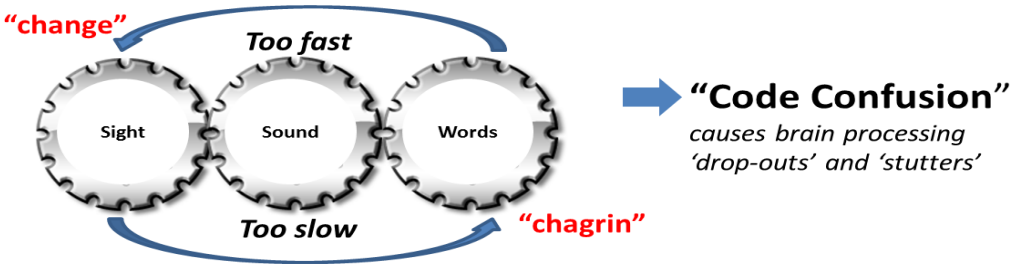
Appendix: CODE CONFUSION

The Code
26 letters
44 sounds
Hundreds of confusing ways to spell
Magic "e"
c/k rule
Bossy "R"



Though many factors contribute to learning to read difficulties (http://goo.gl/RRcNci), what most makes learning to read difficult for most beginning and struggling readers – what most challenges their brains – is the *confusing relationship* between the *naturally evolved* and *naturally learned* code of speaking and listening, and the *artificially created* and *artificially learned* c-o-d-e of reading and writing (http://goo.gl/y7ki4o).

Though good readers recognize words as orthographic-wholes, beginning and struggling readers must ***learn to recognize*** words by using the letters within them (in some cases, the words surrounding them) to *sound them out*. The starts, stops, and hesitations heard in the voices of struggling readers are 'drop outs' in word-recognition flow caused by brain processing delays in working through the code's letter-sound correspondence confusion (http://goo.gl/DlRFGH). The greater a reader's experience of letter-sound confusion in a word, the longer his or her attention must stretch/span while working out recognition of the word. The longer the span of attention required, the greater the stress on working memory and the greater the vulnerability to mistakes in decoding. Taking too much time to decode unfamiliar words stutters the synchronization of the brain processes required to maintain attentional engagement and, consequently, fluency and comprehension.

Short Summary Videos:

Unnatural Confusion: https://goo.gl/jyKsyN
Confusion Decoding: https://goo.gl/8jsr9G
See also: Word Recognition Speed: https://goo.gl/1PwJXF

Code Ambiguity and 'Reading Stutters': (available at: http://goo.gl/Jz76yx and http://goo.gl/VoKP1M)

Alphabet Wasn't Created for English - **Fisher, J.** (Language History)
Letter Sounds Behave Differently in Different Environments - **Adams, M.J.**(Cognitive Science)
Ambiguity vs. Variability - **Venezky, R.** (Orthography)
Ambiguity Processing Takes Time - **Tallal, P.** (Neuroscience)
Articulation Stutters and Code Ambiguity - **Lyon, Reid, G.** (Educational Research)
Levels of Ambiguity - **Adams, M.J.** (Cognitive Science)
Code Ambiguity - **Merzenich, M.** (Neuroscience)
Power of English - **Cable, T.** (Language History)
All but Fated by How Well They Learn an Archaic Technology - **Lyon, Reid G.**(Educational Research)
Thinking Bent Around the Code - **Shanahan, T.** (Literacy Research)
Phonics is a Code Patch - **Shanahan, T.** (Literacy Research)
Taking the Code for Granted - **Shanahan, T.** (Literacy Research)
Processing Stutters - **Perfetti, C.** (Psychology & Linguistics)
Reading Difficulties and Code Disambiguation Time - **Breznitz, Z.** (Neurocognitive Research)
Building Blocks of Reading - **Tallal, P.** (Neuroscience)
Not Much of a Fault - **Merzenich, M.** (Neuroscience)
Automatization - **Deacon, T.** (Anthropology & Linguistics)
Correspondence Between Articulation Stutters and the Code - **Shanahan, T.** (Literacy Research)

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