received.

Consultation sessions

Requests for information are usually responded to by phone, or email, but it can be more useful to sit down with someone to explore different options for assistive technology. We offer a limited number of consultation sessions, usually about an hour long, providing people with an opportunity to come to CALL and explore software and technology options with the guidance of a member of CALL staff. These are informal information sessions, allowing people to see and try different solutions, but with no prescriptive recommendations or report.

23 consultation sessions were provided in 2018-19, compared with 19 last year. Recent sessions included:

- A retired lecturer with low vision as a result of macular degeneration needed to improve access to his computer. We demonstrated and set up screen magnification and text-to-speech options.

- A young school leaver with Spinal Muscular Atrophy is planning to start an HNC in Computing, but will have difficulty accessing the course so visited to explore options. He tried Dragon speech recognition software, but with limited success. Grid 3 with customised Grid sets may be useful while he also had an opportunity to try an eye-gaze system. We suggested that he explore this further with a supplier to determine whether it could be used in a college environment.

- An S3 pupil at an Edinburgh school, with dyslexia and visual stress, though he does not like tinted lenses, visited with his mother for advice on technology. He uses a PC at school, but does not like the non-Scottish voice used for reading text and has issues with glare. He has access to an iPad but only had limited knowledge of the accessibility features that could support him. After seeing the range of assistive software available, his mother would be meeting the school later in the month to how better use of technology would help him access the curriculum.

Feedback

"Thank you so much. I very much appreciate the time it's taken you to write this really helpful and detailed response and it's given me much food for thought. I will talk this over with my line manager and see where we go from here."

(Member of Vision Support Team on response to enquiry about scanning print materials.)

" Thank you so much for spending time with us on Friday. We left full of enthusiasm and I know E's SfL teacher will push to get things up and running at the school. As most of the things you showed us are free, or relatively low cost they have a chance of being taken on, especially now that the Authority has finally allowed iPads onto its ICT system."

(Parent of S2 learner with dyslexia on consultation visit.)

'I am so impressed with all you do to help people with disabilities. I am a speech-language pathologist from the United States and an early tech adopter. I am always looking for ways to help people of all ages who have communication, cognitive, literacy and learning challenges. I absolutely love the visuals you offer for download on your website!'

(Speech-Language Pathologist from the United States)

Career-Long Professional Learning (CLPL)

Funded by: (a) Scottish Government Learning Directorate Core Grant (PL development)
(b) Charges for course participants (PL delivery)

OBJECTIVES

1. Identification of PL requirements in complex additional support needs, AT & AAC for staff in both special and mainstream settings.

2. Development and delivery of PL.

OUTCOMES

Career-Long Professional Learning at CALL Scotland

Information on CALL's Programme of Career-Long Professional Learning (CLPL) for 2018-19 was distributed to around 2,700 schools via local authority intranet systems. Further copies of the programme were printed for distribution at conferences and other local and national events. These are often handed to teachers during the course of a school visit, with relevant courses highlighted. Throughout the year there was further promotion of courses via direct emails to schools, Twitter, CALL blog posts and e-newsletters. A new online booking system was introduced, streamlining booking, evaluation and payment systems.

Table 16: CLPL Courses delivered in CALL (S= morning seminar; W=afternoon workshop)

Course Title	Date	Number of participants
Creating an inclusive learning environment using assistive technology (Online)	6.9.18	7
Raising attainment for dyslexic learners using assistive technology (Full day)	13.9.18	Cancelled
Technology in SQA exams (Full day)	27.9.18	9
A guide to selecting iPad communication apps (Online)	30.10.18	9
Raising attainment for dyscalculic learners using technology: primary schools (Morning)	15.11.18	6
Raising attainment for dyscalculic students using technology: secondary schools, FE and HE (Morning)	22.11.18	10
Technology to engage learners with complex needs (Saturday morning)	24.11.18	4
Assistive technology to support visual impairment (Online)	17.1.19	12
Switches and eye gaze technology in the complex needs classroom (Morning)	31.1.19	Cancelled
Assistive technology to teach autistic learners (Full day)	28.2.19	7
Raising attainment for dyslexic learners using technology (Full day)	14.3.19	11
Creating a Communication Friendly Environment	21.3.19	5

The number of participants has continued to decline over previous years and we think this is because budgets for professional learning have been reduced and that access to class cover and supply teachers is restricted. Consequently we are concerned that although highly relevant and sought after Professional Learning is on offer, teachers cannot attend. The courses held at the University of Edinburgh are for all Scottish teachers, but it is not feasible for many teachers out with the central belt to attend for a half day or full day course due to the requirement to travel.

We are keen to continue to offer the courses at CALL because we know that participants who do attend benefit hugely from the opportunity to have interactive, hands on Professional Learning and with new knowledge can return to school equipped to better support their pupils with Additional Support Needs. We want to remain a provider of high quality Professional Learning specialising in assistive technology and although we will continue to diversify and offer other types of Professional Learning (webinar, online workshops, online learning) we want to keep offering a core set of courses.

Table 17: Number of courses and participants on CALL based courses

PL courses delivered in CALL	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Number of courses	15	14	13	13	13	**12**
Number of participants	157	209	146	212	147	**80**

INSET Professional Learning

In addition to the courses in the CALL-based programme of Professional Learning, we provide a wide range of in-service courses in schools and local authorities. Courses are designed to meet the specific needs of the school or local authority and CALL can provide laptops or iPads so that participants can have hands on practice with the assistive hardware and software under the expert tutelage of CALL staff.

During 2018-19 CALL provided 28 INSET sessions of Professional Learning for 401 people (teachers, Support for Learning staff, classroom assistants, education psychologists, Speech and Language Therapists, parents/carers, etc.) across Scotland.

