

Adolescent Literacy Workshop:

Strategies for optimising the literacy skills of Middle School weak readers in the light of English Orthographic Disadvantage and Excessive cognitive load

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Handout & ppt slides: www.literacyplus.com.au

- Two files from this session are on my website:
 - The handout: contains extra slides omitted today.
 - A pdf version of all the slides for easier reading
- While there, you might also like to
- Get the downloads for Newsletter 1 & Newsletter 2, & download Galletly (2005) Chapter 3: *English Orthographic Complexity*
- Register to receive newsletter emails.
- Check out the 3 seminars I present for teachers & SLPS:
 1. *Teaching to the Instructional Needs of Children with Reading Weakness: Theory & Practice* (2 days)
 2. *Ensuring A Gentle Start: Effective Earliest Word Reading Instruction for At-Risk Readers* (1 day)
 3. *Adolescents Struggling with Literacy: Meeting Their Instructional Needs* (1 day)Dr Susan Galletly 2015

Wouldn't it be nice...

- If every parent had enjoyed school, was a good reader, able to read to each child, and able to encourage and support school learning.
- If weak readers only needed a brief period of extra support for reading-accuracy development, then didn't slip back(regress) & lose skills they'd learned
- If by Year 3, all kids could read & write all words, so teachers had no children with weak reading & writing skills in their classes.
- If even children with severe Intellectual Disability could read & write all words accurately...

It happens lots but not in Australia!

Orthography impacts Word Reading & Spelling

The complexity of each language's orthography dictates how easy (& fast) it is to learn to read & write.

- Very simple languages:
 - Italian Finnish Norwegian Dutch Icelandic Swedish Spanish Turkish German Greek
 - Word reading at end Yr1 90-98%
- Slightly harder languages
 - French Danish Portuguese
 - Word reading at end Yr1 >70%
- English is far more complex
 - 34% at end Yr1
 - 76% a year later
 - Seymour, Aro and Erskine (2003)

| | | | | | |
|------------------------------------|-------|------|------|-----|--|
| Orthography means spelling system. | a | mat | b | bat | Wuns upon u tiem thair wer three litul pigz hou livd in a smorl hows with thair muthu. Wun dae, Muthu Pig sed tou her sunz, "It's tiem for you tou bild yor own howsuz." Soe of thae went. Thu ferst litul pig met u man with a loed of stor. "Pleez cood I hav sum ov yor stiror" he arskt poelletlee. "Sertunlee you fien yung pig," sed thu man, and hee gave thu litul pig az much hae az he wontud. |
| | ae | mate | d | dat | |
| | e | met | f | fat | |
| | ee | meet | g | gat | |
| | i | mit | h | hat | |
| | ie | mite | j | jat | |
| | o | mot | k | kat | |
| | oe | mote | l | lat | |
| | u | mut | m | mat | |
| | ue | mute | n | nat | |
| | ar | mart | p | pat | |
| | er | mert | r | rat | |
| | or | mort | s | sat | |
| | ow | cow | t | tat | |
| | oo | foot | v | vat | |
| | ou | you | w | wat | |
| | oy | boy | y | yat | |
| air | hair | z | zat | | |
| ear | eyu | sh | shat | | |
| er | hettu | ch | chat | | |
| ng | tang | th | that | | |

English orthography is extremely complex compared to regular orthographies

- >500 spelling patterns, 26 letters, 44 sounds.
- Grapheme: phoneme correspondences(GPCs):
 - One: one One: many Many: one Many: many
 - y (1 graph: 5 sounds): yet my baby gym platypus
 - sh (7 graphs: 1 phoneme): shin station mission social chef sugar schwa
 - or (>11 graphs: 1 phoneme): for sore pour raw awe taught bought sauce talk roar war
 - a (?30graphs: ?14phonemes): at / later gauge ray great gaol / any said says dead / sea / aisle aye / was / beau goal mauve / beauty / naughty war / ago / ask far half laugh / earn / dear / air bear dare

English Orthographic Complexity Creates VERY High Cognitive Load

- In Italy: 'General intelligence & working memory are largely irrelevant factors for the acquisition of reading accuracy'
 - (Cossu et al, (1998) discussing 10 children with Down's Syndrome (Mean IQ 44; range 40-56), correctly reading 93.8% of real words and 88% of nonwords.
- It's the opposite for us (Gathercole & Pickering, 2000, 2001; Jimenez et al., 2003; Siegel, 2003):
 - Lots of our bright children struggle to master word reading and writing.
 - Intelligence and working memory correlate highly with word reading success in Anglophone nations: kids with low working memory &/or intelligence STRUGGLE!

There's a huge difference in progress by the lowest 10% of readers:

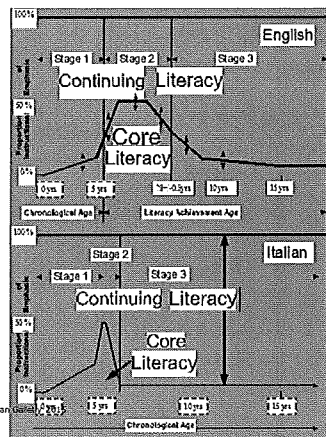
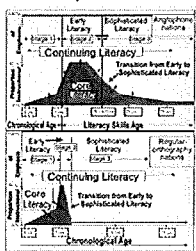
- English-text readers:
 - Virtually all studies exclude children with disabilities.
 - Significant numbers of treatment-resisters.
 - Usually a significant loss of skill over time.
 - Regular-orthography readers:
 - Regular-orthography weak readers (the lowest 10%) catch up at a young age to a level equivalent to peers.
 - Children with disabilities included.
 - Powerful permanent progress to mastery level.
 - No significant loss of skill over time.
- (Olofsson & Niedersoe, 1999; Poskiparta, Neimi, & Vauras, 1999; Torgesen & Davis, 1996; Vellutino, 2000).

The time of Transitioning from Early to Sophisticated Literacy (TESL) strongly differentiates Anglophone & regular orthography nations.

Anglophone children spend

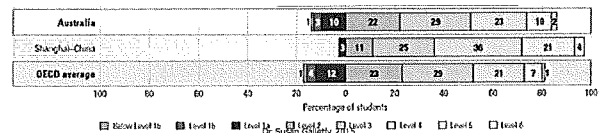
- >>time on Early Literacy & thus
- <<time on Sophisticated Literacy.

Anglophone classes are >> complex to teach due to many weak readers



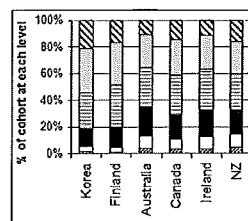
Our PISA Profile

- PISA 2012:
 - Boys are at-risk: girls' mean reading score equivalent of one year of schooling above the boys' mean score.
 - 23% of next-generation dads are struggling readers.
 - We're below par for reading improvement & SES equity compared to other high achieving nations: They have few weak readers, high SES equity & keep improving.
 - Our results aren't improving.



