

**Practical Strategies for Managing
Cognitive Load and Optimising
Cognitive-Processing Efficiency
for At-Risk and Struggling Readers**
(File with added ppt slides)

Dr Susan Galletly

2023 ASHA Convention
Ignite Innovation
Boston Conference & Convention Centre,
Friday 17 November 2023

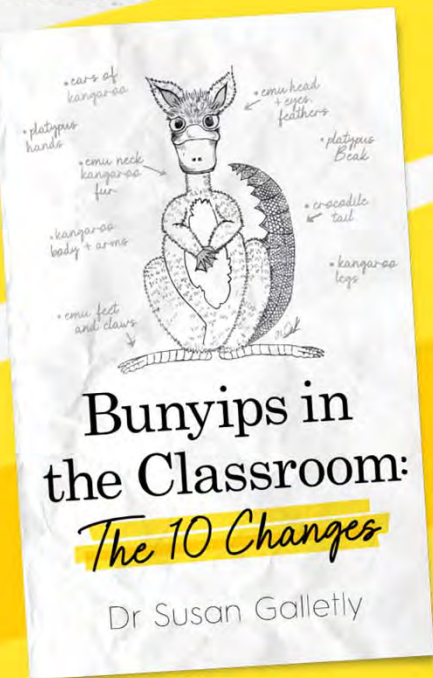
**What is our children's greatest risk factor
for literacy and learning struggles?**



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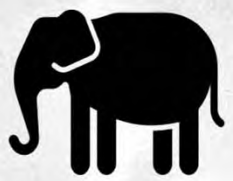
And what's that bunyip doing here?





Bunyip in the Room

An important issue people aren't aware of, that's extremely obvious once pointed out, and well worth being embarrassed about.



Bunyip in the Classroom

Key education issues well worth considering and exploring.

Blindspots grow Bunyips!

What is our children's greatest risk factor?

Being born in the USA!



What is our children's greatest risk factor?

Being born in the USA, Australia, UK, etc.
**Anglophone nations that perpetuate
too high cognitive load
across literacy development!**



What is our children's greatest risk factor?

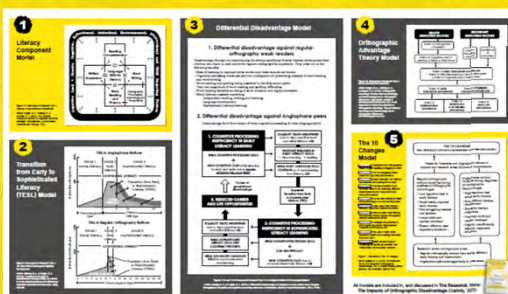
Being born in the USA, Australia, UK, etc.
Anglophone nations that perpetuate
too high cognitive load
across literacy development,
through **not** effectively **managing** our
highly **complex orthography** and
cognitive load
when children **learn** to read & write!



Dr Susan Galletly PhD

- Speech Language Pathologist, Teacher & Researcher.
- Adjunct Senior Lecturer, Central Queensland University (CQU)
- Posters, resource files, videos at susangalletty.com.au
- Articles, etc at researchgate.net
- Literacy Plus videos, modules at literacyplus.com.au

Let's Optimise Early Literacy! Watch the poster video explanation!
Models for Exploring the Impacts of Orthographic Disadvantage Towards Optimising Literacy Development.



The High Cost of Orthographic Disadvantage

What's an orthography? The spelling system a nation uses.

Orthographic complexity dictates how hard it is to learn to read and write. English is one of the world's hardest orthographies - it's damaging for at-risk children. Most nations use highly regular spelling - their at-risk children have strong success.

Kid in regular orthography nations take just months to read and spell well. VS Kids in Anglophone nations take 2-6-9 years to read and spell well.