Table 18: INSET Courses provided in schools and local authorities

INSET topic / title	Date	Venue / Authority	Number Attending
Technology to support literacy difficulties	16.4.18	Strathearn Community, Perth & Kinross	40
Using Clicker 7 to support ASN pupils	8.5.18	Rutherglen High, South Lanarkshire	12
ICT and Dyslexia	22.5.18	Bathgate Academy	12
Personal Communication Passports	22.5.18	Camelon Education Centre, Falkirk	13
Using technology to support ASN learners	23.5.18	Newbattle Abbey College, Midlothian	12
Using technology to support ASN pupils	28.5.18	Aspire Scotland, North Ayrshire	12
Clicker 7	21.6.18	St Ninians Primary, Dumfries & Galloway	12
Introduction to iPads, Part 1	22.6.18	Newhills School, Glasgow	9
Using technology to support ASN pupils	27.6.18	Windygoul Primary, East Lothian	40
ICT and Complex Needs	20.8.18	St Duthus School, Highland	21
Digital Exams and Assessments	21.8.18	Levenmouth Academy, Fife	8
Introduction to Communication Passports	28.8.18	Greenburn School, South Lanarkshire	12

INSET topic / title	Date	Venue / Authority	Number Attending
Clicker Apps	28.8.18	Inchview Primary, Perth & Kinross	6
Digital Exams and Assessments	11.9.18	St Joseph's Academy, East Ayrshire	5
Creating a Communication Friendly School	5.10.18	Strathpeffer Community Centre, Highland	22
Introduction to iPads, Part 2	29.10.18	Newhills School, Glasgow	8
Shared Reading Resources for children with speech, language and communication needs	15.11.18	Fossoway Primary School, Perth & Kinross	4
iPads and Chromebooks	19.11.18	Kirktonholme School,	20
Technology in Exams	20.11.18	Kelvinside Academy, Glasgow	5
Assistive Technology in a Complex Needs Classroom	30.11.18	Strathpeffer Community Centre, Highland	16
iPad Apps to Support Communication	23.1.19	Redburn School, North Lanarkshire	4
CALL Scotland and Assistive Technology	4.2.19	Education Scotland Digital Skills Team	9
Creating Inclusive Schools	6.2.19	West Lothian College, West Lothian	40
Using technology to support ASN pupils	13.2.19	Biggar Primary School, South Lanarkshire	24
Early Communication Apps	13.2.19	Fossoway Primary School, Perth & Kinross	5
Introduction to iPads	14.2.19	Newhills School, Glasgow	8
Communication Apps and Resources	20.3.19	Saltersgate School, Midlothian	16
Developing communication and learning experiences using iPads	22.3.19	Abernethy Primary, Perth & Kinross	6

Table 19: Number of INSET courses and participants

PL delivered in schools/authorities	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Number of courses	36	28	30	24	28	**28**
Number of participants	593	647	507	475	628	**401**

The number of INSET courses delivered last year is unchanged but numbers attending are down from the previous year. Instead of schools choosing to pay for two CALL trainers for these bespoke hands on sessions, there was a pattern of keeping numbers below 12 which would then mean they only had to pay for one trainer. Some schools have no additional money to spend on external Professional Learning (or choose not to use their budget for this purpose), others are opting to continue upskilling staff in the use of technology but having to spend less than in previous years.

Smaller numbers can often mean training becomes more focussed and it is possible to go off at relevant tangents based on questions asked during the session. The high rate of satisfaction from participants would indicate that the training provided is most valuable.

The decrease in numbers of participants follows the same pattern as the decrease in numbers of participants attending courses in person at CALL. There are so many more demands on teachers to undertake Professional Learning in a variety of areas depending on the focus of the school development plans. For example, two thirds of teachers state they feel they have not had enough training to best support students with mental health issues (http://www.gtcs.org.uk/News/mental-health-training-support-teachers-scotland.aspx). Many

schools are focussing on this area of health and wellbeing for staff development which could be the reason that the take up of Professional Learning in other area has decreased.
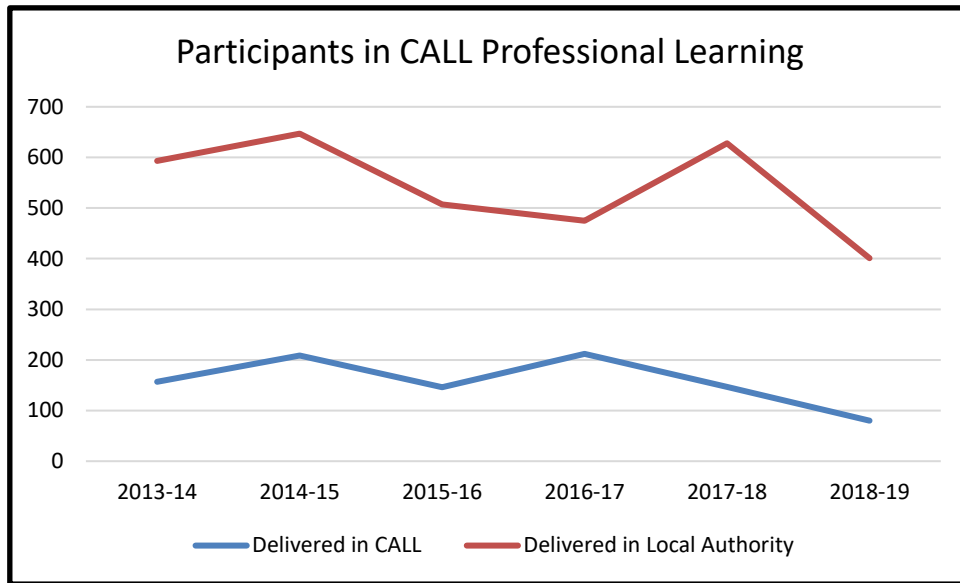

Figure 18: Participants on CALL Professional Learning events 2013-2019

Evaluation and Feedback

Courses at CALL are evaluated on the day of delivery, with participants asked to complete an online form at the end of the course. We changed our rating method this year from a three-level "satisfaction" rating (not satisfied / satisfied / very satisfied) to a numerical scale from 1 to 10. Participants are asked, "On a scale of 1 to 10 how would you rate this training course?". Courses held at CALL in 2018-19 were given an average rating of 9.4, with 89% of participants giving a rating of 9 or 10.

Courses in schools or local authorities are also evaluated using either a CALL or a local authority evaluation tool but we do not always have access to the results when a course is evaluated by the local authority. Where possible, we invite participants to complete an online evaluation, otherwise paper forms are used, with data being transferred from the paper forms to our online system after the course. Courses held in schools or local authorities were given an average rating of 9.3, with 73% of participants giving a rating of 9 or 10.

Table 20: Average rating for Professional Learning delivered by CALL.

On a scale of 1 to 10 how would you rate this training course?	Average Rating 2018-19
Courses delivered at CALL Scotland	9.4 / 10
Courses delivered in schools and local authorities	9.3 / 10

Sample comments from evaluations:

'Course delivery and content was excellent and very current for today's learners.'

(Teacher on Technology and Autism Spectrum Conditions course)

'Great overview, good justification for symbols and communication friendly environments.'

(Teacher on Creating a Communication Friendly Environment course)

'Hands-on, practical advice with a highly skilled and informative trainer.'