Regular orthography nations seem to be able to improve PISA literacy outcomes quite easily. Anglophone nations aren't improving.

- Anglophone nations have
 - Major difficulty improving PISA outcomes
 - Continuing high rates of low achievers
 - ≤Level 1, at Level 2:
 - Korea ~4%, ~18%
 - Finland ~4%, ~20%
 - Australia ~15%, ~36% (Approximate figures)



The impacts of high cognitive load: MASSIVE word reading difficulties

- Landerl, Wimmer, & Frith's (1997) study of German & English weak readers reading 1-3 syllable real words & nonwords
- Huge differences in averages, no overlap of means:**
- German weak readers read hardest words (3 syllable nonwords) far better than the English weak readers read the easiest words (1 syllable real words)
 - Vowel errors on first vowel grapheme: 324 (Eng): 20 (Ger).
 - Errors made on high vs low frequency words: (English, 10% vs 50% errors): No sig. difference (German)
 - Whole word substitutions: English (14% real words, 6% nonwords) vs. German (1% & 2%)

Double Deficit Groups are very different in Anglophone vs. Regular Orthography Nations

- In nations with highest regularity orthographies:
 - Phonological Weakness: no problems with word reading & writing.
 - RAN Weakness: slow reading, excellent accuracy.
 - Double Deficit: slower reading, excellent accuracy.
 - Slow reading is proving very difficult to overcome.
- In Anglophone nations:
 - Phonological Weakness: significant word reading & writing weakness.
 - RAN Weakness: significant word reading & writing weakness.
 - Double Deficit: severest word reading & writing weakness.
- Nations with mild orthographic complexity lie between:
 - E.g., German is highly regular for reading but less regular for spelling
 - Phonological Weakness: excellent word reading, weak spelling.
 - RAN Weakness: slow reading & writing.
 - Double Deficit: slower read & writing, weak spelling.
 - Slow reading is proving very difficult to overcome.

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Moving to a fully regular orthography may have huge impact Korea: A showcase of the impact of a regular orthography

- Korea removed orthographic complexity in 1946 by introducing Hangul, a regular orthography, with massive improvements at minimal expense.
- "South Korea illustrates the pace of progress that is possible.... Two generations ago, the country had the economic output of Afghanistan today and ranked 24th in education output among the current 30 OECD countries. Today, South Korea is the world's top performer in secondary school graduation rates (93%)."
Schleicher and Stewart (2008, p.45)
- Hangul Day celebrates the bringing of literacy to the people.
 - Centuries ago, King Sejong the Great demanded a simple system for writing spoken Korean so everyone could express their thoughts in writing.
 - Finding nothing satisfactory in other nations, they made up their own set of symbols (Initially 11 Vs & 17 Cs, simplified in 1933 to 10 Vs & 14 Cs).
 - Since the end of Japanese occupation, Hangul is the nation's sole writing system.

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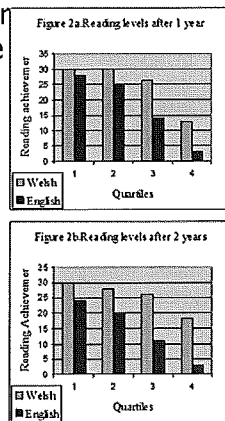
Perhaps AUSTRALIA should focus on South Korea, not Finland..

Orthography seems the factor far more than age or culture

Spencer & Hanley's studies of Welsh & English readers:

- Welsh is a regular orthography.
- All children lived in same small town, attending the same school.
- The English group were taught in English and learned Welsh as a 2nd language, & vice versa.
- Huge differences in rate of word reading development, especially in the lowest 25% of achievers.
- Differences still present at Yr 6.
- Low age may make Welsh reading development slower than optimal, e.g., it seems slower than Finnish.

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Did misinterpreting Freire's work provide the basis of sociocultural reading models?

- Freire did highly effective reading instruction to take Brazilian peasants from print illiteracy to being literate.
- He worked carefully to build motivation, engagement and purpose for learning to read.
- He also did systematic reading accuracy instruction using decontextualised word parts and words. He taught letter sounds, & phonics.
- He first taught 'Learning to Read & Write' using drills with decontextualised words and word parts. This took an extremely short time, because the orthography is transparent.
- He then used 'Reading & Writing to Learn' to continue Social Emancipation.
- We only noticed the empowerment. We didn't notice the careful explicit instruction using decontextualised words and word parts, which he continued until students were sufficiently competent to move on to independent reading & writing. They used self-teaching from this point and rapidly became effective readers.

Optimal word reading & writing nations set the potential 'pure reading' benchmark for us

- Highest-regularity orthography nations can set the benchmark for word reading achievement which Anglophone nations need to achieve if children are not to be disadvantaged by English Orthographic Complexity.
 - Other regular orthographies have a degree of orthographic complexity and orthographic disadvantage., e.g., German orthography is less regular for spelling so mild disadvantage
- A nation's word reading development**
= **Pure word reading development**
+ **Products of orthographic complexity and resultant cognitive load**

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English spelling means it takes 'too long' for our kids to learn to read & write

- It takes ≥7yrs before kids can read & spell most words: seen in word reading & spelling test ages go to 13-21yrs.
- No word reading or spelling tests in highest orthographic regularity nations: kids can soon read & write all words, e.g., in Finland (Holopainen, Ahonen, & Lyytinen, 2001):
 - Precocious readers (~33% of kids) read well when they start school (Grade 1).
 - Early readers read well within 4mths.
 - Average readers read well within 9mths.
 - Delayed readers are kids not reading well within 18mths.
- Our kids have << time spent on Sophisticated Literacy because they spend >>time on Early Literacy compared to kids in other nations e.g., those doing well in PISA.

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A key impact of high cognitive load: Our Early Intervention isn't effective enough

- Regular-orthography weak readers, including children with major intellectual and other disabilities, catch up at a young age & have no further difficulties.
- Many Anglophone weak readers make minimal progress, and experience major regression of skills (loss of skill over time, with skills that seemed mastered now forgotten). (Olofsson & Niedersoe, 1999; Torgesen, 2000; Torgesen & Davis, 1996; Vellutino, 2000).
- If we could optimise Early Intervention for our weak readers, this would make teaching & learning from Yr3 vastly easier.

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A key impact of high cognitive load: MANY factors make our kids vulnerable

- **Regular orthographies**
- **Simple to master:** akin to learning to ride a bike on a smooth path.
- **Very few factors relate to reading development, e.g.,** letter-sound knowledge, RAN (Rapid Automised Naming).
- **English**
- **Complex to master:** akin to learning to drive an all-terrain vehicle in difficult conditions.
- High cognitive load makes it easy to fall behind in skills & confidence, so **LOTS of factors relate to reading development** e.g., letter-sound knowledge, RAN, SES, literacy & vocab levels on school entry, gender, indigeneity, speech & language skills, family history of dyslexia, auditory processing, phonological awareness, & many others besides.

