The charity exists to advance the education and development of individuals with Down syndrome worldwide through research, information and training.

Since 1980, we have had an active programme of research and provided services to children, families and schools.

This has enabled our team to work directly with children in early intervention and in classrooms, as well as collect research data.

This mix of focused research interests and direct involvement in education has given us a unique opportunity to set up interventions and then follow children in longitudinal studies, as well as ask more experimental research questions.

We give high priority to sharing information directly with parents and practitioners through publishing, website and training activities.

For more information on the work of the charity see http://www.dseinternational.org/ and note linked sites.

We have a large information site at Down Syndrome Online at http://www.down-syndrome.org/

This has much information for teachers in the Down Syndrome Issues and Information Education series (DSII).

There is also a wealth of papers by world leading experts in the Down Syndrome Research and Practice section.

Teaching materials, books and videos can be found at our online store at http://www.dseenterprises.org/en-gb/

Sign up for regular news and blogs at link of home page or at http://www.dseinternational.org/en-gb/email/ and

The importance of speech and language

- Language underpins cognitive and social development for all children
- Words for knowledge – vocabulary size
- Language for remembering, thinking, reasoning
- Language for self-control and planning
- Language for dealing with emotions and worries
- Language for communicating with others
- Language for friendships

Any child with language delay will have cognitive (mental) delay
Working memory deficits will affect all learning

Learning to talk

- Talking is for communicating – getting the message across, engaging with others
- Starts with looking, smiling, pointing – non-verbal skills for commenting, requesting, answering
- Then words – vocabulary learning – working out meanings and saying the words
- Then sentences – grammar learning – stringing words together for more complex meanings
- Talking requires clear speech skills – takes time for all children

Language development

- Spoken language delayed relative to non-verbal abilities
- Receptive language better than expressive language (can understand more than they can express)
- Communication (pragmatics) is usually a strength
- Vocabulary learned slowly but steadily
- Grammar more difficult
- Most children do not have clear speech and can be difficult to understand

Grammar development

- The same 2 and 3 word combinations as typical development
- Average age for emergence of 2 word phrases - 3 years old (Kumin 1999)
- Expressive grammar – particular area of difficulty (understand and express concepts, but are not using the morphological markers (e.g. plural ‘s’, past tense ‘ed’, possessive ‘s’))
- By 3 years old many will understand early grammatical concepts although not able to use the grammatical markers until about age 5. (Kumin, 1999)
- May be linked to speech difficulties and vocabulary size

Vocabulary/grammar link
(Pennanen, Buckley & Archer 2000)
Vocabulary/grammar link

- Vocabulary size pushes along grammar development
- Children with Down syndrome have a vocabulary delay
- 200-250 words are needed before grammar starts
  - Understanding will be ahead of production
  - 200-250 words understood to begin to understand grammar
  - 200-250 spoken words to begin to use grammar

There will be many children with Down syndrome in kindergarten and elementary schools who do not yet have 250 words in spontaneous spoken language

Baddeley’s 2006 Working Memory Model

- Central Executive
- Verbal short-term memory
- Phonological loop
- Episodic buffer
- Visual short term memory
- Visuo-spatial scratchpad

Working memory is important for all children

- ‘Working memory is the mental workplace in which information can be temporarily stored and manipulated during complex everyday activities.’
- Listening to another speaker
- Decoding an unfamiliar word whilst holding the meaning of the previously decoded text in mind
- Writing while formulating the next part of the text
- Engaging in mental arithmetic

Effects of poor verbal short term memory function

In other children with poor verbal STM
- Speech characterised by short utterance length
- Immature syntax/grammar
- Limited range of vocabulary
- Speech clarity issues
- Storage and processing of sentences
- Poorer reading and poorer maths


