WORD READING IN ENGLISH: CHALLENGES FOR TEACHING AND LEARNING

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WHY IS LITERACY HARD TO ACQUIRE IN ENGLISH?

• English has an ‘opaque’ orthography

• Inconsistent relationship between graphemes (letters, or groups of letters) and phonemes (sounds that make up spoken words)
  • Some graphemes (e.g. ‘ough” can be pronounced in multiple ways (e.g. in cough, tough, though, through, and plough)
  • Some phonemes (e.g. /eə/ sound in “air”) can be written in multiple ways (e.g. hair, bear, where, care)

• Contrast with ‘transparent’ orthography like Italian, where relationship between phonemes and graphemes is 1:1.

• 20% of all words in English have inconsistent spellings.

• BUT, up to 50% are inconsistent in children’s early vocabularies.
BACKGROUND: LEARNING TO READ ENGLISH

Percentage word reading accuracy after one year of instruction

- Finnish: 100%
- German: 100%
- Austrian: 100%
- Greek: 100%
- Dutch: 100%
- Italian: 100%
- Swedish: 100%
- Spanish: 100%
- Icelandic: 100%
- Norwegian: 97%
- French: 85%
- Portuguese: 78%
- Danish: 75%
- English: 25%

(Seymour et al, 2003)
THE SIMPLE VIEW OF READING

Language comprehension processes

Visual word recognition processes

Visual word recognition processes

Language comprehension processes
TWO ROUTES TO WORD READING
READING A WORD BY PHONOLOGICAL PROCESSES

Identification of graphemes:
- Written word: SHAMPOO
- Graphemes: sh-a-m-p-o-o

Translation of graphemes to phonemes:
- sh → /ʃ/
- a → /a/
- m → /m/
- p → /p/
- oo → /u/

Blending phonemes:
- /ʃ-a-m-p-u/ → /ʃampu/

Accessing stored word pronunciation:
- /ʃampu/ → "Soap to wash the hair"

Accessing stored word meaning:
- "Soap to wash the hair"
BUT
GUAGE:

- Identify graphemes
  - g → /g/
  - au → /ɔ/
  - ge → /dʒ/

- Translate graphemes to phonemes
  - /g - ɔ - dʒ/ → /gɔdʒ/ → /gʊdʒ/ → /gʊdʒ/ → “A deep valley”

- Blend phonemes
- Access stored word pronunciation
- Access stored word meaning
READING WORDS BY LEXICAL-SEMANTIC PROCESSES

Written word

SAIL → S-A-I-L

Access stored letter sequence

Access stored word meaning

“an area of fabric used to catch the wind and propel a boat over water”

Access stored word pronunciation

/seɪl/
TWO ROUTES: TWO TYPES OF WORDS...

• Exception
  - The
  - Was
  - There
  - Is
  - Be
  - Love
  - Mother
  - Father
  - Watch
  - Sew

• Regular
  - Dog
  - Chip
  - Fish
  - Hat
  - Coin
  - Am
  - Went
  - Mum
  - Dad
  - Clock
TWO TYPES OF WORDS: READING

Stainthorp & Hughes, 1999
TWO TYPES OF WORDS: SPELLING

Stainthorp, 1986; Stainthorp & Powell, 2013
TWO TYPES OF WORDS: NATIONAL CURRICULUM

• Alongside this knowledge of GPCs, pupils need to develop the skill of blending the sounds into words for reading and establish the habit of applying this skill whenever they encounter new words. This will be supported by practice in reading books consistent with their developing phonic knowledge and skill and their knowledge of common exception words. At the same time they will need to hear, share and discuss a wide range of high-quality books to develop a love of reading and broaden their vocabulary.
• Pupils should be taught to:
  • apply phonic knowledge and skills as the route to decode words
  • respond speedily with the correct sound to graphemes (letters or groups of letters) for all 40+ phonemes, including, where applicable, alternative sounds for graphemes
  • read accurately by blending sounds in unfamiliar words containing GPCs that have been taught
  • read common exception words, noting unusual correspondences between spelling and sound and where these occur in the word

• Pupils should be taught to:
  • spell: words containing each of the 40+ phonemes already taught
  • common exception words
ASSESSING WORD READING