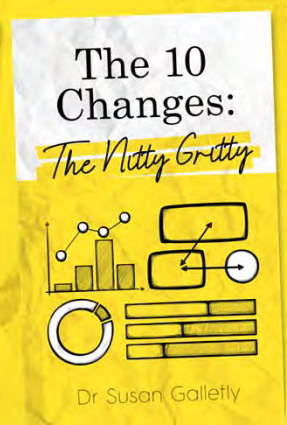
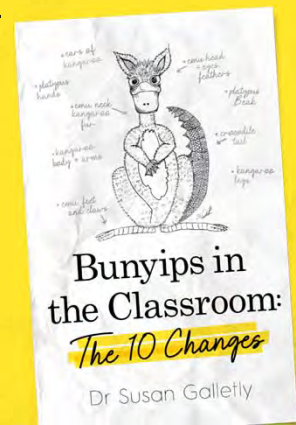
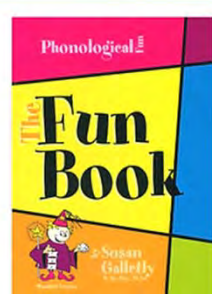
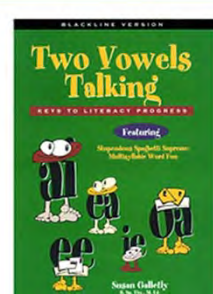
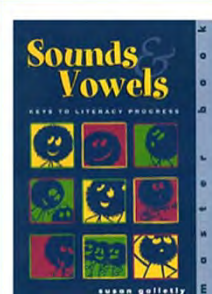
Many have adult-level accuracy from grade 1. Many children & adults have major difficulties.

Orthographic Impact	Awesome Systems (Green)	Disadv (Yellow)	Awful Systems (Red)
EARLY LITERACY DEVELOPMENT	• Easy & Rapid	• Slow	• Slow
TEACHING AND LEARNING	• Minimal Difficulties	• Moderate Difficulties	• Maximal Difficulties
SCHOOL REQUIREMENTS	• Low Subject Needs	• Moderate Subject Needs	• Very High Subject Needs
ACADEMIC LEARNING	• Comprehensive Subject Learning	• Impaired Subject Learning	• Impaired Subject Learning

How can Australia fix this?

Do as Taiwan, Japan and China do and implement a beginner's orthography from changed to the 1940s with overwhelming success!

For more information visit www.susangalletty.com.au



Conference Poster 2

(Speech Pathology Australia)

The High Cost of Orthographic Disadvantage

Speech Pathology Australia
2023 Conference

Visit susangalletly.com.au
to download the poster &
handout, and view its video.

The High Cost of Orthographic Disadvantage

What's an orthography?
The spelling system a nation uses.

Orthographic complexity dictates how hard it is to learn to read and write. English is one of the world's hardest orthographies - it's damaging for at-risk children. Most nations use highly regular spelling - their at-risk children have strong success.

Kid in regular orthography nations take just months to read and spell well.

- + Many have adult-level accuracy from Grade 1.

vs

Kids in Anglophone nations take $\geq 6-9$ years to read and spell well.

- + Many children & adults have major difficulties.

Orthographic Impacts	Awesome Foursome Them! 😊	Awful Foursome Us! 😞
EARLY LITERACY DEVELOPMENT	• Easy & Rapid • Low Cognitive Load	• Difficult & Slow • Massive Cognitive Load
TEACHING AND LEARNING	• Minimal Difficulties • Maximised Literacy	• Maximised Difficulties • Impeded Literacy
SCHOOL EFFECTIVENESS	• Time-Rich Schools • Low Support Needs	• Very Time-Poor Schools • Very High Support Needs
ACADEMIC LEARNING	• Empowered Subject Learning	• Impeded Subject Learning

How can Australia fix this?

Do as Taiwan, Japan and China do and implement a beginners' orthography! They changed to 2-Stage early literacy in the 1940-50s with overwhelming success!

It's research time!
We need to explore English beginner orthographies, e.g. IIA and Flexispel.

For more information visit www.susangalletly.com.au

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The Long and the Short of it...