Intervention targets – all ages

- To encourage communication using all means, facial expressions, tones of voice, gestures and signs, words
- To teach vocabulary – as fast as we can
- To teach grammar
- To improve speech clarity
- To immerse children and young people in literacy – books teach language to all
- To teach children and young people to read – reading teaches vocabulary and grammar to all children

Intervention principles – all ages

- Speech, vocabulary, grammar and reading targets should be worked on at the same time – and can support each other
- For vocabulary and grammar have 2 sets of targets
  1. To teach the understanding of new words and sentences
  2. To get understood words and sentences into expression
- DSE vocabulary and sentences checklists can be used to support this
- Speech work needs to target discrimination and production of sounds, words and sentences
**Intervention principles – all ages**

- Language is learned all day, everyday, in ordinary conversations.
- The more you talk and listen naturally with your child the better – at home and in the classroom.
- (When children do not talk they are less likely to be talked to so reducing learning opportunities).
- Additional structured teaching and practice will help.
- DSE teaching materials designed to make language visual and give ideas to develop your own.
- See also Speech and language guides – DS Issues and Information series (0-16 yrs) and videos – on our website.

**See and Learn Language and Reading**

- Learning to talk and read, from learning first words to reading and using short sentences.
- Designed to meet the specific learning needs of children with Down syndrome.
- Builds on visual learning strengths.
- Emphasizes visual presentation of language through reading.
- Four steps now available, more under development.
- First Word Pictures.
- More Word Pictures.
- First Written Words.
- First Written Sentences.

**See and Learn Speech**

See and Learn Speech aims to improve speech discrimination skills and develop clearer speech production.

- Structured, step-by-step program designed specifically for young children with Down syndrome (from ≈6 months to ≈7 years old).
- Materials and guidance for activities (suitable for home, group and therapy setting).
See and Learn Speech

Six steps (packs):
• Step 1 – playing with sounds
• Step 2 – putting sounds together
• Step 3 – early sounds in words
• Step 4 – next sounds in words
• Step 5 – later sounds in words
• Step 6 – syllable marking

Developing reading skills

Reading for children with Down syndrome
• Reading is an important and worthwhile goal for all children
• Many children with Down syndrome are able to develop some level of reading ability
• Literacy attainments vary widely with some 10 year olds able to write short stories unaided and some learning a sight vocabulary.
  - Many of the highest achievers were introduced to reading at an early age
• Some children ‘take off’ with reading as teenagers.
• Reading shares reciprocal relationships with speech, language and working memory development

The benefits of developing reading
• Literacy is an important goal in itself
• In addition
  - Learning from listening is difficult for children with Down syndrome, learning from looking is easier.
  - Printed words seem easier for them to remember than spoken words.
  - Reading activities can teach new vocabulary and new grammar.
  - Reading supports spoken practice of words and sentences as children read aloud or imitate.
  - Spelling and phonics word can support articulation and phonology so improve speech intelligibility.
  - These benefits are true also for non-readers (i.e. supported reading activities)

Overview – principles for any age

First steps to literacy
1. Teach a small sight vocabulary
2. Use these sight words in sentences
3. Ensure the sentences can be read and understood
4. Teach text comprehension strategies
5. Practice formulating sentences
6. Develop phonic skills
7. Use Personal Books
8. Make activities fun and motivating!

1. Teach a small sight vocabulary first

Whole word reading
• Pre-school children – we start whole word/sight word reading activities when:
  - a child understands 50—100 words
  - is able to match and select pictures
  - this is usually around 2.6-3.6 years of age
• Choose words that the child understands and finds motivating e.g. family names.
• Introduce words through the hierarchy of matching, selecting and naming.
2. Use these sight words in sentences

- From the beginning choose words to make simple grammatically correct sentences.
- Select words as appropriate for the child’s language comprehension level and interests, starting with words that the child already understands.
- Always read the words and sentences with the child while they are learning – that is use errorless learning techniques to support success.
- Make books using pictures of the child’s own world and interests to illustrate the sentences.
3. Ensure the sentences can be read and understood

- Supported reading
  - Introduce supported reading at an early age – read sentences together that are at an appropriate language understanding level
  - From the start ensure that the child is reading for meaning.
  - Use of pictures to support understanding of text.
  - Act out sentences/match to pictures to ensure understanding
- Once the child is enjoying the reading activities with familiar vocabulary, introduce new vocabulary and grammar targets into the reading.

