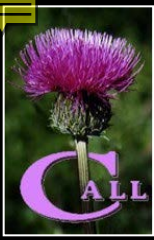


Assistive and Communication Technology

PG ASL 17-1-14

Paul Nisbet & Allan Wilson
CALL Scotland



Communication Access Literacy and Learning

Moray House School of Education
University of Edinburgh

- *“CALL Scotland provides services and projects, working with all those involved in meeting the special needs of people who require augmentative communication and specialised technology.”*
- Established in 1983
- Funded by Scottish Government Education Department (60%) and health department (5%), contracts with local authorities and research projects

<http://www.CALLScotland.org/.uk>



CALL Scotland

- Strategic Leadership
- Pupil Assessment and Support
- CPD and Training
- Information and advice: books, guides, resources, videos, web site
- Loan of assistive technology
- Knowledge Transfer, research and development





CALL STAFF

Sally Millar, Specialist Speech and Language Therapist,
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Curriculum for Excellence

'Our aspiration is to enable all children to develop their capacities as successful learners, confident individuals, responsible citizens and effective contributors to society.'

A Curriculum for Excellence: The Curriculum Review Group (2004).



Curriculum for Excellence

How can you be a:

- **Successful learner** - if you can't read books and learning materials?
- **Confident individual** - if you depend on others to read to you, write for you or talk for you?
- **Responsible citizen** - if you don't have access to information?
- **An effective contributor** - if you can't speak, write or communicate?





Case Study 1: access to the curriculum



Case Study 1 - Malcolm

- Age 9, quadriplegic cerebral palsy affecting gross and fine motor control and speech
- Primary 5 mainstream
- Drives a powered wheelchair
- Access computer with a joystick
- Augments speech with a voice output communication aid



Access to the curriculum

- Laptop
- Textease, 2Simple, MS Office
- 'Gated' joystick with head switch for 'click'
- Language work with Clicker grids, on-screen keyboard and Co:Writer word prediction
- Click n type onscreen keyboards for general access and number work
- Digital reading books
- Interactive digital maths books
- Kidspiration mind-mapping





Voice output communication aid

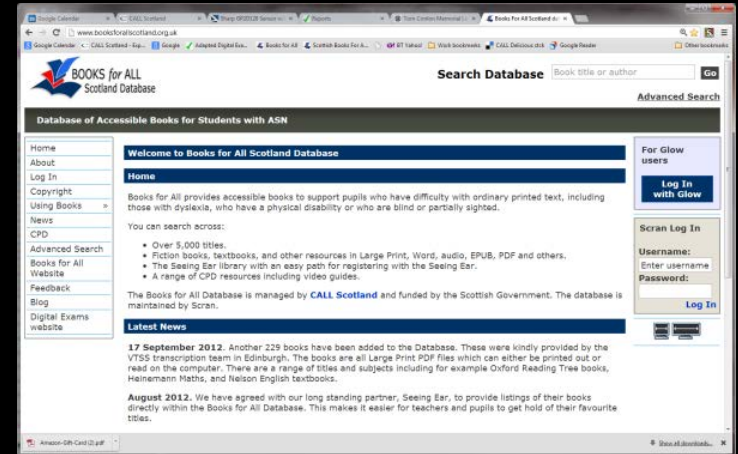
- DyanVox Maestro
- Single (head) switch with scanning
- 'Stuart' Scottish voice
- Environmental control (e.g. TV)
- Kindle ebooks
- Wifi, bluetooth
- Music





Accessible digital books

- From the
 - Books for All Scotland Database and the
 - Books for All web site
- The Case Against Assistive Technology?





Case Study 2: writing and recording



Cast Study 2 - Barry

- Age 12, P7
- Cerebral palsy affecting fine motor control and handwriting
- Difficulties with spelling, layout and organisation

on the holidays and the weekend I go to my para farm called 'ohck side Farm'. I help my papa on the farm to feed the cows and bees. I go with him to help cows call. calving time is March to May. I feed my dog and cat my dog is black and lives outside in his on his + my cat is cold so now he lives in the house with my nan and papa. my papa put two duck eggs with the hens and when hen hatched the eggs and the duckling followed the hen around. when the ducks were half grown they flew away with the other 10 ducks.



Assessment observations

- Barry gets tired handwriting and his hands hurt.
- His typed text is more legible than his handwritten work.
- A **spellchecker** could improve spelling accuracy (talking **WordTalk** checker).
- **Co:Writer** should help with longer, more complex vocabulary which he would not normally attempt to spell.

Jay's spelling	Correct spelling	Correctable with MS Word?
holladays	holidays	yes
weekeend	weekend	yes (autocorrect)
cald	called	
lohckside	lochside	
hached	hatched	Yes
folwed	followed	Yes
arund	around	Yes
weh	when	Yes
growin	grown	Yes
thay	they	Yes
uthere	other	Yes



Recommendations

- Loan of netbook with:
 - Co:Writer 6 word predictor
 - Voice Notes voice recording
 - Inspiration mind-mapping
 - Typing practice (Nessy Fingers / Doorway Online)



Before Co:Writer



With Co:Writer



Outcomes after 10 weeks

What impact has the netbook had on the pupil's ability to access the curriculum?