The Short (5mins): The High Cost of Orthographic Disadvantage



The Long (90mins): Of Orthographies, Bunyips, Blindspots & Bright Futures

Useful Reads on the Research on Cognitive Processing and Cognitive Load impacts

- Knight & Galletly (2020). *Practical school-level implications of cognitive processing and cognitive load.*
- Tours 10, 11 & 12 of Galletly (2023b) *The Research Tours: The Impacts of Orthographic Disadvantage.*
 - Tour 10: A Multiple Deficits Vs Phonological Basis.
 - Tour 11: Executive-Function Skills Empower Word-Reading.
 - Tour 12: Our Impeded Statistical Learning
- Knight, Galletly & Gargett (2017a). *Managing cognitive load...*
- Knight, Galletly & Gargett (2017b). *Principles of reading instruction...*
- Hayiou-Thomas, Plunket & Bishop (2004). *Simulating SLI...*

Reference list in handout

Useful Reads on the Research on Crosslinguistic Differences & Orthographic Impacts (which happen via cognitive load and cognitive processing demands)

- Galletly (2023b) *The Research Tours: The Impacts of Orthographic Disadvantage*
- Galletly (2023a) *Poster & Resource Sheets: The High Cost of Orthographic Disadvantage. SPA 2023 national conference....*
- Knight, Galletly & Gargett (2017a). *Managing cognitive load...*

Reference list in handout

Session Plan

- **3 mins** – Introductions & disclosures
- **10mins** – Why cognitive load & cognitive processing are such important factors.
- **45 mins** – Exploring strategies that reduce cognitive load & demands on cognitive processing.
- **2 mins** – Conclusion and wrap-up

Pdf of slides (including lots of extras), handout & resource file, with reference, available 9am Mon 20 Nov at www.susangalletly.com.au

What are these major players: Cognitive Load and Cognitive Processing? Let's consider children developing literacy skills...

- **Cognitive load** = the amount children must think on ...
in each learning moment, across every lesson, across the years
it takes to build competent reading and writing skills.
- **Cognitive-processing** = the skills children use in thinking about
and processing information, including working memory, executive
function skills, phonological and orthographic processing.
- **Cognitive load and cognitive processing work in tandem:**
 - Easy learning creates low demands for efficient cognitive processing.
 - Complex learning creates high demands.
 - When it's English children are reading, both are extremely high.

Managing Cognitive Load and Demands on Cognitive Processing are IMPORTANT! When TOO HIGH, they're DAMAGING.

- Hayiou-Thomas et al.'s (2004) study showed that increasing cognitive load for Gr 1 & 2 UK children with healthy language skills induced patterns of language disorder, i.e., errors often seen in Language Disorder, but not seen in healthy-progress children.

Sad news: English orthographic complexity creates $\geq 6-9$ YEARS of TOO HIGH Cognitive Load & Demands on Cognitive Processing

What's an orthography?

A spelling system!

Nations choose the orthographies they use.

English is one of the world's most complex orthographies for beginning readers.

Highly complex orthographies: high cognitive load,

Regular orthographies: low cognitive load



It's a regular-orthography world out there!

The vast majority of nations use regular orthographies.

	No of letters	No of sounds	No of Spelling Patterns (GPCs)
English	26	44	>>560 - >1120
Finnish	23	23	23
Italian	22	25	33
Korean	24	24	~24
Welsh	29	29	~29

English spelling is **so complex** that researchers term it an **outlier** on the continuum of orthographic complexity.

English is a highly complex orthography

- 26 letters for our 40+ sounds using >>560 spelling patterns.
- It's complex learning, with lots to master & ongoing high cognitive load,
- Thus, many Aussies struggle &
- Teachers must provide lots of support.