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A key impact of high cognitive load: 4 serious learning breakdowns

- **Skill Mastery:** Weakness in skill mastery (very common, particularly in word reading development) is seen in
 - 1. Failure to master skills to a correct level.
 - 2. Failure to reach automaticity (Correct + Fast + Supereasy) & likelihood skills will slip once practice stops.
- **3. Skill Maintenance:** Weakness making effective long-term memories, seen in skills which seem learned later being found to have slipped or been lost.
- **4. Skill Generalisation:** Weakness in skill generalisation is seen in failure to generalise skills to different contexts, e.g.,
 - Failure to move recently learned skills through to effective use in more complex contexts.
 - Failure to move skills through to effective authentic use.

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Orthographic Advantage: In regular-orthography nations,

- Every parent is a good reader, can read to their kids, and support school learning.
- Kids can self-teach once phonemic recoding is mastered.
- All students can read and write every word by Year 2.
- Kids with Down Syndrome can read & write all the words.
- Weak readers need only brief support, and move being healthy progress readers, able to read and write all words.
- There's no tests of word reading, as all words can be read.
- 'Home Readers' aren't simplified so kids can read them.
- Time saved on Core Literacy: 'learning to read and write', is spent on Sophisticated Literacy: 'reading & writing to learn'.
- Yet the PISA researchers still say the Finnish difference is because their teachers are better???????

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Teaching impacts of Orthographic Disadvantage

- Too much teaching time needed to build Early Literacy thus
- Too little teaching time to build Sophisticated Literacy.
- Delayed equalisation of print & verbal vocabularies.
- Early intervention isn't sufficiently effective.
- Delayed TESL (Transition from Early to Sophisticated Literacy means teachers teach to >> complex classes.
- Serious lack of awareness of how hard & expensive it is to learn to read & write English by govts & education systems.
- Expectations of all children achieving as highly as children in Korea & Finland seem unrealistic given current resourcing and instruction models.
- There seem very high needs for stronger resourcing of reading instruction if delayed readers are progress well.
- There seem very high needs for research on this area.

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A key impact of high cognitive load: Depressed, discouraged kids who feel a failure

Our kids have lived with failure so long, they expect it:

- A few instances of low success reduces healthy readers' success expectations, effort & persistence (Hole & Crozler 2007)
- In healthy learners, just putting easy questions after hard ones results in low scores, frustration, & attributions of learned helplessness (Firmin et al., 2004).
- If short-term failure has such strong effects, pity help our weak readers, who have low success on an ongoing basis.
- Learned Helplessness is VERY common in weak readers - LH: not feeling capable of progress, seeing success as luck.
- Depression & low self-esteem are VERY common in weak readers: when the going gets tough, the depressed give up.
- Our kids live with anxiety & anxiety reduces processing capacity: ALAS for our kids needing high processing capacity

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A key impact of high cognitive load: Strong disadvantage for kids with language weakness

- Kids with pre-existing language & phonological weakness at school entry are strongly at risk of major reading difficulties.
- Chronic overload during literacy learning due to non-automatised Early Literacy skills may well cause language weakness in kids starting school with healthy language & phonological skills, and most strongly in kids with pre-existing language & phonological weakness.
(Galletly & Knight, 2011. *Differential Disadvantage of Anglophone Weak Readers due to English Orthographic Complexity and Cognitive Processing Weakness*: Australasian J. of Special Education, 35(1) 72-96.
- Great value in crosslinguistic research on this area, e.g., comparing vocab or language skills development in healthy progress & weak readers in Anglophone nations & nations with highest orthographic regularity (optimal orthographic advantage), e.g., Finland, Estonia.

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Our research used in developing Orthographic Advantage Theory

We used the Pragmatic Paradigm (Cresswell, 2003, Thomas 2003) and mixed-methods research:

1. Critical analysis of experimental research studies conducted by cross-linguistic researchers.
2. Case-study research focussed on key researchers and their studies:
 1. Interviews & discussions with researchers in Finland, Estonia, Italy, Wales & England.
 2. Observation of teaching and learning during visits to nearby schools.
 3. Discussions with classroom teachers.

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Which studies & researchers did we study?

- Giuseppe Cossu's study of Italian children with Down Syndrome: This allowed us to think on other studies of children with intellectual disability, by Schneider's and Oloffson's research groups.
- The COST-A8 study of reading accuracy in 13 European nations: Philip Seymour, Mikko Aro, Jane Erskine
- Mikko Aro's studies of Finnish word reading development.
- Llinos Spencer & Richard Hanley's studies of Welsh-English reading development:
- Usha Goswami's theorising on cross-linguistic differences.
- Laurenc Hoxhallari, Albanian reading researcher

We also interviewed Jan Mountney, teacher with the Ngaanyatjarra aboriginal community in Central Australia (Aboriginal language orthographies are all regular).

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Why Orthographic Advantage Theory?

- We decided the studies we'd investigated were valid.
- We feel Orthographic Advantage Theory is incredibly important, if it's established as valid, with potential to change the face of Anglophone literacy development and instruction.
- We still feel that Orthographic Advantage Theory is tentative, until it is established by further research on different areas.
- We were confident enough to write papers theorising on this area.
- We want to encourage
 - Researchers to do research on this area.
 - Teachers, SLPs and others working with school children to reflect on this area and its implications.

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Likely government responsibility for orthographic disadvantage

- Australia's orthography is likely to be the responsibility of the Australian Federal Government. Without being aware of doing so, the government may be using an orthography which strongly disadvantages its citizens, particularly those who do not make healthy progress in learning to read confidently and fluently.
- Given knowledge of optimal reading accuracy development, the Australian government must take responsibility for outcomes of its current chosen orthography & impacts of English orthographic complexity.
- For these reasons, there seems value in the federal government investigating the different dimensions of Orthographic Advantage Theory to establish its validity or lack thereof, and the practical impacts which the government would need to address.

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Are we saying Let's Reform English Spelling!

- No!
- We are saying that orthographic complexity is something Australians haven't considered, and that it seems important to do so.
- While lots of nations use fully-regular orthographies, others use transitional orthographies.
- If Australia did decide the cost of Orthographic Disadvantage is too high, we might well look at transitional orthographies, not just spelling reform, e.g.,
 - Macmillan's Reading Keys uses colour coding.
 - Fleksispel, a one stage &/or multistage transitional orthography (In Galletly, Chapter 3, *English Orthographic Complexity*) is available free & can be downloaded from my website, www.literacyplus.com.au.