- *There was an immediate impact on Barry's enthusiasm and attitude to attempt and produce work. Used for:*
 - a) Word processing: planning, drafting and publishing.
Barry is more able and willing to work independently on these three steps without an adult scribe. Jay is eager, and able, to be involved in adding to his Co-writer word bank.*
 - b) Typing answers to spelling activities – a task which Jay dislikes when he is writing by hand. He now produces work of a higher level.*
 - c) Spelling has improved.*



Outcomes #2

How has it impacted on his/ her written work (quantity and quality), in comparison with what s/he was able to produce without it?

- *Barry has immediate success which encourages him to keep on task. He is willing to expand and build on his work after further class discussion or with an adult.*
- *Previously Barry found typing laborious but Co-writer is changing his attitude and he is very willing and able to type for a much longer period. He finds the netbook keyboard easier to*
- *manipulate. It is anticipated that this will be helped further with touch typing lessons.*
- *Barry now copes with thinking up his answers/ideas, typing and spelling. This has resulted in better and lengthier pieces of work produced quicker. Previously these tasks were done separately.*
- *Barry's work is legible. He willingly shares it with peers, allowing them to read it independently of Barry.*



Outcomes #3

Has it helped him/her to develop the four capacities of Curriculum for Excellence?

- **Successful learner**

Barry is able to show and do the best he can. He thinks of new ideas and is more interested in tackling writing activities by himself.

- **Confident individual**

Barry is happier and more confident. His self-esteem has been raised.

- **Effective contributor**

Barry is no longer excluded by the position of the computer system. Previously he had to sit with his back to the class because of the location of the computer.



Outcomes #4

Has it helped him/her to develop the four capacities of Curriculum for Excellence?

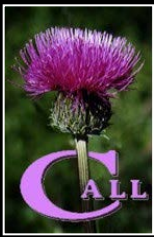
- **Effective contributor**

Peers are more ready to allow Jay to take a role in 'scribing'. Barry is able to type his ideas and share with peers, who previously found his handwriting very difficult to read.

- **Responsible citizen.**

Barry is much more confident about working as part of a group during tasks that require planning/writing.

Barry takes the responsibility of looking after the netbook seriously, and making sure it is switched on/off when needed.



Barry's views

Score 1 to 10
1=rubbish
10=brilliant

	Handwriting & jotter / paper	Netbook & Co:Writer
Writing / typing speed	5 sometimes 4	10
Legibility / quality of writing	4	10
Spelling	5	10
Effort needed to write / type	5	10
Portability (weight / size) lines/size	2/3	10
Ease of use	5	10
Ease of getting a paper copy	-	10
Screen (size / text size / clarity)	-	10
Keyboard	-	10
Battery life	-	10
Word processor & software	-	10
Appearance / cool factor	1	10
Opinions of friends	3	10
Opinions of family	4	10
Opinions of teachers	4 + occasionally 10	10
Your opinion!	1	10



Summary #1

- Assistive Technology can mean the difference between a learner who can and one who simply can't.
- Learners who use AT to read and write need their own device.
- Learners need to be taught how to use AT: it's not an innate ability that human beings are born with, despite all this talk of 'digital natives'.
- Many learners find 'Text-to-speech' really helpful.
- All school computers should have a text-to-speech facility e.g. Ivona MiniReader.
- All school computers should have the free Scottish voices.



Summary #2

- Many learners with writing difficulties simply need a personal writing tool – AlphaSmart / netbook / iPad....
- ... but a spellchecker can really help ...
- ... and so does text-to-speech for proof-reading
- Struggling writers can be helped and freed with word prediction. For primary schools we suggest Clicker 6 or Co:Writer (Co:Writer is available at a discount for Scottish schools from Education Scotland).
- App versions of Clicker and Co:Writer are also available for iPad.



Reliant on Readers,

Stuck with Scribes,

or

Independent with ICT?

Josef. no support given.

12.9.05 Conversation between 2 aliens

12 a/c 1. 1. 1.

1 90

2

1 I am really exsattid.

2 I konnt wet until I hav a Josy-Child for diner.

1 But Wot is the y a tok us.

2 They wont.

1 But JUST in keys & think we shod tek OWR wepns.

2 I ahin wely a hed ove you.

1 Wot pley's shod we destroy st.

2 u I have a idder. we kan destroy a pies each

1 God ider.

✓ 9.

