Learning to Read and Spell 8C

1. Normal reading development
   1. Basics
      1. Alphabetic reading – when you are learning to sound words out (GPC).
      2. Skilled reading involves using that direct route between words and lexicon.
      3. So learning to read involves a shift away from sounding things out to lexical route use.
   2. Stages
      1. Pre-alphabetic – we do not know the grapheme-phoneme correspondence, so we learn the connection between the visual word and the meaning.
         1. Remembering the concept with the visual pattern
         2. Might call a tube of Crest, toothpaste or brush teeth and not actually Crest
      2. Partial alphabetic reading phase – start to form sound to spelling rules. Some letters get associated with sounds.
         1. Still can’t sound things out, but start get first and last letters.
      3. Full alphabetic stage – full GPC mapping available and we can red words we’ve never read before.
         1. Able to start mapping through the lexical route with practice on the GPC route.
      4. Consolidated alphabetic stage – reads like an adult.
         1. Rimes are now familiar, so we can use syllables, rimes and morphemes as units not letters.
   3. Readers:
      1. Poor readers – can’t get past the second stage because they have trouble with phonological recoding.
      2. Competent readers – know both the alphabetic system of spelling and specific word spelling (definitely) – are able to learn the exception spellings (just like exception sounds).
   4. Phonological awareness – awareness of sounds, measured by tasks such as naming the common sound win words, and deleting a sound from a word, thought to be important for reading development but probably other languages aspects as well
      1. Table 8.1
      2. Epilinguistic knowledge – implicit knowledge about our language processes
      3. Metalinguistic knowledge – explicit knowledge about our language processes
      4. Tests tend to measure:
         1. Manipulating single sounds
         2. Holding sounds in memory
         3. Segmenting skills
         4. Rhyming skills
      5. Closely tied to literacy
      6. Sequence of phonological development:
         1. Implicit awareness measured by matching sounds, detecting oddities
            1. Large to small development
            2. Little effect on learning to read
         2. Explicit awareness measured by isolating, segmenting, and manipulating sounds
            1. Small to large development
            2. Helps learning to read by GPC
         3. Rime awareness, segmentation, letter name knowledge strong predictors of learning to read
         4. Training phonological awareness helps reading
   5. Size of early reading units
      1. So do kids go from small to big or big to small when learning to read?
      2. Analogy – it’s hard to people to sound things out and blend phonemes together…so they read by analogy
         1. Given clue word (beak)
         2. Then asked to read related words (bean, beal, peak, lake)
         3. Using the rime as a starting point (almost priming?)
      3. Learning GPC to read by analogy
         1. You first have to learn the sound to spelling and be able to break things into phonemes to read by analogy.
         2. Depends on age – younger readers prefer GPC, older readers prefer analogy
         3. All of them do better with clue words – so also task dependent
      4. Depends on the language
         1. Some languages (like German) are more regular with their GPC, so they use analogy less
         2. Psycholinguistic grain size – different languages use different preferred reading unit size
   6. How should reading be taught?
      1. Age that you learn to read does not seem to be important…older readers learn faster, but teaching at a young age doesn’t seem to help.
      2. Approaches (what do these match?)
         1. Look and say or whole word method – learn to associate sound with visual input or pattern (lexical)
         2. Phonic method – taught to associate sounds with letters and letter sequences or sound things out (GPC)
      3. Phonic method seems to be best:
         1. If you teach the word only method, you have a hard time with new words, NW, show the same problems as phonological dyslexia
      4. Ways to teach phonics
         1. Analytic phonics – taught after reading has started
            1. Letter sounds are introduced gradually
            2. Reading practices with sets of words that share sound (dig dog)
         2. Synthetic phonics – taught all the letters and sounds before anything else
            1. Teach word building activities on how to put words together
            2. Seems to work best and give advantages to children later.
         3. Exposure to print – games that manipulate letters, words also very highly beneficial
   7. Learning to spell – turning sounds into letters
      1. Learning to spell models is a reverse of the reading models – one GPC, one lexical for irregular words
      2. See the same spelling problems that you do with reading
      3. At very young ages when children learn to spell they thing that words should be based on their meanings (don’t understand alphabet)
         1. Whale should be a long word because it’s a big thing, versus mosquito should be a small word
      4. Spelling information
         1. Early spelling errors reflect over-generalization of alphabetic rules – eat > et because it has two sounds
         2. Problems with vowels because they make different sounds – happy > hape, like > lik
         3. Reduce large consonant clusters down to one letter – street > set, be > b, should > c
         4. Sensitive to cluster placement – ck occurs a lot but never at the beginning, so they rarely spell things with a ck at the beginning
         5. Slowly learn rules like –s and –ed for morphemes
2. Developmental Dyslexia
   1. Definition: impairment in developing reading abilities, not due to brain damage, reading abilities are impaired.
      1. Most people think about it as writing and poor spelling, which is technically developmental dysgraphia – but the two often co-occur.
      2. Is about 10-30 percent of the population
      3. Your reading age is below what would be expected of your IQ and age
      4. Biggest problem is defining what the main problem is…is there one underlying cause?
         1. How much less well do you have to read?
         2. Is this continuous or black and white?
   2. Biology of developmental dyslexia
      1. Things associated with dyslexia, but we’re not clear why:
         1. Left handedness
         2. Clumsier – maybe?
         3. Sometimes visual short term memory impairment
      2. Brains:
         1. Magnocelluar visual pathway – large cells that respond to contrast and movement, seems to cause people thinking the letters are moving and dancing around the page.
      3. Genetic – tends to run in families.
         1. Planum temporale – structure in Wernicke’s area, usually larger in the left in normal people, about the same for dyslexics
         2. Tends to cause problems with phonology
         3. Larger / more neurons in the occipital areas as people are using visual information to cope with the problems.
   3. Subtypes of developmental dyslexia?
      1. Seems that people adopt different reading styles, some that focus on phonological (so they have trouble with orthographics) and vice versa
      2. Development of the GPC is weakened, which causes it to look like deep dyslexia and phonological dyslexia (several case studies where people can’t pronounce new words)
      3. You do see the dual route separation in developmental dyslexia as well but it’s probably a continuum with those extremes at each end
      4. Problems with this research is finding the appropriate control group
   4. Why do they form?
      1. Surface developmental dyslexia appears to be delayed readers – they make the same errors that people do at that reading level sounding out nonwords
      2. Phonological dyslexia occurs from damage to phonological representations before you learn to read
      3. Surface dyslexia – less training, less reading, visual perceptual deficits, problems connecting orthography to phonology
      4. Summary – most people think it’s a phonological deficit that causes developmental dyslexia (called the phonological deficit model)
   5. What can we do to help?
      1. Teach phonological awareness, especially at a young age (games!)
      2. Teaching people to segment words into onsets and rimes
      3. Orton-Gillingham-Stillman multisensory methods
         1. Systematic and explicit teaching of GPC rules
         2. Children see say write and feel new spelling patterns
         3. Seems to work well