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Orthographic Advantage Theory Hypotheses

- H1: There is sufficient evidence suggesting that the orthographic complexity of a nation's language strongly impacts the ease with which citizens master reading and literacy, with this creating proliferating advantage or disadvantage at individual citizen and national levels
- H1.1 It seems likely that nations with highly regular orthographies experience high levels of advantage compared to Australia and other Anglophone nations, whereas English's very high level of orthographic complexity results in high levels of disadvantage at national and individual-citizen level.
The evidence seems to show that English orthography is a highly disadvantaging orthography, with, for example,
- Australian citizens experiencing much greater rates of delayed literacy development and ongoing low literacy levels than citizens of regular-orthography nations;
- Australian teachers from mid-primary school having to cope with far more heterogeneous classes than regular-orthography nations due to many students having reading difficulties;
- Many Australian adults unable to read to their children and support their doing homework assignments; and
- Workplace illiteracy and low literacy being a significant and expensive issue.

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H1.2 & H1.3

- H1.2 If regular orthography reading accuracy does develop very rapidly, with highly effective remediation of reading delay, such that even children with intellectual disability master reading accuracy, then it can be considered an optimal reading accuracy development available to all nations who choose to use a transparent orthography.
- It also seems economically advantageous with relatively little teaching effort focussed on building reading accuracy and spelling skills, and on teaching teachers to teach early literacy skills; few citizens experiencing the social-emotional difficulties associated with low literacy skills; virtually all citizens able to read and write all texts; negligible cost for workplace literacy issues; and improving educational standards being of relatively low expense.
- H1.3 If English orthography is a severely disadvantageous orthography, current government funding levels for the education of each child to the stage of confident independent reading of diverse texts are far lower than they should be.

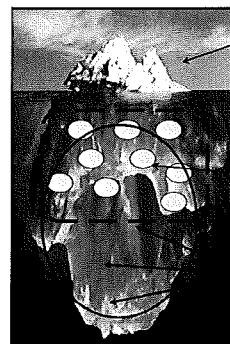
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Why is our hypothesis worded so tentatively?

- Our research is Level 1 research:
 - *Level 1 (First base) research: Relevance!*
 - *Is there evidence to establish this variable as an important factor impacting reading development, and thus worthy of further research.*
 - *Does this theory pass first base?*
- We feel that Orthographic Advantage Theory is tentative until it is established by further research looking at different areas.
- A lot of the studies were done with isolated words, in experimental conditions: there's a need for studies in ordinary classrooms, using not just isolated words, but also contextualised literacy task work samples.
- Some really vivid findings were from observing and talking with classroom teachers: We feel strongly that future research should involve groups of classroom teachers observing teaching & learning in other nations and talking with teachers from those nations.

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Our research is Level 1 & 3: Relevance & Theorising. We look to others for future research Levels 2 & 3



Cycles of research: The tip then the iceberg!
Brian Cambourne

Level 1 (First base) research: Relevance!
Is there evidence to establish this variable as an important factor impacting reading development, and thus worthy of further research.

Level 2 (Deeper) research: Exploration!

What variables interact with this one?
What practical implications need exploring?
What black swan subgroups can be found?
What school level and school-uni studies could be done, to build practical knowledge on this area?

Level 3 (Deepest) research: Theorising!

What are the possible core assumptions and cause-effect relationships re this theory?
Do they fit with currently established evidence?

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Our writings on Orthographic Advantage Theory

1. **Chapter 3, English Orthographic Complexity**, of Galletly (2005), The Galletly Report: Reading-accuracy development, difficulties and instruction in Australia.
2. **Transition-from-Early-to-Sophisticated-Literacy (TESL) as a Factor in Cross-National Achievement Differences**: Galletly & Knight, 2011a, Australian Educational Researcher, 38(3), 329-254.
3. **Because Trucks aren't Bicycles: Orthographic Complexity as an Important Variable In Reading Research**: Galletly & Knight, 2013, Australian Educational Researcher, 40: 173-194
4. **Differential Disadvantage of Anglophone Weak Readers due to English Orthographic Complexity and Cognitive Processing Weakness**: Galletly & Knight, 2011b, Australasian J. of Special Education, 35 (1), 72-96.
5. **The High Cost of Orthographic Disadvantage**: Galletly & Knight, 2004, Australian J. of Learning Disabilities, 9(4), 4-11.

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Would you like to read more on Orthographic Advantage Theory and crosslinguistic research findings?

- Feel free to download this handout from my webpage www.literacyplus.com.au
- Use the references discussed today as a starting point, e.g., Galletly (2005) *Chapter 3, English Orthographic Complexity*, discusses crosslinguistic research findings & implications at length, and is downloadable from www.literacyplus.com)
- We're currently writing more journal articles as part of ARC project research work: we're hoping to use free access journals for these articles.
- Sign up for my newsletter: it will mention new articles after they are published.

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Strategies for supporting Adolescents with weak literacy built from awareness of Orthographic Awareness & High Cognitive Load

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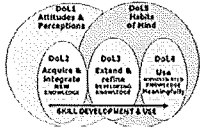
The learning challenges adolescents face which we want to overcome

- Difficulty reading & writing words.
- Weak phonological & orthographic representations & skills
- Chronic cognitive overload during school learning, due to not having Transitioned from Early to Sophisticated Literacy (TESL) and so still having to think about reading and writing words when trying to do Sophisticated Literacy tasks.
- Vocabulary & language delay through low independent reading & texts for reading often using simplified language.
- Written expression being particularly difficult due to very high cognitive load.

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Models for managing cognitive load from which strategies are developed

Cognitive Load Theory (Pass, van Gog & Sweller, 2010)
 Statistical Learning Theory (Treichmann, Kessler & Pollo, 2007).
 Dimensions of Learning (Marzano & Pickering, 1997)

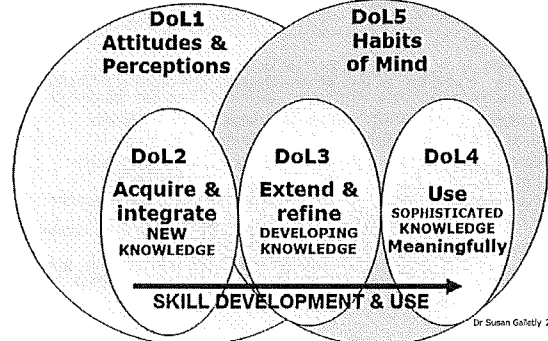


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Teach plus avoid learning breakdowns with Dimensions of Learning (DoL1-5)

Marzano & Pickering (1997)



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Learning to Read is 'Statistical' i.e. has plus & minus factors (+ & -)

Effective learning depends on

- How many **successful experiences** you have: +
- How **actively engaged** you are in the learning: +/-
- How much **confusion** you experience: -
- How high your **confidence** is about being able to learn: +/-

Effective teaching optimises these four aspects

$$\text{Effectiveness of Learning} = \frac{\text{Number of Successful Engaged Practices}}{(\text{Extent of Confusion} + \text{Low Confidence})}$$

See Literacy Plus Newsletter 2 article:
Maximise Statistical Learning

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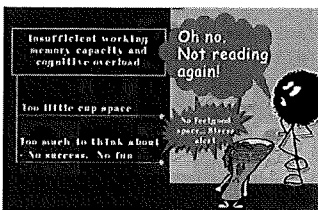
We teach to maximise statistical learning

- Ensure large numbers of successful experiences through using high instructional intensity (practices/minute).
- Ensure successful engaged learning, i.e.,
 - Lots of success plus
 - Strong engagement: active thinking, never passive.
- Keep confidence about learning high:
 - Prevent lack of success (failure): it's very damaging!
 - Use engaging activities so kids are keen and engaged.
- Reduce confusion:
 - Use clear explanations.
 - Build metacognition (knowing what, how, why about a skill) while you build cognition (ability to do the skill).
- Know the child's learning strengths & weaknesses and tailor instruction accordingly.