(Deputy Head Teacher on Introduction to iPads INSET)

'It was very hands on and gave us opportunities to try the apps and have go.'

(Teacher on Communication Apps and Resources INSET)

CALL Webinars

Webinars are convenient, live, 20 – 30 minute presentations delivered to participants' computer, or tablet over the web. Participants can listen to the presenter via audio, view materials on screen and engage in discussion via instant messaging.

- CALL hosted 20 webinars during the year (18 in 2017-18); 14 presented by CALL staff and 6 by suppliers and other guest presenters.
- 1243 people signed up for the webinars, compared with 869 in 2017-18. An archive version of a webinar is generally 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. The archived webinars for 2018-19 were viewed 3,839 times, an average of 191 for each recording, compared with an average of 84 people viewing last year's files. The webinar on *Apps and Resources for Core Vocabulary Teaching* was featured on Prof Carole Zangari's PrAACticalAAC website, with a positive impact on the number of views in the archive.

Table 21: CALL Webinars 2018-19

Webinar title	Date	Number signing up	Archive Views
Writing and drawing for Secondary STEM for learners with ASN	18.4.18	30	181
Chromebooks and Accessibility	2.5.18	64	256
IDL Dyslexia software	16.5.18	58	247
Using Grid 3 software interactively with complex needs learners	30.5.18	51	195
Assistive Technology to support an Autism Spectrum Condition learner	20.6.18	114	269
Balabolka Text to Speech - Removing the Fear Factor!	22.8.18	21	170
Apps and Resources for Core Vocabulary Teaching	29.8.18	38	673
Free sources of digital textbooks and resources	26.9.18	66	167
MyStudyBar	10.10.18	59	160
Talking Mats communication symbols tool	24.10.18	47	145
How technology can be used to support a high school dyslexic student	7.11.18	76	229
Bookbug symbol resources for Shared Reading	21.11.18	35	102
Symbols for All	5.12.18	48	66
The CALL Scotland app wheel for learners with complex needs	16.1.19	93	295

Webinar title	Date	Number signing up	Archive Views
Online teaching activities for young people with complex needs	30.1.19	80	177
How WordQ assistive software can support literacy difficulties	6.2.19	35	105
How to use Clicker 7 for Early Literacy support	27.2.19	73	147
Inclusive Digital Technologies Masters level course at CALL: Is it for you?	20.3.19	50	59
Supporting People with Dyslexia using a Windows PC (in association with Dyslexia Scotland)	21.3.19	78	88
Supporting People with Dyslexia using iPads, tablets and other devices (in association with Dyslexia Scotland)	26.3.19	127	108

The webinars definitely represent a 'success story' for CALL, with a steady increase in the number of people signing up and in the number of views of recordings in the Webinar Archive. Some people are regular attendees, but for every webinar there are new faces in attendance. The core audience is from Scotland and the rest of the United Kingdom, but the live webinars often have participants from North and South America, Europe and Asia. The Archive allows people to watch a recording of a webinar at a time that suits them and also provides an expanding resource for information and professional learning. It is very helpful for CALL staff to be able to direct people to a particular webinar when they are looking for a brief overview of a topic, or a more detailed guide to using a particular piece of software.

Table 22: Numbers of webinars and participants 2014 - 2019

Webinars	2014-15	2015-16	2016-17	2017-18	2018-19
Number of Webinars delivered	19	22	23	18	20
Number of participants registering	n/a	426	738	869	1243
Average Number of people viewing archived webinars	n/a	157	50	79	192

ASL & Technology Conference

CALL Scotland's annual Additional Support for Learning and Technology Conference and Exhibition was held in Aberdeen and Edinburgh in June 2018. 101 teachers, therapists and others with an interest in assistive technology in education attended the day in Edinburgh, while Aberdeen attracted 63 visitors. The Aberdeen conference featured 3 presentations by CALL staff, 5 by local practitioners and 20 by suppliers of software and specialist equipment. There were 3 CALL presentations, 6 by local practitioners and 19 by suppliers in Edinburgh. Titles of the CALL presentations are included in the Knowledge Exchange, Research and Development section.

The ASL & Technology conferences are an important fixture on the CALL calendar and for many practitioners this is the opportunity not only to attend assistive technology workshops and information sessions but to network with colleagues from all over the country. Many Support for Learning teachers are working in schools where they have no immediate colleagues who are specialising in supporting pupils with Additional Support Needs so the conference provides the ideal chance to make connections and share resources with the added benefit of having the CALL team at hand to answer any questions.

Sample comments from evaluations:

'Enjoyed the event - like this combination of practitioners' sessions and suppliers in one place. Also, always a valuable opportunity for networking with colleagues from this sector.'

(Teacher on ASL and Technology Conference, Edinburgh)

'This was a very worthwhile day with a very high standard for presentations and very well organised. Time was very tight and I only managed to visit 5 stalls, all of which were very relevant and helpful. Thank you I really enjoyed the day.'

(Head Teacher on ASL and Technology Conference, Aberdeen)

Conference Presentations and Talks

Members of staff from CALL are regularly invited to give formal presentations at conferences and requested talks for mainly for parent and special interest groups, though there were several from adult-related services, reflecting increasing awareness of assistive technology and a shortage of specialist advice.

CALL staff delivered 26 conference presentations (listed in the Knowledge Transfer, Research and Development Section) and 10 talks in 2018-19.

Table 23: Invited talks provided by CALL staff

Requested Talks, 2018-19	Date	Event	Number
Using Technology to Support Learners with Dyslexia	30.5.18	Parents, Langside Primary, Glasgow	16
Assistive Technology and Dyslexia	31.5.18	Dyslexia Scotland North East Branch	15
CALL Scotland and Assistive Technology	4.6.18	Dept of Work and Pensions, Glasgow	20
CALL Scotland - Using Technology to Support People with Communication Difficulties	19.9.18	Perth and Kinross Employability Network	20
Using Technology to Support Artists with Dyslexia	6.8.18	Fringe Central, Edinburgh	14
Using Technology to Support Dyslexia	6.11.18	Dyslexia Scotland Angus Branch	35

Requested Talks, 2018-19	Date	Event	Number
CALL Scotland services and Windows / iPad accessibility	27.11.18	Into Work, Edinburgh	8
CALL Scotland and Assistive Technology	29.1.19	Fragile X Society, Glasgow	6
Using Assistive Technology to Support People with Dyslexia	25.2.19	Dyslexia Scotland, Inverness	75
Using Assistive Technology to Support People with Dyslexia	7.3.19	Dyslexia Scotland, Glasgow	32

Exhibitions

CALL regularly provides an exhibition stand and presence 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 provides us with valuable opportunities for networking and dissemination of information and can lead to requests for Professional Learning. We had a stand at 11 exhibitions in 2018-19 with an estimated potential audience of around 1,800 people.