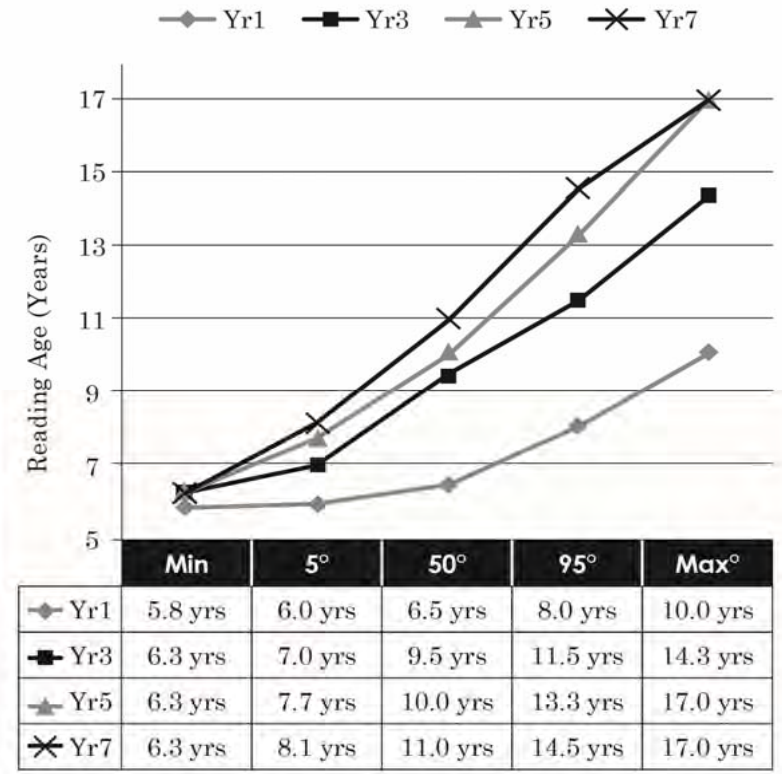
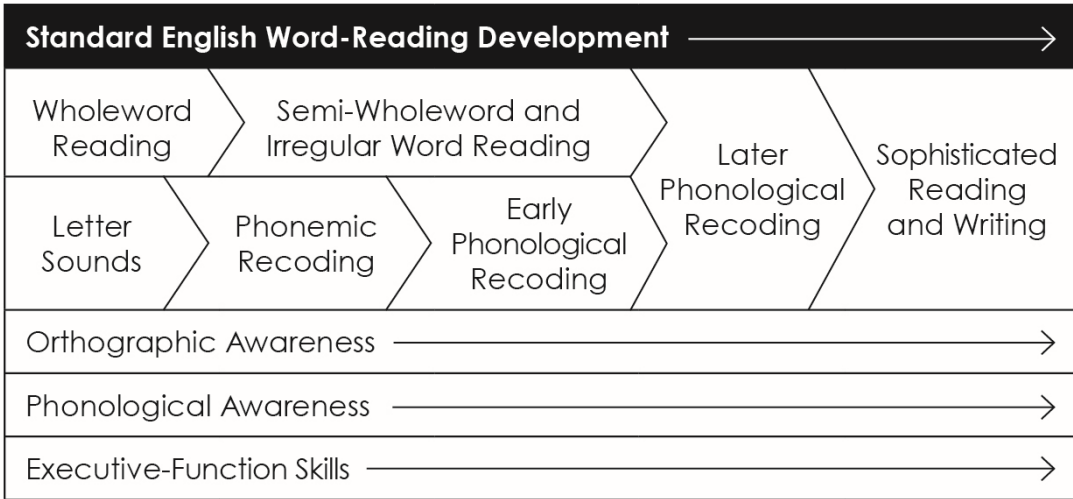


Fig 4 (left). Galletly's model

Fig 5 (above) Word-reading age-levels of regional Qld children in Yrs 1,3,5 & 7 (from Knight & Galletly, 2006)

In Galletly (2023) *The Research Tours*

Our weak readers are VERY weak!

- Anglophone nations have a 'long sad tail of underachievers'
- Regular-orthography nations e.g. Finland, Estonia, Wales, don't.

Galletly (2023) *The Research Tours: The Impacts of Orthographic Disadvantage.*

Welsh vs English Word-Reading of Unfamiliar Words
Standard Deviation (SD) Groups
No. read correctly of 110 words.