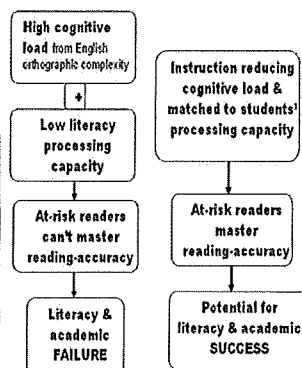
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Teach using Cognitive Load Theory:

When high load meets weak processing skills....



For learning to be effective,
Content Load + Task Load < Processing Capacity



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The Cognitive Load rule

Content Load + Task Load < Kids' Processing Capacity

- The total cognitive load of the amount of content you are teaching and the thinking required for the activity/game used must always be less than the limits of the child's processing capacity in the teaching moment.
- In the teaching moment means 'right now', i.e.,
 - Plan your task to have sufficiently low cognitive load.
 - Monitor how the child is coping 'in the teaching moment'.
 - Make microstep changes (harder or easier) as needed.

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Maximise learning by managing cognitive load.

- **Processing Capacity (Working Memory):**
 - Understand how working memory (Fat happy cups) is increased and reduced.
 - 'Teach to the child's eyes' in each teaching moment: of you see the child struggling, quickly make the task easier so the child is successful & doesn't lose confidence.
- **Content Load:**
 - Understand the sequence of learning the child will move through, e.g., 29 common vowels (Lit Plus Newsletter 2).
 - Ensure your teaching focus is on the skill you want to improve (it's easy to be tricked on this area).
- **Task Load:**
 - Use low-load ways to master skills.
 - Use games & activities which are simple and fun, and don't involve the child in doing lots of extra thinking.

Literacy Plus Mottos

are principles of Cognitive Load Theory & Statistical Learning. They focus on ensuring Successful Engaged Learning, fun effective learning, with no learning breakdowns, building the child's literacy wall quickly & strongly from the ground up.



Powerful Practical Strategies

- Use good models of reading development & instruction.
- Have breadth & depth – multiple bricks in the literacy wall.
- Don't have lots of subskills kids aren't yet automatic on.
- Are relatively simple to teach.
- Don't overload kid's processing capacity.
- Achieve multiple aims eg language skills + writing skills.
- Keep Cognitive Load low & Successful Engaged Learning & Instructional Intensity High, overcome Learned Helplessness
- Ensure permanent mastery by avoiding the four learning breakdowns: Mastery, Automaticity, Generalisation, Maintenance (Long-term Mastery).
- Are very efficient, e.g. may be short-cuts, save time.
- Help kids catch up quickly & support continued learning.

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Strategies we'll consider

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- Building 'I'm an Orthographer' skills:
 - Dr G's 2 rulz ov English spelling.
 - English's 20 vowel sounds • Phonological Awareness
 - Guestimating /Brave Spelling • Mark spelling by %s
 - Regular Pattern & Tricky Words /Syllables
 - Empowering text reading: • Echo Reading
 - Empowering Word Reading: • 29 common vowels
 - Big word reading • Rapid Reads • Progress Monitoring
 - Empowering Vocabulary:
 - Synonym Sentences • Synonym Duos • WORDY
 - Technology aids: • Reading Pens • Speech-to-text software
 - Empowering text writing: • 4-step Editing M-G-P-S
 - Motivation & Engagement: • Build vocab & metacognition
- Many of the strategies are used in the CAMLIT program

CAMLIT:

CQUniversity
Accelerated
Metacognitive
Literacy
Intensive
Tuition

Middle-School
Literacy Acceleration
emphasising
Student Metacognition,
Self-management,
Motivation & Engagement

A structured program of testing and teaching available to schools, groups of schools, SLPs:

Incorporates many of the strategies discussed today.

Includes resources such as informal tests, series of texts for reading which build metacognition

Developed by Dr Susan Galletly & Prof Bruce Knight
CQUniversity

Dr G's 2 Rulz ov English Speling

It's healthy & confidence-building for kids to have a healthy disrespect for English's complex spelling:

'I'm not silly: English spelling is'

Rule 1. English speling iz sillee (stewpud) kompaired two sensibul speling nashunz.

Rule 2. English speling iz fascineighting.

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Rule 1: English spelling is sillier (stewpud) compared to sensible spelling.

| | No of letters | No of sounds | No of spelling patterns |
|---------------------------|---------------|-------------------------|-------------------------|
| Komplikated e.g., English | 26 | 44 (20 vowel sounds) | ~ 1,100 ~ 560 |
| Sensibil, e.g. Italian | 22 | 25 | 33 |

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Rule 2: English spelling is fascinating!

- Be a spelling pattern finder - an Orthographer. It's fun & fascinating too.
- Look for patterns: If it's in ≥3 words, it's a pattern. If not, it's a 'Tricky Word/Syllable'.
- Enjoy knowing more & more about English orthography, e.g.
 - How many spellings are there for the /or/ sound.
 - Know the 3 types of words & syllables: Regular, Pattern & Tricky.
 - Know the commonest vowel sound in the English language, the schwa (ə). Be a schwa hunter!

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Teach the 20 Vowel Sounds of Australian English

- 5 Vowel Sounds
- 5 Vowel Names
- 5 R-Vowels
- 5 Other Vowels

| 20 English Vowel Sounds | | | | |
|-------------------------|------|------|------|-------------|
| 5 VOWEL SOUNDS | | | | |
| ā | ă | ī | ō | ū |
| bat | bat | bit | bot | but |
| 5 VOWEL NAMES | | | | |
| ā | ă | ī | ō | ū |
| mate | Pete | bite | hope | tube |
| 5 R VOWELS | | | | |
| ar | or | er | air | ear |
| tar | for | her | hair | dear |
| 5 OTHER VOWELS | | | | |
| Would you boys show/er? | | | | |
| oo1 | oo2 | oi | ow | schwa (ə) |
| good | food | boil | cow | again tiger |

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Build phonemic awareness using & while building awareness of the 20 vowel sounds

eg *Subtract a Sound*, Sounds & Vowels, pp.68-69



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Guestimating (Brave Spelling)

(pp.107-109 of Galletly, S. 2001 *Two Vowels Talking*)

Teach writing of long words as phonemic equivalents

- Build skilled phonological awareness of syllables (*Syllable Sleuthing*, Sounds & Vowels, p. 62-64)
- Teach the 3 rules of writing big words:
 - Say the word by syllables on your fingers.
 - Write syllable by syllable.
 - Flick a finger as you say the syllable.
 - Write it, & make sure it has a vowel.
 - Check the word. Count the vowels then read syllable by syllable, listening for consonant sounds.
- Until skill & confidence builds, any vowel will do: *'The duneso at the reptu'* is much easier to read than *'The dns at the rpt'*.