Table 24: Events where CALL exhibited in 2018-19

Event	Date	Venue	Numbers
ASL & Technology	13.6.18	Aberdeen	63
ASL & Technology	14.6.18	Edinburgh	99
Access Technology Roadshow, Fife Society for the Blind	4.7.18	St Andrews	75
Communication Matters conference	9.9.18 - 11.9.18	Leeds	375
Early Years Scotland conference	15.9.18	Glasgow	370
Cerebral Palsy Scotland conference	4.10.18	Glasgow	100
Dyslexia Scotland Education Conference	27.10.18	Glasgow	250
Glasgow Disability Alliance – Young People Summit	29.11.18	Glasgow	200
West Lothian College Early Years Conference	16.1.19	Livingston	100
Dyslexia Scotland Roadshow	27.3.19	Stirling	30
Scottish Book Trust Bookbug Conference	19.3.18	Edinburgh	150

Family Fun Technology Day

A Family Fun Technology Day for children with communication difficulties, their families and carers, run in partnership with Augmentative Communication in Practice: Scotland, was held at CALL on Saturday 21st April 2018. It was attended by 40 children and 55 adults.

The emphasis of the day is always on fun, with such activities as Smart Wheelchair rides, music, green-screen photography, cake decorating, making milk shakes, arts and craft activities. There is also a more serious side to the day, with children having opportunities to try the iPads and computers they might use in school with different access methods. Parents have opportunities to find out about new technology to support children with additional support needs from expert professionals and to discuss common issues with other parents over a free lunch, or a cup of coffee.

The Day takes a huge amount of organising and preparation, but feedback suggests that it is a very valuable experience for the children and their parents. Staff and volunteers from the various centres that take part in the day also find it an enjoyable experience.

'Tips on Proloquo and other sources of useful apps and communication tips were very useful. J. loved the Frozen umbrella!'

'Art work was great fun - also enjoyed drums and the nerf gun! Good low tech ideas too. Great day.'

'The knowledge and information available was fantastic.'

'Loved the Smart wheelchair. Everyone was so friendly/helpful. Fantastic lunch.'

'Interactive for kids lots of info for parents/helpful tips.'

Post-graduate teaching

CALL took part in several events relating to teaching within the Moray House School of Education in 2018-19:

- Allan and Craig gave two presentations on Assistive Technology to 50 postgraduate students on the Children and Technology module of the MSc Education course on 6th November 2018.
- Shirley and Paul gave a presentation on CALL's work to a group of 25 head teachers from China on a study tour hosted by Moray House on 21st November 2018.
- Paul presented to a group of student teachers from Frankfurt on 6th December 2018.
- Craig gave a talk to 25 students on the Moray House Theory and Practice of Second Language Learning course on 5th March 2019.
- Shirley gave a talk to 12 students on the MSc Inclusive Education programme at Moray House on using technology to support students with Additional Support Needs and EAL.
- Gillian, Joanna and Allan gave a presentation on the work of CALL in AAC for 24 speech and language pathology students from the University of Illinois.

Inclusive Digital Technology Professional Learning

In February 2019 we welcomed the first cohort of students to the Inclusive Digital Technology (IDT) Professional Learning course. This runs as a Moray House Professional Learning course.

The Inclusive Digital Technology (IDT) is at SCQF level 11 (Masters) and is unique in Scotland. The course is set within a context of underpinning academic literacies, legislation and policy at national and local levels in relation to inclusive digital technologies and resources for pupils with additional support needs (ASN).

The students, 13 in total, came from across the UK and included teachers, further and higher education lecturers and professionals from assistive technology services.

9 students completed and submitted a 2500-word case study assignment and received a University of Edinburgh Certificate of Completion, while the remaining 4 students, who chose not to submit an assignment, received a Certificate of Attendance.

Feedback was extremely positive, e.g. "*the variety, range and quality of materials was excellent*" and "*the extensive knowledge and experience of the Call Scotland team was very apparent…the overall course has had a very positive impact on the development of our service going forward*".

Online AAC modules

The *AAC in Education* modules were launched on 6th September 2018 and are available alongside the Introductory Modules on the AAC Scotland web site. They provide a free, high quality professional learning resource for anyone supporting AAC users in schools. The modules were presented at the Communication Matters Conference in September 2018, and attracted a lot of interest, particularly from people who had used the Introductory modules as a professional learning tool and were looking forward to further learning at a greater depth. A webinar on the modules was delivered on 15th May 2019.

Module 1: Setting the Scene

Module 2: Communication Friendly Schools
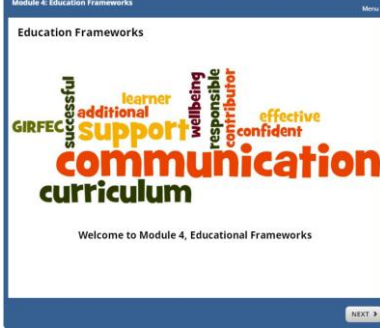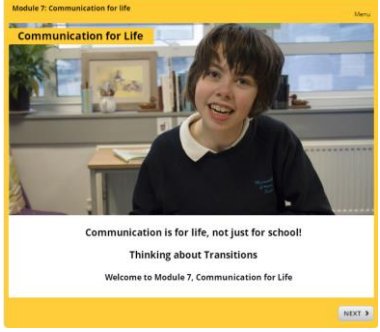

Module 3: Augmentative Communication in Practice

Module 4: Education Frameworks

Module 5: Supporting Teaching and Learning

Module 6: Working Together to Support AAC

Module 7: Communication for Life

Table 25: Visits to AAC Online Modules

Visits to Introductory Modules (04/18 – 03/19)		Visits to AAC and Education Modules (09/18 – 03/19)	
Module	Visits	Module	Visits
Module 1	1,240	Module 1	630
Module 2	922	Module 2	446
Module 3	1,195	Module 3	401
Module 4	761	Module 4	281
Module 5	607	Module 5	346
		Module 6	350
		Module 7	352

The five introductory online learning modules for people who would like to learn more about Augmentative and Alternative Communication were developed by CALL in 2014 with 'Right to

Speak' funding. These were updated and edited in 2018 and supplied to NHS Education Scotland on 4th April 2019 to be made available for speech and language therapists and others through the Turas learning platform. The AAC in Education Modules will also be made available through Turas.