4. Teach text comprehension strategies

- Sequencing – familiarity with concepts and language (first, next, last), start with sequences/routines that the child is very familiar with e.g. Daily routines (bath time, brushing teeth), favourite nursery rhymes and stories.
- Retelling/repeating – repeating sentences the child has read, asking the child to repeat sentences you have read, use of carrier phrase activities.
- Summarising/commenting – ‘my favourite part was ......’
- Questioning
- Use of modelling and scaffolding

5. Practice formulating sentences

- Matching the key word in a sentence
- Matching all the words in a sentence
- Ordering words to form a sentence
- Choosing words to make own sentence
- Filling in the missing word

6. Teaching phonics

- Teach ‘phonics’ once the child has a sight vocabulary of 30-40 words (pre-schoolers) or with the rest of the class in school.
- As with all activities using visual supports is key e.g. pictures, letters, whole words
- Many of the early phonic skills will overlap with speech and language activities e.g. Letter sounds, initial sounds in words
Phonics and phonological awareness

- Listening to sounds and linking letters and sounds
- Listening to sounds (phonology)
  - Use visual supports where helpful (pictures/objects)
  - Rhyme
    - Rhyme matching/pelmanism game, rhyme oddity, rhyme production
    - Works with pictures/objects/word cards
- Phonemes
  - Discriminating initial/end sounds:
    - Matching and sorting games: ask child to match pictures or objects based on starting or ending with the same sound
    - Visual scenes: ask child to find objects in a picture that start/end with a certain sound
    - Play i-spy (something beginning/ending with)
    - Listen to spoken word pairs: do they start/end with the same sound or not?

Initial sounds

Film clip – early blending – 4 years old

7. Personal books

- These books should be:
  - Written as if the child has written it themselves
  - Written at an appropriate language level for the child
  - Created together with the child to build understanding

- Examples of this type of book include:
  - Carrier phrase books – I like..., I can...
  - Conversation diaries
  - Topic books

Personal book (film clip)
8. Make activities fun, model correct responses and prompt success

- Make reading fun and meaningful
  - Use a variety of activities and/or presentations
  - Choose words and sentences that relates to the child’s interests or knowledge from everyday life
  - Be enthusiastic!
- Play games and activities with the same vocabulary to support understanding and recognition.
- Use errorless learning – ensure lots of practice and experience before introducing testing. Children with Down syndrome can be sensitive to failure and we want to guarantee their success and motivation!

See and Learn – step 2
First Written Words – 16 written words
- 16 written words picture cards/16 written words word cards
- 4 word to word matching baseboards
- 9 books
- 20 phrase cards
- Guidebook and instructions for activities
- Record sheets

See and Learn – step 4
First Sentences
- 24 word cards/24 picture cards
- 6 word to word matching base boards
- 16 sentence cards and matching picture boards
- 4 reading books
- Guidebook and detailed instructions

Literacy skills in children with Down syndrome
- Limited but growing research base
  - Increasing understanding, challenging expectations and improving outcomes
- Particular pattern of strengths and weaknesses
- Individual differences
- Implications for learning and for teaching approaches
Literacy skills – research findings

- Many children can develop some level of literacy given appropriate instruction
- Useful levels of reading can be achieved and word reading can be a relative strength
  - Children aged between 7-14 years have word reading ages between 5-10 years (Buckley & Bird, 1993)
  - Some children (approx. 10%) develop age-appropriate word reading skills (Hulme et al., 2011; Laws et al., 2010; Burgoyne et al., 2012)
- Educators believe most children could be better readers; but better training on how to meet learning needs is required (Down Syndrome Education International survey)