• Diagnostic Test of Word Reading Processes
  • Designed by members of the Forum for Research in Literacy and Language (FRiLL)
  • Published by GL-Assessment
• The DTWRP is made up of 90 items in three sets of 30.
  • 30 regular words: e.g. *frog*
  • 30 exception words: e.g. *bear*
  • 30 non-words: e.g. *froll*
• The DTWRP is a standardised test, giving
  • an overall standard score for single word reading
  • separate stanine scores for non-word reading and exception word reading
• The test provides protocols for identifying different types of poor word reading profiles by comparing the stanine scores for non-word reading and exception word reading.
IMPLICATIONS FOR TRAINING

• **ALL** teachers need to know and understand the processes involved in word reading, and the typical and atypical development of these processes

• This will enable them to tailor their teaching to meet individual learning needs
BEYOND PHONOLOGY…

• Very strong evidence of the value of phonics in fostering early decoding skills
• But there’s more to word reading than alphabetic decoding
• And there’s more to dyslexia than difficulties with phonological awareness
• Anecdotal evidence that emphasis on phonics leads some children to read very slowly and laboriously
• Children whose word recognition is fluent and automatic are at an advantage.
NAMING FLUENCY

• “Rapid Automatized Naming” tasks (RAN)
• Denckla and Rudel (1974, 1976) first showed that the fluency with which children can name familiar things (colours, objects, letters, digits) is strongly related to reading
• Since then, research has repeatedly demonstrated strong RAN-reading link, in English and range of other languages.
• Particular link with reading *fluency*
  • The more automatic word recognition is, the more resources left over for understanding the message of text
RAN LETTERS TASK

(From the Comprehensive Test of Phonological Processes, 1999)
RAN OBJECTS TASK

(From the Comprehensive Test of Phonological Processes, 1999)
DOUBLE DEFICIT THEORY OF DYSLEXIA

• This view contrasts with dominant view of phonological awareness difficulties as the key cause of dyslexia
• Dyslexia can be caused by RAN difficulties, independent of phonological processing difficulties
• 3 possible profiles of reading disorder:
  • Single phonological deficit
  • Single RAN deficit
  • Double RAN + phonology deficit
UNDERSTANDING THE RAN-READING LINK

• Research questions:
  • To what extent is RAN independent from phonological processes?
  • Are single RAN deficits associated with word reading difficulties?
  • Which cognitive factors underlie the RAN-reading relationship?

• To answer these questions we initially screened 1000 children in Years 3 and 4 in nine schools in Kingston-upon-Thames on:
  > Phonological awareness (elision, blending)
  > RAN (digits, letters)
  > Single Word Reading test

(Powell, Stainthorp & Stuart, 2007)
ADDITIONAL FINDINGS

• The low RAN group were at a disadvantage, relative to controls in:
  • Reading and spelling, and this disadvantage endured into secondary school
  • Discriminating simple visual shapes than controls essential for learning to quickly and reliably identify letters.
  • Storing lexical orthographic knowledge (knowledge of individual words’ spellings) essential for exception word reading/spelling

(Powell et al., 2015; Stainthorp et al., 2010; Stainthorp et al., 2013)
WHY IS THIS IMPORTANT?

- RAN difficulties are quite common
- Around 9% of the 1000+ children we assessed had a difficulty with RAN, but no difficulty with PA
- They would probably have no difficulty with phonics
- May go undetected in the classroom, or in assessments for specific reading difficulties

- RAN tasks are very quick and easy to administer, and children like doing them
- Useful early screener for potential reading difficulties
RAN AND READING: CHICKEN AND EGG

• RAN has many surface similarities with reading
• Both require:
  • Identification of visual stimuli
  • Generation of phonological name for each visual stimulus
  • Scanning across the page from left to right
• Most longitudinal research on RAN, PA and reading in English involves assessing children after the onset of literacy instruction
• Is RAN performance (and PA) causally related to reading OR simply a consequence of experience with reading?
• IMPORTANT when thinking about interventions…
OUR QUESTIONS:

• Are **pre-existing** skills in RAN, and also in PA and other key cognitive factors **causally antecedent** to children’s emergent literacy?

• If so, does RAN predict some aspects of reading more than others?
PARTICIPANTS

• 98 children attending the ‘Nursery’ Year of two primary schools in SE England

• At Time 1
  • aged from 3 years 6 months to 4 years 5 months, with a mean age of 3;10 (sd = 4 months)
  • Children were non-readers (any child scoring above zero on the BAS single word reading test was excluded from study).