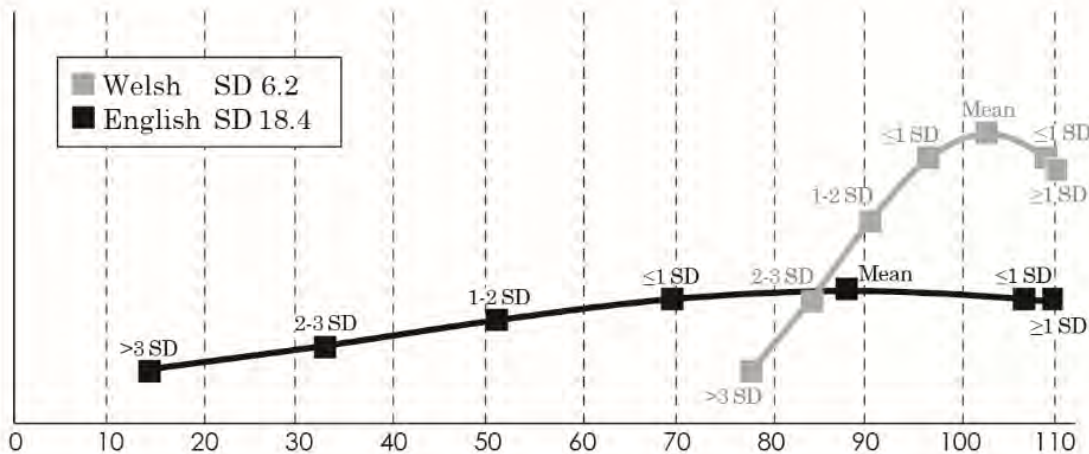
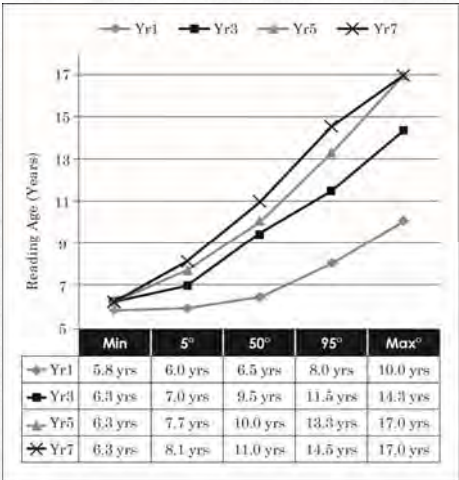
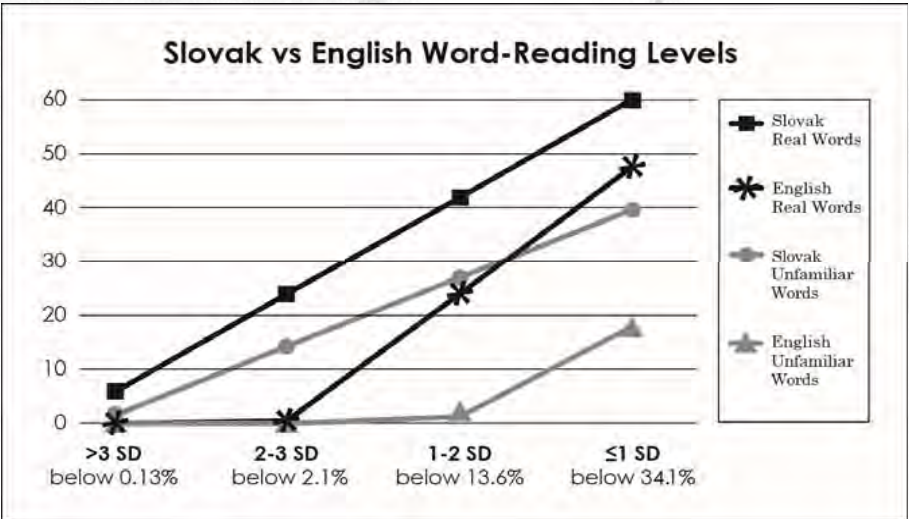