Feedback on the AAC Online Modules

'In O High School we used the AAC Scotland – Online Learning Modules during the November inservice. All of our ASNs completed Series 1 – Introduction to AAC – Modules 1-3. We have a range of staff some very experienced, others who are new to their role and also some staff spend more time in mainstream while others work full-time with pupils who have complex needs. The staff found these modules very user-friendly and easy to work their way through. It helped them to consider important issues such as how does communication difficulties affect the young people they work with, what are the different ways that young people in our school communicate and we also spent time thinking about what more can we do to support the young people in our school who have communication difficulties. Overall the staff felt that these modules were very relevant to the work that they do.'

Principal Teacher, on using the AAC Modules as part of their INSET.

I would firstly like to say thank you very much for the amazing online learning modules you have created. They are wonderful and easy to navigate with a wealth of great information.

At our AAC Steering Group meeting yesterday I discussed these modules and many of the members had already completed some or all of them. One piece of feedback was that there is no progress marker on the page when in the modules and it can often make it difficult to know how long each one will take. I know that for Education staff this is a bit of an issue at times as their CPD time is so limited.

AAC Coordinator

Summary

Table 26: Summary of CLPL 2014-19

Summary of CLPL Events	2014-15	2015-16	2016-17	2017-18	2018-19
PL delivered in CALL					
Number of courses	14	13	13	13	**12**
Number of participants	209	146	212	147	**80**
PL delivered in schools/authorities					
Number of courses	28	30	24	28	**28**
Number of participants	647	507	475	628	**401**
Webinars delivered					
Number of Webinars delivered	19	22	23	18	**20**
Number of participants registering	n/a	426	738	869	**1243**
Average Number of people viewing archived webinars	n/a	157	50	79	**191**
Presentations at conferences	20	20	20	26	**26**
Exhibitions	10	14	12	10	**11**
Requested talks for parent/voluntary groups, etc.	5	7	8	8	**10**
ASL and Technology participants	313	215	196	243	**162**

Funded by: (a) Scottish Government Learning Directorate Core Grant (Assistive Technology Loans and Support service)
(b) other income generated through consultancy etc

OBJECTIVES

1. Provision of a National Assistive and Communication Technology Equipment Bank for Scotland.

OUTCOMES

- 148 pieces of equipment and software with a total value of £43,641 were added to the Loan Bank last year. This compares with £12,221 spent on 107 new items in 2017-18. Items purchased included four Tobii EyeMobile (Surface Pro) communication aids; iPad Pro tablets and HP Elitebook 840 laptops for client evaluations.

- 95 of these items, costing £12,796, were purchased through core funding from the Scottish Government. A further 41 items, costing £30,345 were purchased with Scottish Government Section 10 funding.

- The remaining items were provided free by suppliers for evaluation purposes or purchased through other funding sources.

- The Loan Bank gives borrowers a chance to try equipment rather than spend money on items that might not be suitable. A record 307 new equipment loans, with a total value of £44,960, were issued to clients in 26 local authorities. This compares with 228 loans with a value of £53,450 in 2017-18.

- The number of loans provided to CALL Scotland assessment clients increased from 104 in 2017-18 (47% of all loans) to 195 in 2018-19 (64%).

Table 27: Summary of Loans of equipment

Summary of Loans	2014-15	2015-16	2016-17	2017-18	2018-19
Number of loans	150	213	232	228	**307**
Value of loans	£32,800	£41,000	£69,000	£53,450	**£44,960**
Number of Loans to Assessment Clients	61	136	163	104	**195**
Number of instances of technical support	115	84	53	54	**48**
% "Very Satisfied" with CALL Loan Service	74	86	96	77	**76**

Table 28: Categories of Equipment Loaned

Type of Equipment	2014-15	2015-16	2016-17	2017-18	2018-19
Interface / Mount / Switch	25	67	41	59	69
Mouse / Alternative	31	29	24	24	35
Tablet	11	17	25	24	35
Tablet Accessory	14	37	44	24	42
Communication Aid	6	21	30	23	21
Reading / Writing Aid	4	5	12	18	13
Computer	15	8	16	17	22
Computer Accessory	6	6	7	13	22
Keyboard / Alternative	15	10	13	11	12
Toy	9	3	11	9	20
Other	3	5	9	2	2

Investment in the Technology Loan Bank

Trial and evaluation are essential components of the process of identifying appropriate communication and assistive technology[31,32] prior to longer term provision or purchase. Technology changes rapidly and much of the more expensive equipment available for assessment and loan was no longer commercially available and/or had exceeded its service life and the bank simply did not contain many of the newer Communication Equipment systems.

We were therefore pleased to receive a Section 10 grant of £30,345 from the Scottish Government Assisted Communication Team towards purchase of new communication aids and equipment. The grant was less than the amount for which we had applied and so we had to carefully consider what should be purchased. The CALL team reviewed the types of equipment loaned from the bank over the past few years, reviewed published research, and consulted with AAC services in Scotland and the UK in order to identify the systems that should be obtained:

Figure 19: Eye-gaze for AAC in action

Figure 20: Numeracy on iPad

- 1 x GridPad 12 high tech communication aid with eye-gaze camera, accessories and AAC software.
- 4 x Windows Surface tablet-based communication aids with eye-gaze camera, accessories and AAC software.
- 3 x iPad Mini with cases and accessories for use as high tech AAC device.
- 6 x iPad 9.7" with cases and accessories for use as high tech AAC device.
- 4 x iPad Pro 12.9" with cases and accessories for use as high tech AAC device.
- AAC software and apps.
- Wheelchair and desk mounts.
- Simple tech single and multiple message AAC devices.
- AAC access devices such as switches, trackballs, head operated mouse.
- Low tech communication books.

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[31] Scottish Government (2018) Augmentative and alternative communication (AAC): national core pathway

[32] Cook, A. M. and Polgar, J. M. (2012) *Essentials of Assistive Technologies*. 1st edn. St Louis: Elsevier.

Table 29: Investment in Technology Bank 2011-2019

Investment in Technology Loan Bank	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Scottish Government Learning Directorate	44,447	10,288	18,250	8,570	15,400	10,035	12,796
Other income	1,067	3,108	1,587	3,080	2,658	2,186	500
Scottish Government Health and Social Care Integration Directorate							30,345
Number of devices added	207	163	139	129	157	107	148
TOTAL	**£45,514**	**£13,396**	**£19,837**	**£11,650**	**£18,058**	**£12,221**	**£43,641**

Technical Support

48 instances of technical support were recorded. This included troubleshooting problems with equipment on loan, developing and producing laminated symbol resources, creating and setting up communication grids for clients, designing and configuring mounting wheelchair mounting systems.