• At Time 2 (around 2.5 years later), children were at the end of Year 1 of primary school
MEASURES

• Time 1 (Nursery)
  • RAN
  • Phonological awareness
  • Cognitive abilities (IQ)
  • Speed of processing
  • Visual Processing
  • Executive Functions (working memory, inhibition)

• Time 2 (end of Year 1)
  • Word reading assessed using the Diagnostic Test of Word Reading Processes (DTWRP)
  • Provides separate measures of non-word (e.g. gint), regular word (e.g. mint) and exception word (e.g. pint) reading
RAN AND ORTHOGRAPHIC KNOWLEDGE

• RAN has been linked to lexical, orthographic knowledge
  • Exception word (e.g. yacht, pint) reading is the best test of lexical orthographic knowledge (because exception words can’t be read by the decoding “route”)

• PA has been linked to alphabetic decoding
  • Non-word (e.g. fint, vome) reading is the best test of alphabetic decoding (because non-words, by definition, haven’t been seen before so can’t have been memorized)

• Is RAN a stronger predictor of exception word reading than of regular word reading?

• Is PA a stronger predictor of non-word reading?
FINDINGS

• Can RAN and PA, assessed in very young non-readers, be described as causally antecedent to reading?
  • RAN at Time 1 was a unique predictor of exception word, but not non-word reading at Time 2.
  • PA at Time 1 accounted for unique variance in non-word reading but not exception word reading at Time 2.
  • *Evidence of causal link between RAN and lexical-orthographic knowledge, and between PA and alphabetic decoding* (Powell, Chesson, & Stainthorp, 2013)
WHAT HELPS WITH EXCEPTION WORDS?

• Over the past decade, shift in policy and practice to greater emphasis on phonics in early literacy instruction
• Measurable benefits in terms of alphabetic decoding skills in most children
• BUT phonics knowledge is not sufficient for fluent reading (and spelling) of all types of words
• What other factors play a part in developing lexical, orthographic knowledge?
• READING EXPERIENCE, at home and at school
ASSESSING PRINT EXPERIENCE

• Storybook exposure task
  • Children saw covers of books
  • Targets were well known English story books
  • Foils were Italian children’s books, with titles translated
  • 1 point for every English story book selected, 1 point deducted for every ‘foil’ (Italian book)
• Very quick and easy to administer
• Reliable measure

• Also parent questionnaire assessing the home literacy environment
• Investigation of the role of print exposure, vocabulary and decoding skills in children’s reading of regular and exception words

• Predictors of reading
  • Print exposure
  • Home literacy environment
  • Vocabulary
  • Alphabetic decoding
RESULTS: WORD READING

<table>
<thead>
<tr>
<th>Years 1 &amp; 2</th>
<th>Regular</th>
<th>Exception</th>
<th>Nonwords</th>
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Stanine Score

- Years 1 & 2
- Regular
- Exception
- Nonwords
WHAT PREDICTS EXCEPTION WORD READING?

• Alphabetic decoding was a significant predictor of exception word reading, as well as regular word and non-word reading.

• In addition, print exposure was also a significant predictor of exception word reading.
CONCLUSIONS

• Phonics is well established as the best way to foster decoding skills
• Exposure to print is essential to support reading of exception words
• Highlights the need to encourage children to engage with print, particularly reluctant readers
  • children with reading difficulties
  • boys
OVERALL SUMMARY

• Two routes to reading.
• Two different types of words children need to be able to read.
• Phonics the best way to foster alphabetic decoding skills
• Lots of exposure to print necessary to acquire stable and reliable knowledge of exception words, and to support fluent reading.
QUESTIONS/ISSUES

• Where are the gaps in our knowledge about reading?
• Issues with regard to the early identification of potential difficulties
• Motivation and engagement with reading
• Issues about boys performance
• What are the reading-spelling-writing relationships
• Contact emails
• Daisy: d.a.powell@reading.ac.uk
• Rhona: r.w.stainthorp@reading.ac.uk
CHECK OUT THESE PUBLICATIONS

- We are well aware that teachers often have difficulty accessing the research we have talked about. Below are some of our publications that support this presentation. You just need to email us and we will send you a copy or link to the publication.