Word reading strengths and weaknesses

- Word recognition skills are typically stronger than decoding (e.g. Roch & Jarrold, 2008)
- The ability to use alphabetic (phonic) strategies are influenced by
  - Delayed language (and probably poorly specified phonological patterns for words)
  - Delayed and poor speech development (and probably poor sound discrimination)
  - Difficulties with working memory
  - Reading instruction
- Some children do develop good decoding skills (Fowler et al., 1995; Groen et al., 2006; Byrne et al., 1997)

Reading, language and number skills

- Children with Down syndrome (aged 6-14 years at end of study) number skills 4 years behind CA and 2 years behind their reading skills (Byrne, 1997)

Intervention Research

- Sight word approach (e.g. See & Learn)
  - Can increase number of words children can recognise and say (Mengoni et al. 2013)
  - Can be started at a young age
- Phonological awareness training
  - Can lead to gains in specific targeted skills (e.g. Kennedy & Flynn, 2003 – 7-9 year olds, 8 hours of intervention)
  - Effective for young children and when delivered by parents (e.g. van Bysterveldt et al., 2006 – 4-5 year olds, 4 hours of intervention)
  - When integrated with speech targets can have a significant effect on speech production accuracy (van Bysterveldt et al., 2011)
  - May not impact on reading on its own

Reading comprehension

- Fewer studies than word reading
- Comprehension typically below word reading (e.g. Roch & Levorato, 2008; Byrne et al., 2002)
- Recent evidence suggests discrepancy between 6 and 67 months (average of 33 months) (Nash & Heath, 2011)
- Difficulties with language (grammar, semantics, pragmatics) and working memory impact on comprehension (Nash & Heath, 2011)
- Reading stronger than listening comprehension (Roch et al., 2011)
- Some evidence of particular difficulties with inferring (Nash & Heath, 2011; Groen et al., 2006)
- Some evidence of use of context (Leverato et al., 2009)
Intervention for comprehension

- Lack of evidence – single case studies with teenagers with Down syndrome
- Reviewed evidence suggests potential approaches which are supported by evidence from ‘poor comprehenders’
  - Multi-component programmes (Morgan et al., 2004; Clarke et al., 2010) – new study to be discussed in more detail later
  - Inference training (McGee & Johnson, 2003)
  - Strategy training (Morgan et al., 2004)
  - Visual imagery (Jecas et al., 2011)

Adapting literacy instruction for children with Down syndrome

- Learn more slowly - Small steps, intensive daily instruction, frequent opportunities for revision and consolidation
- Language difficulties - Vocabulary and language skills should be explicitly targeted
- Short term memory: visual stronger than verbal - Visual supports for learning
- More support for phonological awareness and phonics - Explicit instruction and frequent practise, alongside sight word instruction
- Comprehension an extra challenge - Emphasise and support reading for meaning from the outset; will need additional support as reading skills develop
- Maintaining attention and managing behaviour - Short, varied activities and teaching approaches that ensure success
- Recognising the wide range of ability - Tailoring teaching, pace and rates of progress

Conclusion

- ‘We may be just beginning to understand the true capabilities of these individuals with regards to literacy development’

The reading and language intervention project

- Supported by the Big Lottery Fund
- Collaboration between DSEI and Centre for Reading and Language, York University
- Aims:
  - Development and evaluation of a reading and language intervention for children with Down syndrome
  - Publication of the programme for educators working with children with Down syndrome

Programme Structure

- Daily 40-50 minute (or 2 x 20-25 minute) individual sessions
  - Teaching sessions (1 to 4, 6 to 9): routine structure
  - Consolidation sessions (5 and 10): reflect and revise
- Prescribed structured content
  - Teaching adapted to individual abilities
- Two interactive components
  - Reading Strand
  - Language Strand