Evaluation and Feedback

Borrowers are asked to complete a feedback form when returning equipment. There was feedback on the outcome of a loan for 113 of the 191 loans returned in 2018-19 (59%). Of these, 73% indicated that the 'Equipment met the client's need'; 15% 'did not meet the client's need' and 12% of loans were 'inconclusive'.

80 feedback forms gave an indication of future action to be considered. Of these, 46% stated that they would try to buy the system they had borrowed, while 30% planned to borrow something else, 10% wanted to seek further advice and 14% did not know what they would do.

Overall, 76% of borrowers who provided feedback were 'very satisfied' with the CALL Loan Service, 17% were 'satisfied' and 7% 'Did not know'.

"The reader pen made a huge difference to the child across all areas of the curriculum. It meant he could complete tasks independently."

"I love having the pen because it is helping me to be like everyone else and to read the words. I like it best in Maths because Maths is my favourite and I can now do it by myself."

(Teacher and pupil with dyslexia on loan of Reader Pen.)

""I can see its potential in some situations. I think because R's dyslexia is severe and he has very limited reading it wasn't so useful for him. He didn't seem motivated to use it. He seems to prefer a text reader on computer. He also talked about the volume not being loud enough, he has problems wearing head phones."

"Didnt help me much, I didnt like it

(Parent of dyslexic learner, and the learner himself)

"L has definitely benefitted from using the iPad and it has enhanced his enjoyment and attainment in his learning."

(Teacher of learner in P4

"It has been great to trial with D and use with photos to help her to communicate with carers/family. Originally trialled GoTalk 20 with her but was too complex - GoTalk9+ has been ideal. The GoTalk enabled her to express her needs to carers and practise using it before NHS purchase item permanently."

(Speech and Language Therapist on GoTalk communication aid for adult with aphasia.)

"The roller trackball was not suitable but the joystick was very helpful. Thank you. She felt that it was easier to use than an ordinary mouse."

(Teacher of learner with physical support needs in primary school.)

Knowledge Transfer, Research & Development 7

Funded by: Scottish Government Core Grants and other funders (see individual projects below)

OBJECTIVES

1. Identification of needs and development of research project proposals.

2. Dissemination and knowledge transfer of products and outcomes of project with stakeholders in Scottish education.

Conference and Study Day Presentations 2018-19

Courtney, J. (2018) **Accessible Digital Books & Symbolised Story Resources for Early Readers.** ASL and Technology, Edinburgh, 14th June 2018.

Courtney, J. & Harrison, C. (2018) **Using CALL Scotland's Bookbug Symbol Resources for Shared Reading.** Augmentative Communication in Practice: Scotland Study Day 2019, Dunfermline, 5th March 2019.

Courtney, J. (2019) **Using CALL Scotland's Bookbug Symbol Resources for Shared Reading.** AAC & Literacy Best Practice Study Day, Dunfermline, 2nd May 2019.

Harrison, C. (2018) **Accessible Digital Books.** ASL and Technology, Aberdeen, 13th June 2018.

Harrison, C. (2018) **Symbols for All.** ASL and Technology, Aberdeen, 13th June 2018.

Harrison, C. 2019) **Ideas for Teaching with Technology in a Complex Needs Classroom.** ASL and Technology, Edinburgh, 12th June 2019.

Lawson, S. (2018) **Supporting Literacy Difficulties Using Free Software & Apps.** ASL and Technology, Edinburgh, 14th June 2018.

Lawson, S. (2018) **Using Technology to Support Pupils with Additional Support Needs.** Scottish Council of Independent Schools, Glasgow, 6th November 2018.

Lawson, S. (2019) **Technology and Universal Design for Learning.** ASL and Technology, Edinburgh, 12th June 2019.

Lawson, S. (2019) **Technology and Universal Design for Learning.** ASL and Technology, Glasgow, 13th June 2019.

Lawson, S. (2019) **Technology to support learners with Additional Support Needs** East Lothian, 25th June 2019.

McNeill, G. (2018) **Tools to Support AAC in Education.** ASL and Technology, Aberdeen, 13th June 2018.

McNeill, G. (2018) **Creating Communication Friendly Learning Environments for Young People.** Supporting People with Communication Needs: Embedding Inclusive Communication in Your Practice Conference, Edinburgh, 26th June 2018.

McNeill, G. & Harrison, C. (2018) **Developing Shared Reading Resources for Pupils with Speech, Language and Communication Disorders.** Communication Matters International Conference, 10th September 2018.

McNeill, G. & Harrison, C. (2019) T**he Literacy Journey using Inclusive Literacy Approaches.** AAC & Literacy Best Practice Study Day, Dunfermline, 2nd May 2019.

McNeill, G. & Harrison, C. (2019) **Creating Communication Friendly Schools.** ASL and Technology, Edinburgh, 12th June 2019.

McNeill, G. & Harrison, C. (2019) **Creating Communication Friendly Schools.** ASL and Technology, Glasgow, 13th June 2019.

McNeill, G., Harrison, C. & Wilson, A. (2018) **CALL Scotland – Free Online Professional Learning Resources on AAC.** Communication Matters International Conference, 11th September 2018.

Mill, C. (2018) **My Study Bar.** ASL and Technology, Edinburgh, 14th June 2018.

Mill, C. (2019) **Chromebooks and Accessibility.** ASL and Technology, Edinburgh, 12th June 2019.

Mill, C. (2019) **Chromebooks and Accessibility.** ASL and Technology, Glasgow, 13th June 2019.

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SQA Digital Question Papers and Assessments

Funded by: Scottish Qualifications Authority

OBJECTIVES

- Partnership working with SQA to continue to develop digital papers and assessments.

- Research into speech recognition in examinations and assessments.

OUTCOMES

Uptake and use of SQA Digital Question Papers and Assessments is discussed earlier in National Provision of Inclusive Digital Learning Resources. A summary of research and development in 2018-19 is given here.

Chromebooks and SQA Assessment Arrangements

Technology in the form of a computer or word processor has been used by candidates with Additional Support Needs or disabilities as an Assessment Arrangement in SQA exams for many years, and Digital Question Papers have been available since 2008.

Most candidates currently use Windows laptops or computers, and the technology has proved reliable and practical for SQA and for centres.