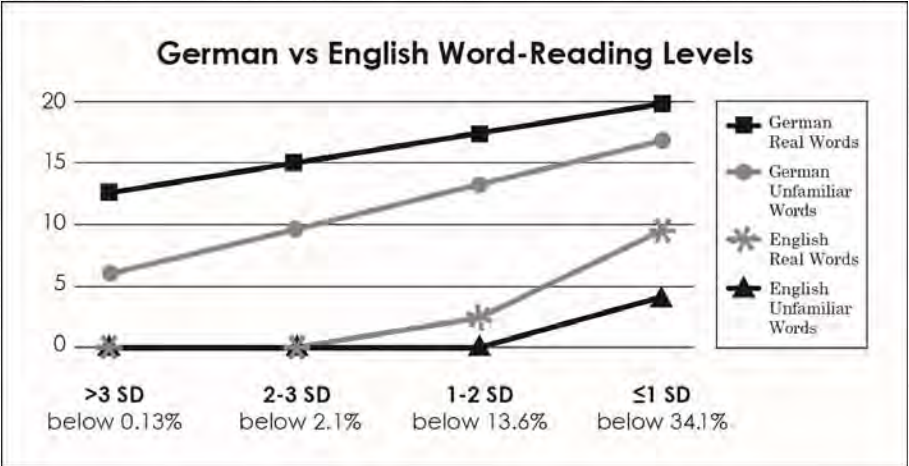
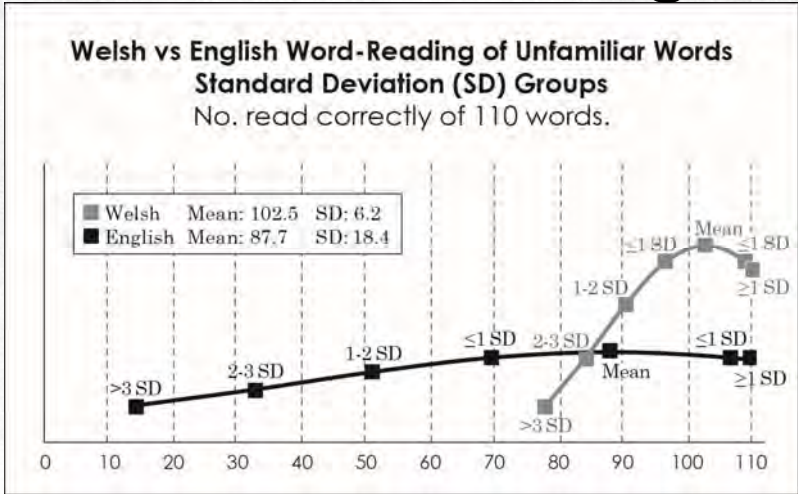