Writing and
spelling
difficulties:
Josef



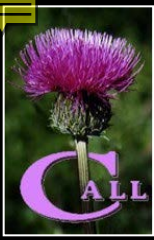
Josef

- **Josef typing on AlphaSmart**

The plac waz very cwuyt at frst but then we ,herd a lowd noys.it waz lowd and then we saw the bigist celbrason that iv evr seen in my life.

Josef typing on AlphaSmart with Co:Writer

- The place waz very quiet at first but then we movd on we herd a loud noise. It was loud and then we saw the biggest celebration that I've ever seen.



Daniel

A big green monster came
out of the life.
B The life must be
broken said Amy.
She gave me a joy.



Writing with Co:Writer

- Sample of Daniel's writing:

befor you go you haf to make a traye. First get a peace of fishing line about 1 metre long. Then get a reasnedul sised hook after you have got one big enuf and sharp enuf lai y it to your trais and then get a flote. put the end of the trais that does not have the hook thro the hole at the top of the flot then tiay a not.

- And typed using Co:Writer:

First get a piece of fishing line about 1 metre long. Then get a reasonable sized hook. After you have got one big enough and sharp enough tie it to your trace.



Communication



Symbolised class rules





Timetables





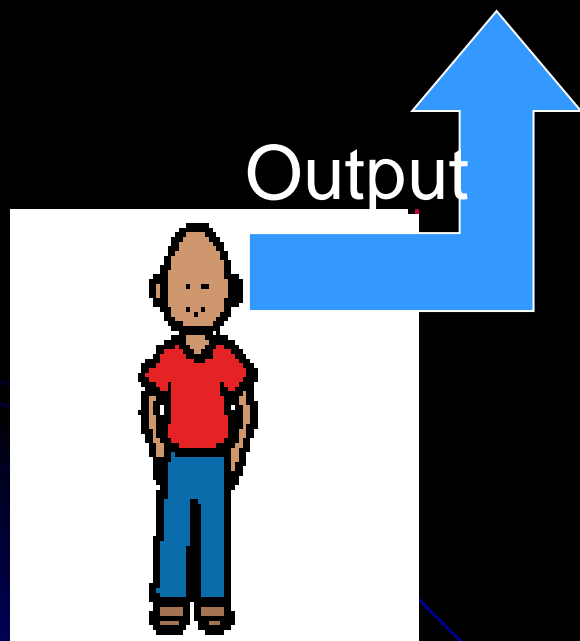
Step by step task schedules





Augmentative and Alternative Communication

“AAC”



A means of expression using methods other than, or additional to, speech (commonly, several different methods are used)

- Low Tech
- Simple Tech
- High Tech

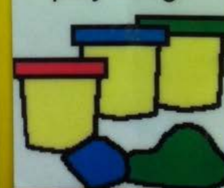


Making choices

choosing



play dough



computer



writing





Taking News home to family





Look! I did this in Nursery today

*Draw a coloured ring around the things we did.
Put a smiley sticker beside the ones you liked to*

drink



tea set



doll's house



cars



snack



computer



story



drawing, painting



finger-painting



helped wash dishes



took photos



brushed teeth



puppets



bake cakes



singing songs



circle time



outside in garden



swing



toys



play dough



I used the toilet!



sand tray



dressing-up



play a game



Home school Diary

Child 'writes'
own news diary
by marking all the
things she did,
and which she
liked



Communicating feelings

A collection of educational materials for teaching emotions, including a grid of children's faces with emotion labels, a list of people's feelings, and a display of emotion cards.

Emotion Grid (Top):

afraid	shy	guilty	tired
jealous	loved	hopeful	bored
proud	sorry	embarrassed	surprised

People's Feelings List (Middle):

- Fern is feeling
- Matthew is feeling
- Ashley is feeling
- Shannon is feeling
- Mrs. Munro is feeling
- Miss Knox is feeling
- Miss Gilchrist is feeling
- Miss Smith is feeling

Emotion Cards (Right):

A collection of small cards with emotion icons (happy, sad, angry, surprised, etc.) and labels (happy, sad, angry, surprised, etc.) pinned to a blue background.

Signage (Right):

- A sign with the text: "I know that we all experience a variety of thoughts and emotions that affect how we feel and behave and I am learning ways of managing them." and "I can share and accept feelings."
- A red octagonal sign with the word "STOP" in white.



Single Message Devices

- BIGMack



- LITTLEMack



- Chipper



- Partner One

- & lots more, see www.inclusive.co.uk

Symbols on top if possible





Multiple Message Devices

- GoTalk 9, 20 (levels)
- Libtalk 8, 1/16
- TechTalk (8)
- SuperTalker 1,2,4,8
- Spokesman
- Tech Speak (32)
- MessageMate
- ChatBox
- VoicePal
- & others

All recorded, digitised speech



Complex, powerful VOCAs



- DynaVox V, V max,
- Pathfinder, Vanguard, Vantage
- Tellus, Mobi
- FuturePad with Grid 2
- Handhelds
- More

All synthetic speech

An Introduction to AAC