Chromebooks are being purchased by some local authorities and schools in Scotland: Highland[33], Aberdeen[34], Stirling and West Dunbartonshire[35] have all invested in the devices. Consequently SQA commissioned CALL to research the use of Chromebooks in SQA examinations.

Figure 21: Chromebook in laptop, tablet and 'tent' mode

Our research questions were:

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

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

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

- How can Chromebooks be configured to meet administration and security requirements, in terms of restricting access to information sources and support tools such as spellcheckers that may not be permitted in the examination.
- How can Chromebooks be used to open and access Digital Question Papers in PDF.
- How candidates can type or record their answers using SQA Digital Answer Booklets, or a word processor or text editor.
- What accessibility options are available for candidates who require, for example, text-to-speech to read questions, or literacy support tools to record answers.

The investigation was much more complex than we envisaged and took far longer than we had planned. This is in part because we could not find workable, practical solutions for all the situations where Chromebooks might be employed in examinations, and partly because the Chrome OS, and apps available, changed and developed rapidly.

In August 2019 the final report (1094 pages; 21,000 words) was submitted to SQA.

The report contains the results of tests and analysis of possible approaches to using Chromebooks across three main scenarios:

- **Use of ICT to write answers** – where a candidate reads or accesses the conventional printed question paper and uses technology to type, dictate or otherwise record a response.
- **Use of ICT with a 'Question-Only' DQP** – where a candidate reads from a Question-Only Digital Question Paper, perhaps with support from accessibility tools such as a text reader, and answers using a word processor or text editor.
- **Use of ICT with a 'Question and Answer' DQP** – where the candidate reads the Digital Question Paper and types or dictates into on-screen answer boxes within the paper itself.

Our main conclusions were:

- Chromebooks may be suitable devices for use by candidates who wish to use a word processor in an examination. To meet security requirements regarding Spellcheck and literacy supports, centres must use a word processor or text editor without Spellcheck or purchase commercial assessment/examination software.
- Chromebooks may be suitable also for candidates who need to view and read Question Only Digital Question Papers (subject to the security considerations above).
- For candidates who need to access Question and Answer Digital Question Papers, current tools available on Chromebooks are in our view not yet suitable.
- In all scenarios, centres will have to configure the Chromebooks to prevent candidates from accessing information from the internet or on other digital sources.

At the present time, Chromebooks appear to offer a practical and reliable technology for general use in schools, but the accessibility options and tools that are available are more limited than those available on Windows or iPad; the apps for accessing the Digital Question Papers lack
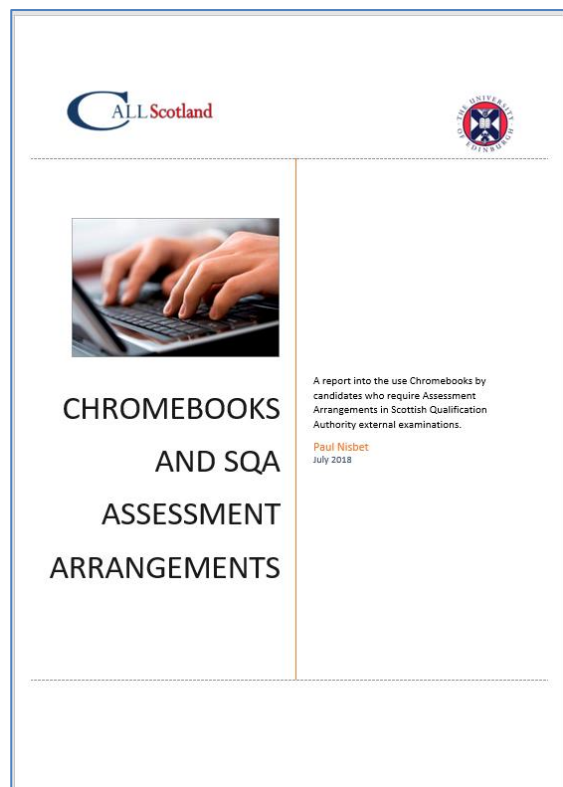
important features; there are significant challenges to ensure security in an examination context; and the high quality Scottish computer voices do not work on Chromebooks.

The report recommends further work with schools and centres to develop and test practical solutions for using Chromebooks as Assessment Arrangements.

iPads and SQA Assessment Arrangements

CALL's Adapted Digital Assessment web site provides advice and information on using iPads as Assessment Arrangements, but this requires updating to reflect current apps and MDM deployment systems. Glasgow[36] and Scottish Borders[37] have both begun programmes to provide iPads to every learner in P6 and above and so we anticipate that more candidates will be expecting to use iPads in future. This work has begun and will continue in 2019-20.

Computer Dictation as an Assessment Arrangement

In 2016 CALL published the Talking in Exams Project Report which gave an account of a project to research the use of Dragon NaturallySpeaking by candidates with additional support needs. 28 schools and services were involved and 70 students participated and the project suggest that Dragon was a viable option for many students with writing difficulties.

In the past few years, free computer dictation tools have emerged (Siri Dictation for iPad; Voice Typing / Dictation for Google Chrome and Dictate for Microsoft) and they are now being used routinely by learners. We have begun scoping out and exploring the use of these free dictation tools in assessments.

The systems require an internet connection to operate, which raises questions regarding internet security in examinations. They function by transmitting audio data from the candidate's machine to a remote server, which then transmits the recognised text back to the candidate, and so this process may also impact on security.

Computer Dictation has great potential for learners with physical support needs and for learners who find spelling challenging. In the 2018 examinations, 89% of Scottish state schools requested the use of human scribes in examinations. Computer Dictation may provide a more independent alternative for candidates, requiring fewer staff, but research into the practical application of the technology, as well as the security implications, is needed.

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[36] Glasgow City Council (2018) Digital Glasgow Strategy.

[37] Scottish Borders Council (2019) Inspire Learning FAQs

AAC Online Professional Learning Resources

Funded by: NHS Education Scotland (primarily)

OBJECTIVES

- Development of free online professional learning resource for teachers and practitioners.

OUTCOMES

The AAC in Education modules were made available on CALL's revamped AAC Scotland website on 6th September 2018 and complement the Introduction to AAC modules, released in 2014. NHS Education 'Right to Speak' project funding supported the development of these two sets of modules.

Ongoing work to carry out revisions and updates is carried out by CALL staff (from core grant funding), in order to keep the content as the valuable, high quality and up-to-date professional learning that we intend them to be. CALL staff have initiated revisions to include new information and resources, which have become available throughout the year. Feedback forms have been added for users of the modules to complete, which has provided useful information on the usage data and suggested revisions. Considerable positive feedback has been received about the modules from users in addition to direct verbal feedback often passed on to CALL staff at school visits and other events. Users appreciate being able to select which of the AAC in Education to view, based on their professional learning needs, without having to complete all seven modules in sequence.