Reading and Language Intervention programme – elementary school

Dr Kelly Burgoyne Dr Fiona Duff, Dr Paula Clarke, Professor Sue Buckley, Professor Maggie Snowling, Professor Charles Hulme
Session Structure

Reading Strand (20 mins)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading easy level book</td>
<td>2-3 mins</td>
</tr>
<tr>
<td>Reading new instructional level book</td>
<td>5 mins</td>
</tr>
<tr>
<td>Sight word learning</td>
<td>5 mins</td>
</tr>
<tr>
<td>Letters, sounds, phonology</td>
<td>5 mins</td>
</tr>
<tr>
<td>Introduce new instructional level book</td>
<td>5 mins</td>
</tr>
</tbody>
</table>

Language Strand (20 mins)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocabulary: Introduce new words</td>
<td>5 mins</td>
</tr>
<tr>
<td>Vocabulary: Reinforce meaning of new words</td>
<td>5 mins</td>
</tr>
<tr>
<td>Expressive language: Use new words in connected speech</td>
<td>5 mins</td>
</tr>
<tr>
<td>Expressive language: Use new words in written language</td>
<td>5 mins</td>
</tr>
</tbody>
</table>

Book reading (components 1, 2 and 5)

- Easy level book (1)
  - >94% accuracy
- Instructional level book (2)
  - 90-94% accuracy
- Running record taken
- New book at instructional level (5)
  - Shared/guided reading
  - Becomes next book for assessment

Sight word learning (component 3)

- Words child can read by sight
  - Strength in Down syndrome
  - Many high frequency words in English are not readily decodable
- Which words?
  - Beginning readers: personal words, characters, motivating words
  - High frequency words (Letters & Sounds, DCSF): first 100, next 200
  - Topic words from school
  - Tricky words from reading books
- Many engaging activities e.g. flashcards, word walls, word hunts....

Sight word learning (clip)

Letters, sounds and phonology (component 4)

- May be difficult but essential for independent reading
- Follows a clear structure and progression (Letters & Sounds, DCSF)
- Each teaching session should include:
  - Learning letter-sounds
  - Phonological awareness (listening to sounds)
  - Linking letters and sounds
- Targets ideally related e.g.

a) Letter-sounds  
   Introduce letter-sounds y and z, e.g., revise previous letter sounds a, m, n, t, and s

b) Phonological awareness  
   e.g., blending (aural, could use picture support), TA: "I went shopping and bought f, e-a-p-j-e-e-a-j-a-a-j/j-ju-ice" (Child listens to sounds and identifies the word)

c) Linkage activity  
   Can the child read the words on the shopping list (tea, peas, jam, juice)?

Letters, sounds and phonology (clip)
**Language Strand**

- Each theme should target a range of word types (nouns, verbs, adjectives, prepositions)
- Words mostly taught in isolation but sometimes in pairs (e.g. on & in, tall & short)

<table>
<thead>
<tr>
<th>Week</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Soup</td>
<td>Cereal</td>
<td>Chew</td>
<td>Lick</td>
<td>Consolidation</td>
</tr>
<tr>
<td>2</td>
<td>Crunchy</td>
<td>Soft</td>
<td>On</td>
<td>In</td>
<td>Consolidation</td>
</tr>
</tbody>
</table>

- Work on base form but room to extend e.g. verb tenses

**How to identify words?**

- Classwork/topic work
- DSEI checklists
- Consultation with parents/SLT
- Reading books

1. **Introduce and discuss new word:**

   - Provides written, spoken, and pictorial forms of new vocabulary
   - TA introduces word
   - Child says word
   - Child and TA discuss word using related photos
   - Child is shown flashcard
   - TA and child create a word web
   - Emphasis on relating to child’s experience, and building a rich, multi-contextual understanding
Introduce word (clip)