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Rewarding spelling approximations encourages written vocabulary & risk taking when writing

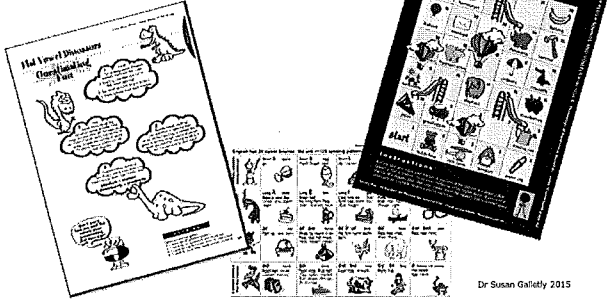
Mark by % & ★ not just & x:

| Learning 'school' | % | <input checked="" type="checkbox"/> & x |
|-------------------|----------|---|
| btv | 0% | x |
| kul | 50% | x |
| skul | 90% 8★ | x |
| skool | 95% 9★ | x |
| school | 100% 10★ | ✓ |

- Drop 5% or 1 star for each grapheme needing change. This rewards progress, plus strongly focuses the child on the grapheme to improve (*'Which bit, Miss?'*), so helps the child set goals that are highly relevant.

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Build fluent syllable phonological awareness skills before & during Guestimating & 20 vowel sounds eg *Syllable Sleuthing*, Sounds & Vowels, pp.62-64



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Teach the 3 types of words & syllables

- Teach the 3 types of English words/syllables & strategies for reading & writing them (3 grain-sizes, Goswami, 2002)
- Teach them as word types in 200 most frequent words, then move to syllable types: *Wed-nes-day an-tique ti-ger*.
- Use patterns to introduce vowel 'rules,' e.g. ball see boy car play now my me look her.
- Build word reading in 3 strands: Regular, Pattern, Tricky
- Analyse spelling words by the 3 types of syllables.

| Regular Words | Pattern Words | Tricky Words |
|--|--|---|
| cat trap split Sound out words: v-e-t. Letters say usual sounds. | ball light car Use the pattern: b-all c-ar b-oy Remember what the it looks like. | one does eight Remember what it looks like. Tricky words have silly spelling. Don't sound them out. |

Build rhyme awareness & skills, to maximise pattern (rime) awareness

- Build rhyme awareness eg *Random Rhyming*, Sounds & Vowels, pp.58-59.
- Most pattern words use rimes (Vowel-Consonant/s).
- English vowel GPCs are more consistent in rimes (VC vs V), e.g., oy ar ow ay all vs a e i o u.
- Rhyme is the phonological awareness skill underlying use of pattern words.
- Write lists of rhyming words using a pattern word, e.g. *boy-zoy-moy-stoy-choy-voy-doy*.



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Echo Reading maximises successful reading, and semantic & syntactic cues

- Echo Reading focuses on & builds successful reading via
 - increasing the amount of successful reading, and
 - maximising & contextual supports.
- Child & adult read book together, echoing each other.
- Child reads all words he can read, with adult echoing.
- Adult reads the hard words with child echoing.
- No words are repeated, so the child is hearing a relatively smooth flow of words & sentences – this increases contextual cues (meaning cues).
- No time is spent correcting or helping kids work out words.
- Children read faster & more easily this way.
- The child has high levels of success, stays engaged, and has high Instructional Intensity: words read correctly/minute.

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Download Echo Reading handout from www.literacyplus.com

Echo Reading: a Newsletter 1 article & free download.

Newsletter 1: articles including 7 types of readers, Early & Late Emerging Reading Difficulties, Echo Reading.

Newsletter 2: articles including 29 Commonest Vowels, Microsteps, Galletly Diagnostic Vowel Word Reading Test.

Register to receive Newsletter emails.

Avoid learning breakdowns for word reading: through very careful strategic instruction

- Word reading seems one of the hardest skills to develop in struggling readers. It needs careful strategic instruction.
- Why? Because English orthographic complexity means there is LOTS to confuse kids kids with word reading weakness need very careful strategic instruction.
- Strategically use principles of statistical learning & Cog Processing Theory.
- Teach the two core word reading skills: proliferating sight words and skill reading unfamiliar words (phonics)
- Teach a careful sequence of word reading skills, e.g., 29 common vowels, regular then less regular 100, 200 words.
- Monitor progress carefully as learning breakdowns are common, e.g., 30sec efficiency tests, e.g., *Galletly Vowel Word Reading Tests* free download.

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Use Echo Reading to Build Successful Engaged Text Reading
Reasons for reading a book is to enjoy and to learn and achieve one

Use Echo Reading to Build Successful Engaged Text Reading
Reasons for reading a book is to enjoy and to learn and achieve one

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Expect learning breakdowns even with excellent teaching & learning

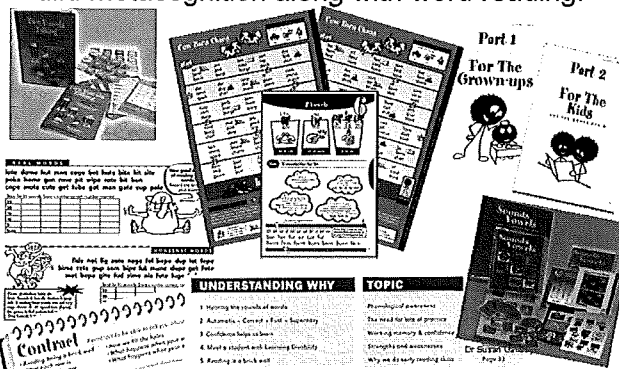
- Many at-risk readers have automatisisation weakness – trouble getting skills automatic (Correct + Fast + Supereasy).
- It's very common in kids with a family history of dyslexia.
- They're more likely to have all 4 learning breakdowns: initial learning, automaticity, generalisation, maintenance.
- The first two are easy to notice, the others are easy to miss.
- Teach, expecting difficulties in generalising & maintenance.
- Use a notion of teaching having two halves:
 - First half: Teaching: till automatic (games & fun)
 - Second half: Testing: monitoring long-term retention, using either 30sec efficiency tests or a reading game. (See N2)
- Use these two 'halves' deliberately.
- When breakdowns occur, stop 'testing,' restart 'teaching'.

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Teach 29 common vowel graphemes & their GPCs using microsteps (see Newsletter 2)



Use games & fun to keep motivation high. Build metacognition along with word reading.