The modules have been widely promoted by CALL Scotland through our work supporting with learners with communication support needs and shared by others working in the field including this example from the US based PrAACtical AAC website.

The Modules can be accessed by anybody with an interest in AAC through the AAC Scotland website and we hope that they will soon be available directly for NHS staff through their Turas system, though there have been a few technical issues to resolve.
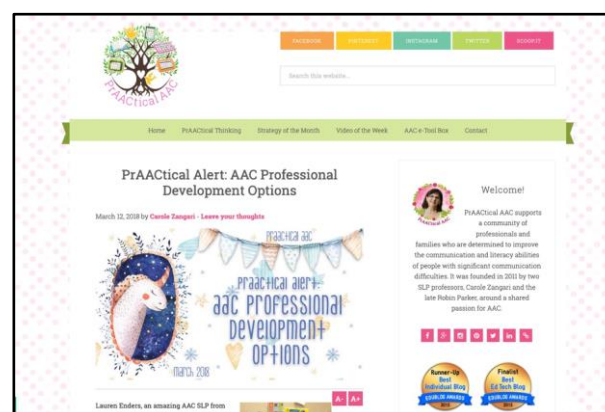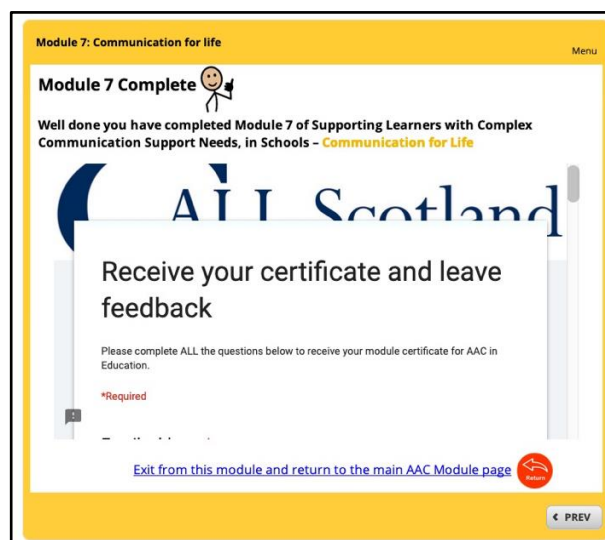
Symbols for All

Funded by: Scottish Government Learning Directorate Core Grant
Scottish Government Assisted Communication Team Section 10 fund

OBJECTIVES

- Development of free online symbolised resources for teachers, practitioners and parents/carers.

OUTCOMES

We know from research[38] 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 Symbols for All project developed from a November 2017 CALL Course on 'Communication Friendly Schools' and from the symbolised resources which CALL Scotland produce for the Bookbug Picture Book Prize each year.

The Symbols for All project continues to develop, with the launch of a dedicated website on 11th October 2018. The Symbols for All website provides free, high quality symbolised resources in a variety of symbol sets. The initial set of resources consist of curricular and communication materials made with Picture Communication Symbols (PCS), organised into the eight curricular areas of Curriculum for Excellence. This was made possible via an agreement with Tobii Dynavox to freely distribute these resources as PDFs.

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[38] Symbols in Education - https://www.widgit.com/about-symbols/booklets/Symbols-in-Education.pdf

In May 2019 we added an 'Equipment and software' information page in response to common queries we receive from schools and individuals about symbol software, pricing and features. The page also has information on the simple AAC equipment which we use with our BookBug resources.

In July 2019 an equivalent set of resources created with Widgit symbols was added. Again this was made possible through an agreement with Widgit to freely distribute the resources as PDFs. The Widgit resources were created particularly with Secondary age learners in mind and as with the PCS resources are intended to be 'starter sets' to help schools get going and explore the potential for supporting the curriculum with symbols.

We added zipped folders with the original '.bm2' and '.ipdoc' symbol files to enable anyone with their own copies of either Boardmaker or InPrint3 software to edit and personalise them for their own learners.

The response to the Symbols for All website has been extremely positive, with school staff who are pressed for time appreciating that they can quickly download and print off the resources which are all ready to go.

We plan to increase the range of resources again in 2019-20 by adding eye-gaze accessible versions of the symbols for all communication boards created with Grid 3 software and early writing resources linked to the Bookbug books created with Clicker 7.

AAC Implementation Toolkit

In June we secured funding of £13,381 towards research and development of an AAC Implementation Toolkit. This will build on our Symbols for All and Communication Friendly Schools work by firstly extending the resources and activities to incorporate current research and practice on core vocabulary; and then by creating a Toolkit of resources that will be available for practitioners to borrow to implement symbol-based activities within a school.

Supporting Access to the Scottish Book Trust Bookbug Books

Over the past year we continued our Partnership work with Scottish Book Trust (SBT) to create new symbol packs for the Explorer and Primary 1 Bookbug bags.

All the symbolised resources are freely available on the Symbols for All website at https://www.symbolsforall.org.uk/bookbug/.

We collaborated with SBT and the Scottish Sensory Centre on development of **BSL translated versions** of the Bookbug books. This has resulted in a pilot BSL translation of 'Gorilla Loves Vanilla' by Chae Strathie and Nicola O'Byrne. This collaboration has been cited in the University of Edinburgh's first BSL Plan; Action 19 in section C. School Education.

Our plans for 2019-20 include creating **Clicker Writing Sets** for Clicker 7 software on PC and Clicker apps for iPad to accompany this year's Bookbug symbolised resources. These will enable learners to write about the stories, with access to appropriate level vocabulary linked to the communication resources. Learners will be able to use a variety of access methods, including switch access and eye gaze access, to utilise the resources both in the classroom and at home.

In addition, we intend to produce **eye-gaze and switch accessible versions** of this year's Bookbug Picture Book Prize Books using Grid 3 software. Learners will be able to independently read the picture books as well as interact and comment on the story, using pre-stored symbol messages and *Andrew* or *Mairi*, the new Scottish Children's voices.

We also aim to develop **Sensory Story** versions of a selection of the Bookbug books in a new collaboration with Scottish Book Trust and Capability Scotland's Corseford School. This will further extend our range of ready-made resources for learners with complex additional support needs.

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
SCRAN	Scottish Cultural Resource (charity and online resource base)
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)
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

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