Language Strand

2. Reinforce word meaning: Increases the depth of the child's understanding of new vocabulary by discussing word meanings in different contexts
   - Activities are game-based e.g. matching, sorting, demonstrating
   - Difficulty level can be adjusted according to the learning style and needs of the child
   - Emphasis on:
     • Multiple encounters
     • Using games as a springboard for discussion about word meaning
     • Having fun with the new word

Reinforce meaning

Language Strand

Work on expressive language: Encourage the use of appropriate syntactic and pragmatic language skills
3. Child generates utterance containing new word
4. Child generates written sentence containing word
   - Guided by child's language level; aim to increase utterance length or complexity
   - Encourage/model/extend appropriate grammar
   - Scaffolded by TA
     - Independent writing, tracing, cut-up sentences, writing key word
   - Supported by pictures
   - Record kept in topic book

Copyright © 2012 Down Syndrome Education International.
Expressive language (clip)

Topic book

- The topic book has a number of purposes:
  - Communication with parents
  - Record of child’s achievements
  - Record of what has been taught so far
  - Reference book – can be referred to and revised from
  - A source of ‘easy’ reading material

Evaluating the impact of the reading and language intervention

- Randomised controlled trial of 57 children with Down syndrome in mainstream primary school (aged 5-10 at start of study)
  - Compared 20 weeks of intervention with 20 weeks of teaching as usual
  - Compared 40 weeks of intervention with 20 weeks of intervention
- No exclusion criteria; participating children varied widely in their abilities
- Intervention was delivered by trained teaching assistants working with the children in school on 1:1 basis
- Supported by contact with research team and termly observations

Intervention vs teaching as usual

- Average gain of 4.5 words per 20-weeks of intervention, compared to 2 words when not receiving intervention
- Wide variation in reading progress
  - Range raw score gains 0-36 over 40 weeks
  - 21 children unable to score at t1; 5 at t3
  - 10 children age-appropriate reading at t3
- Predictors of progress in reading (F(3,48)=11.22, p<.001)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.02</td>
<td>0.62</td>
<td>.528</td>
</tr>
<tr>
<td>Receptive Language</td>
<td>0.51</td>
<td>3.97</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Sessions attended</td>
<td>0.30</td>
<td>2.69</td>
<td>.001</td>
</tr>
</tbody>
</table>
Summary

- After 20 weeks of reading and language intervention (comparing intervention with ‘teaching-as-usual’):
  - Modest but significant effects on:
    - Letter knowledge, word reading, phoneme awareness, expressive vocabulary
  - Waiting control group showed similar rates of progress when receiving intervention
  - Intervention group numerically ahead at week 40
  - No significant group differences
  - No transfer to:
    - Spelling, standardised tests of vocabulary, decoding, grammar
  - Reading progress predicted by age (younger children 5 and 6 years more progress), receptive language and intensity (number of teaching sessions).

Key messages

- All children will benefit from immersion in literacy – especially non readers
- Many can attain useful levels of independent reading and writing skills
- All children will benefit from specific language teaching
- All will benefit from speech work to improve clarity
- Into adult life
- It can be fun and develop their world knowledge and social communication at the same time

Burgoyne et al blending programme (2013)

- Follows Letters and Sounds progression
- Makes full use of visual supports
- The intervention was scripted and followed a standard format with clear teaching targets and verbal instructions for delivering each activity
- Scope for adapting level of difficulty to each child
- TAs were provided with a teaching manual and training (delivered via a DVD) which included a demonstration of each of the teaching activities
- TAs were observed in weeks 2-3 of intervention for ongoing support/follow-up training

Blending programme evaluation

- Pilot study – showed some evidence of benefit
- For phoneme blending skills and for reading
- Was developed because during the RLI evaluation, children learned letter sounds but moving to use them to blend and decode was a challenge
- TAs requested more help to teach this component
- We hope to publish
- You can read full programme and see examples in published paper and on DSE news website


Intervention: Overview

- 6 week package of activities (30 x 30 minute sessions).
- Activities are strategy-based.