Rules for Reading Big Words

Sound-out **CLUNKY** words

- Count the VOWELS in the word, from left to right: This makes you scan the whole word before reading it.
- Notice bits you know:

syllables *patterns* *small words*
be/gin/ning *tern/though* *display* *engineer*

- Read syllable-by-syllable & (when needed) sound-by-sound. - Think about syllables and small words being either **REGULAR, PATTERN or TRICKY**

Sound out these clunky words
 Inexplicable diploedox badger undulating extremity
 proportional

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Rapid Reads build powerful word reading and orthographic awareness

Make 1 table of words, then make 3 copies to make 4 sets. Then change words & word order

- Move columns.
- Move rows.
- Change endings.
- Readers can't read by remembering words & position, so rely on & build their orthographic skills.

Rapid Reads Group 1 Words in the CAMEL theme test, 'Six-Ordnish Causes'

Words in 'Six-Ordnish Causes' - Set 1 Part A

| | | | | | |
|---------------|---------------|--------------|----------|------------|------------|
| opinion | listening | counts | believe | highly | beneficial |
| expert | contributions | discussions | because | knows | potent |
| point of view | English | language | minus | really | explain |
| | topic | considerable | practice | stressed | rushed |
| | rather | nervous | asking | questioned | develope |

My scores: When I read for 30secs, I got this many words correct

Day 1 Total read Errors My score Day 2 Total read Errors My score Day 3 Total read Errors My score

Words in 'Six-Ordnish Causes' - Set 1 Part B

| | | | | | |
|-------------|------------|---------------|------------|---------------|----------|
| explained | expertly | really | language | English | minus |
| developed | beneficial | opinions | highly | counts | listener |
| potentially | rushing | point of view | increasing | considerably | topical |
| | practise | centrally | discussing | contributions | because |

My scores: When I read for 30secs, I got this many words correct

Day 1 Total read Errors My score Day 2 Total read Errors My score Day 3 Total read Errors My score

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TOWRE (Test of Word Reading Efficiency) is a top test of the 2 core skills of word reading

- Sight Word Efficiency (SWE)** tests reading of **familiar** words
- Phonemic Recoding Efficiency (PDE)** tests reading of **unfamiliar** words.

(Pseudowords: a proxy for unfamiliar words.)

| Test of Word Reading Efficiency 2 (TOWRE-2) | | | |
|---|------------|--|------------|
| Number of words read correctly in 45 seconds | | | |
| Raw Score = No. correct - No. Incorrect | | | |
| Sight Word Efficiency 2 (SWE-2) | | Phonemic Decoding Efficiency (PDE-2) | |
| Reading of FAMILIAR words | | Reading of UNFAMILIAR words | |
| Reading Age | Words read | Reading Age | Words read |
| 6.00 yrs | 14-19 | 6.00 yrs | 5-7 |
| 6.25 yrs | 20-25 | 6.25 yrs | 8-10 |
| 6.50 yrs | 26-28 | 6.50 yrs | 11-12 |
| 6.75 yrs | 29-33 | 6.75 yrs | 13-14 |
| 7.00 yrs | 34-37 | 7.00 yrs | 15-16 |
| SWE words up to Word 50 | | PDE words up to Word 25 | |
| go dog in at am it so big be do box one look if not car hot this have some now need give sat good here shop meat best then spell come start green want better learn black train even went thing other fruit wrong watch truck stars winter begin | | mo ik pu bi bi ku eb pog dat mip ral nas mib jaw shum lice nate trap der mail berk mest stree weaf barch | |

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Galletly Diagnostic Vowel Words Reading Test:
Free 30 sec efficiency tests of word reading

- Assesses real word & pseudoword reading.
- Uses skills progression of **Sounds & Vowels** then **Two Vowels Talking**:
- Sounds & Vowels:**
 - Short vowels: VC CVC CCVC
 - Mixed Bossy-e & CVC words
- Two Vowels Talking:**
 - Y & 'Two Vowels Go Walking' vowels ai ea ee ie oa.
 - R vowels: ar or er ir ur, e.g., fern, zern.
 - Other common digraphs aw ew ow oi oy oo ou.
 - Regular multisyllabic words CVCCVC & CVCVC words.

| #CVCVCVCVC | VC CVC | VC CVC |
|------------------------------------|----------------|--------|
| pit edit top paper robot | tr er in ur | |
| penal alien kidnap hawk hopping | tr b up off sp | |
| sea happy paper jolly puppy | ai ei y ee ay | |
| polite picnic happen spider merry | ie ee ee ie ee | |
| broken paper supports great letter | ea ea ea ea ea | |
| body paper study human here | oa ea ea ea ea | |

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Empower vocabulary with Synonym Sentences

Synonym Sentences say the same idea many different ways
Powerful readers and writers love words and saying the same things different ways
Synonym Sentences is a strategy to build your skills in

- Having fun with words
- Brainstorming different words, especially synonyms (Words meaning the same thing).
- Learning how to say an idea several ways.

1. Here are some synonyms to get you started:
Very - really - particularly - especially - extremely - incredibly - astonishingly - utterly
Big - large - enormous - gigantic - stupendous - huge - ghastly - giant - massive

2. Now check out the different ways these three 'base' sentences were written as synonym sentences:

The car ran out of control and hit that tree.
The car crashed into this tree a short distance from the road.
The driver of the Honda Prelude ended up hitting that tree.
With the driver no longer in control of the sedan, it hit the tree.
The car hit that exact spot after the driver lost control.
The small hatchback left the road and ended up in that gum.
This is the poor old tree that the four-wheel drive attacked.
The single vehicle accident involved the ute hitting a tree.

- Builds vocabulary, flexible thinking & paraphrasing.
- Do verbally using groups of 2-4 kids until kids are confident working on their own.
- Then move gradually to writing, encouraging phonemic approximations to 'get your fine mind down on paper'.

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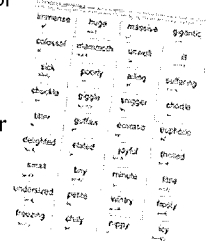
Synonym Sentences produce sets of synonyms

- Write a great synonym sentence for
The very little boy fell in the awful mud.
- How many different words did we get for these words?
- Very:
- Little:
- Boy:
- Fell:
- Awful:
- Mud:

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Synonym Duos: sets of words for Memory, Snap and Word Sorting

- Collect 4 to 8 synonyms to make a synonym group
- Then 4-6 synonym groups make 1 set of Synonym Duos.
- Use these for playing strategic Memory and Snap games or Word Sorting: kids lining up lists of synonyms from the different groups.
- Synonym Duos are a very powerful way to build kids vocabulary skills.
- If you've harvested words the kids generated, they'll have even stronger ownership of the words.