Each week, Story Building sessions are based around a particular book and are supported with a felt “story mat”, a manual for adults and a pack of resources.

Story Building

Reading comprehension intervention for children with Down syndrome

Slides courtesy of Paula Clarke, Leeds University, UK

Paula Clarke, Kelly Burgoyne, Hannah Nash, Silvana Mengoni, Sian Roberts, Kate Nation, Sue Buckley
Intervention: Components

- Knowledge of words in story context
- Using strategies to enhance understanding of stories
- Making links in stories and with knowledge
- Creating stories

Cogmed JM/RM – See www.cogmed.com

- JM = 75 games.
- RM = 200 games.
- Designed by psychologists and computer games designers.
- Adaptive training on a trial by trial basis constantly adapting to each individual’s WM capacity.

Summary

- Cogmed training was feasible and improved short term visual memory for children with Down syndrome in our study.
- Cogmed training may be suitable for younger children with appropriate support – also depending on their existing memory skills.
- Children who completed Cogmed training had less problems on WM & SHIFT (BRIEF-P).
- Gains are sustained – children likely need more frequent practise (JM intervention programme less intensive than RM (75 activities v 200) – current case study of RM showing continuing gains.

For further information

- Watch website for more further information – www.dseinternational.org

Resources

- Buckley, S. (2001). Reading and writing for individuals with Down syndrome – An overview. – available from DSE.
- Bird, G. & Buckley, S (2001). Reading and writing development for infants with Down syndrome (0-5, 5-11, 11-16 years). – available from DSE
- Bird, G. & Buckley, S (2001). Speech and language development for infants with Down syndrome (0-5, 5-11, 11-16 years). – available from DSE.
- Also videos showing preschool and primary readers from our work over last 25 years now available as DVDs
- Special words and Special stories www.specialiapps.com

Resources – some software ideas

Clicker 6 software – UK and USA

Widget software and apps – using symbols (Don Johnston US)

Inclusive technology – UK and USA
http://www.inclusive.co.uk/

Specialapps – See and Learn apps ipad and android UK and USA
http://www.specialiapps.co.uk/en_gb/
Further information about RLI:
- DSE website: http://dsuri.net/YLCs1j
- Scientific paper reporting RCT: http://dsuri.net/OXRO0Z
- Online events: http://dsuri.net/ZpYdpL
- New RLI blog: http://dsuri.net/ZMyZMS
- RLI email group: http://dsuri.net/RAhtdP
- Handbook
- RLI email group: http://dsuri.net/RAhtdP
- From UK store: http://dsuri.net/YRGrLp
- From US store: http://dsuri.net/XpY1Cu

References and language:

References to RLI and Cogmed studies:
- See http://www.dseinternational.org/en-bh/resources/teaching/s/l/support/ While the Handbook is intended to provide all the information needed to implement the intervention, we are continuing to support the roll-out in schools with training, web seminars and blog.

The evidence for a specific phenotype or profile:
- See Deborah J. Rider (Colorado State University) and colleagues for a recent review of the evidence
- The Emerging Down Syndrome Behavioural Phenotype in Early Childhood. Infants and Young Children (2005) 18, 2, 86-103
- The Down syndrome behavioural phenotype: implications or practice and research in occupational therapy. Occupational Therapy in Health Care (2011) 25, 7-25
- And free access articles - preschool, primary and teenage profile papers
- Down Syndrome Research and Practice 9 (3) special section on the specific profile free at:
  http://www.down-syndrome.org/research-practice/

References – literacy and inclusion study:

See and Learn - early intervention materials:
- Visual supports for learning
- Language and reading from first words to sentences
- Speech from sounds to words
- Number coming shortly
- http://www.dseinternational.org/ resources/support/
- Further information by Sue Buckley: @SueBtalk
- blog.suebuckley.org
- @SueBtalk