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Synonym Sentence skills are useful in a wide range of areas

- Being able to say something in multiple ways is a crucial verbal skill needed for editing written work.
- It's something at-risk readers are often very weak at.
- It can be used deliberately as part of editing, helping kids be metacognitive about saying things different ways when editing work.
- It's useful for content area sentences for History, Geography, Science.

| | | |
|--|---|---|
| My dog likes digging up bones in the backyard. | I like walking in the rain. | Peter came racing in to show me his book. |
| My mum and dad picked me up after watching Baywatch. | It was after the bell when the tall thin boy arrived at school. | I like bananas so I eat them a lot when Mum buys them for me. |
| The wolf huffed, puffed and blew the house down. | Answer the questions after you have read the story. | I love scary movies if someone watches them with me. |

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Help students become knowledgeable about their vocab learning using WORDY

WORDY Stages of knowing a word

| Being WORDY with VOCAB | W | O | R | D | Y |
|------------------------|------------------------------|---|-----------------------------------|---|---|
| What's that? | Once or twice, I've heard it | In the Region of.. something to do with | Do-able; word families, sentences | Yes!!!! It's mine! detailed definition. | |
| 0 | x 1 1 star | ** 2 star | *** 3 star | **** 4 star | |

Encourage students to

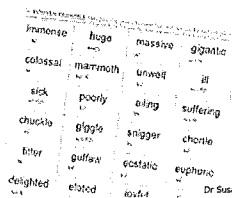
- Work out what WORDY stage they are at for a given word.
- Notice when they move up a stage. Perhaps have them tick or date when they get to the different stages.
- Work out which of their four Vocabs they know the word in

Try 2-week Metacognition exercise with Synonym duos. Kids to fill in W-O, etc, using e.g., red pen for starting level.

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Build kids' metacognition about the power of WORDY in building vocabulary expertise

- Try a 2-week Metacognition exercise with Synonym duos.
- Kids fill in W-O, etc, using e.g., red pen on starting day, and use a different colour for other days.
- Send the pack home for homework &/or do as group work.
- At end of 2 weeks, kids calculate how much vocab learning they did.



WORDY Stages of knowing a word

| Being WORDY with VOCAB | W | O | R | D | Y |
|------------------------|----------------------------|---|---------------------------------|-----------------|-------------------------------------|
| What's that? | Once or twice the heard it | In the English dictionary to do with it | Double word families, sentences | Yes! It's mine! | Yes! It's mine! detailed definition |
| 0 | 1 star | 2 star | 3 star | 4 star | 4 star |

- Encourage students to:
- Work out what WORDY stage they are at for a given word
 - Notice when they move up a stage. Perhaps have them tick or dot when they get to the different stages
 - Work out which of their four Words they know the word in

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Speech-to-Text software removes the cognitive load stress of first draft writing

- Current software (Dragon 13, nuance.com) is excellent, needs little correcting, and learns from errors so keeps improving. It can read the text back to you so weak readers can review what they've written.
- Watch the difference in kids' writing as they move to using all the big and rare words they previously avoided because they knew they'd struggle to write them.
- Major teaching/learning advantage:
 - First draft ('Getting your fine mind down on paper') is now easy.
 - Kids can enjoy honing their work to make it better and better.

Reading Pens empower weak word readers: Watch for technology advances in this area.

- Reading pens are hand-held text-to-speech scanners.
- The child scans the difficult word and the pen 'says' it.
- They are extremely empowering as the child has full control of reading, and can read lots of words & texts without help.
- They should get much cheaper & easier to use over time: Oxford Reader 2 now costs \$188 from www.quickpen.com.
- It's likely that the ideal is a pen that is
 - Good enough such that the child can work out all/most unfamiliar words, and
 - Inconvenient enough such that the child prefers to read all manageable words without using the pen.
- The Oxford Reader 2 fits these criteria for Middle School readers and adults.

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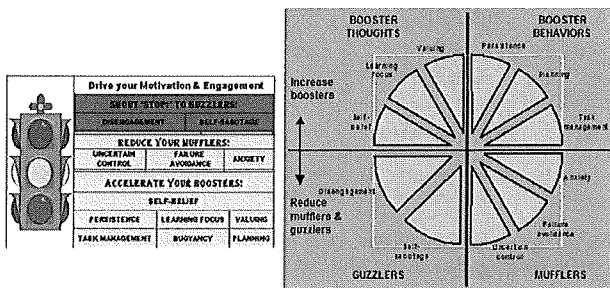
Use 4-step editing to reduce cognitive load & Learned Helplessness & build skill & confidence

- As speech-to-text software increasingly becomes the norm, honing one's writing will become a skill of pride.
- Proofread four times –
- My Grandma's Pig Stinks
- M G P S
- Meaning / Great Words & Sentences (Grammar)
- / Punctuation / Spelling
- Why is Meaning & Great Sentences first? VIP
- Why is spelling last? Least important, weak skill makes success unlikely, plus has very high cognitive load.
- Use a four colour pen, one for each aspect.
- Save texts in different files so teachers/kids can look back & see how they improved their work.

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Use a vocabulary about Motivation & Engagement

- Explore the tests & workbook resources developed by Prof Andrew Martin: www.lifeachievement.com



- Liberate the Writer within!
- De-emphasise spelling in written expression so
 - Writing vocabulary can proliferate:
 - Children stop sacrificing creativity & risk taking.
- Teach 'We're not stupid. English spelling is! We won't let English spelling block our great writing.'
- Emphasise great words & ideas in all first draft writing. First draft is for
 - 'Getting your fine mind down on paper!'
 - Using 'extravagant vocabulary' (Big Words!).
- Don't punish risk taking, by making students correct spelling errors when editing.
- Have fun with vocabulary and finding and using new words. Build all 4 vocabularies: Listening, Reading, Speaking, Writing.
- Use a Talk Curriculum to build the verbal skills that underlie reading & writing.

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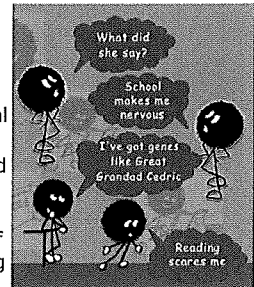
Reverse Learned Helplessness

so kids don't block progress from within

- The 3 seriously major enemies of effective progress:
 - 1: Excessive cognitive load overwhelming kids' cups.
 - 2: Learning breakdowns: being 'clever at forgetting' verbal/literacy concepts which seem learned.
 - **3: Learned Helplessness:** "whether you think you can, or whether you think you can't, you're right!!!!"
- Learning Helplessness is very common. It blocks effective learning, because even if successful, kids aren't actively engaged and planning for continued progress.
- Keep cognitive load low, so kids don't feel overwhelmed.
- Teach to keep confidence about learning to read high.
- Ensure Successful Engaged Learning so progress is made.
- Use praise strategically discussing that progress, so the child realises he is capable of making more progress.

What makes kids more vulnerable?

- English orthographic (spelling) complexity creating high cognitive load for learning to read.
- Young age means low processing capacity even in kids with healthy working memory skills.
- Inherited reading weakness: this usually includes weak phonological awareness & working memory.
- Reading instruction being too hard &/or too rushed: vulnerable kids can become overwhelmed.
- Learned Helplessness: inner belief that you're not capable of learning



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