Figure 9c. Galletly (2023)
Unfamiliar-word word-reading levels
of Standard Deviation (SD) groups in
Hanley et al.'s (2004) Grade 5
Welsh and English readers

The spread of English weak readers is alarming!



(Caravolas, 2018;
Frith et al., 1998,
Galletly, 2023;
Hanley et al., 2004,
Knight & Galletly, 2006)

Our weak writers are very weak writers

Australia (top left),
Estonia (top right) &
Uganda (below)
Yr4 weak writers

What I like about school is that I can
play sports and also like math so
I can get better at my time tables
and other things because I like singing.

I like school because in the computer we
can play games and make things.

They like me at school 1997 teacher's name
I like about my time because I get to play
and see my friends. We play chess and I like
the playground. I like science too. The class and I were
playing about chess. We all play with green grey shoes.
We all had fun.

NOAH state school
Things I like at school 4 PR

I liked PE and Music because you get
to do fun sports like basketball cricket
and football the funnest sport I don't like
basketball. And the 2nd fav. of was
basketball. So now we are now doing
basketball.

What I like about school?
Hello!!!!

I like that everyone are very friendly
to me and to each other. That's funny
that no one bully anyone. Some lessons
I like but some I hate. I hope that
I can stay in this school for ever,
not that I want to drop classes
or anything. Maybe you can teach
me something about Australia. I hope that
we can be friends. But I guess that's
bye for now. Bye! Cya! Goodbye!

What I like about school?

Mulle meeldib minu kooli juhures see, et
meil on väga, väga hehedad õpetajad
Koolis tehakse lahetuid vahetunde ja
tunde. Klassid on huvast ja kenad.
Vahetuntides saab hüppamõõnide ja
ulospallidega mängida. Klassides on
mänge jaõimlemisvõlle. Hõnes klassis
saab põlvast tööd värvilehti värvide
Mõni kord jagab meile matemaatika
õppetaja kummi. Mõni tund me, määra
me lahvõõti võõ midagi muud.

Estonia Gr 4

Ebenezer Primary School
MAMATEKO MADIRA
ELEVEN YEARS
PRIMARY SIX

THINGS I LIKE ABOUT SCHOOL
I like the way the teachers teach and you understand
I like the matron because she teaches us how to
pray. I like the science women teachers because
they teach us how to keep our bodies clean and
how to change. My other women teachers are Mrs.
Mukwaya Catherine and Mrs. Nabende Robinson.
I like the cooks because they prepare nice
food like the toilets and bathrooms because they are
clean. I like the director because he keeps on
planning and thinking about our diet. I like
English because the way they set is easy. I
prefer Maths to science. I like my class teacher
because he is friendly, lovely, caring, humble and
God-fearing. I like playing because it is my
hobby and it makes you interesting. Games
make our bodies fit and we always go for
games on Tuesdays and Thursdays. I like the
head teacher because he always tries to budget
for the school and also see what is missing in
school. I like the school because I always tour in
some new places with our teachers and ask them
questions.

WHAT A NICE SCHOOL EBENEZER IS!

OKALANG INNOCENT
AGE 12 YEARS

THINGS I LIKE ABOUT SCHOOL

1. I like my teachers.
2. I like going to school because they are interesting things.
3. I like the colour of the uniform.
4. I like the book they have.
5. I like reading story books.
6. I like English as a subject because it is interesting when learning it.
7. I like my school because it provides us with Education.
8. I like my school because I know how to write.
9. I like my school because they look for us post and beans which gives us carbohydrates and proteins.

PRIMARY FOUR
AGE 12 YEARS

THINGS I LIKE ABOUT SCHOOL

1. I like my friends.
2. I like sciences a subject because it is interesting in learning it.
3. I like my school because they cook for us post and beans which gives us carbohydrates and proteins.
4. I like my school because it is the best in our district.
5. I like my school because it can promote sanitation.
6. I like my school because it provides us with Education.
7. I like my school because it has the colour of our uniform.

ESTONIA Gr 4

What I like about school

1. I like school because there are my friends.
2. I like school's canteen.
3. My favorite lesson is handicraft.
4. I like school's cafe.
5. I like school because lunch break lasts 20 minutes.
6. I like school because we have fairs.
7. I don't like school because there are long lines in it.
8. I like that our school has a stadium.
9. I don't like swimming lessons.
10. I don't like music lessons.

Maths: $7 \frac{1}{2} \times 4 = 30$

Handicraft: lunch break

Canteen's cafe



English word-reading development is excessively slow,
with major child, teacher & school workload impacts

	Regular-Orthography Cohorts	Standard English Cohorts
Word-Reading in 14 European Nations - Tour 1	Children in 10 nations: 90-98% accuracy at End-Grade-1 (and probably also in early Grade 1)	UK cohorts: Only 31% accuracy End-Grade-1 Only 69% accuracy End-Grade-2

Word-Reading in 14 European Nations (Seymour et al., 2003)

While Age Might Seem A Key Factor ...

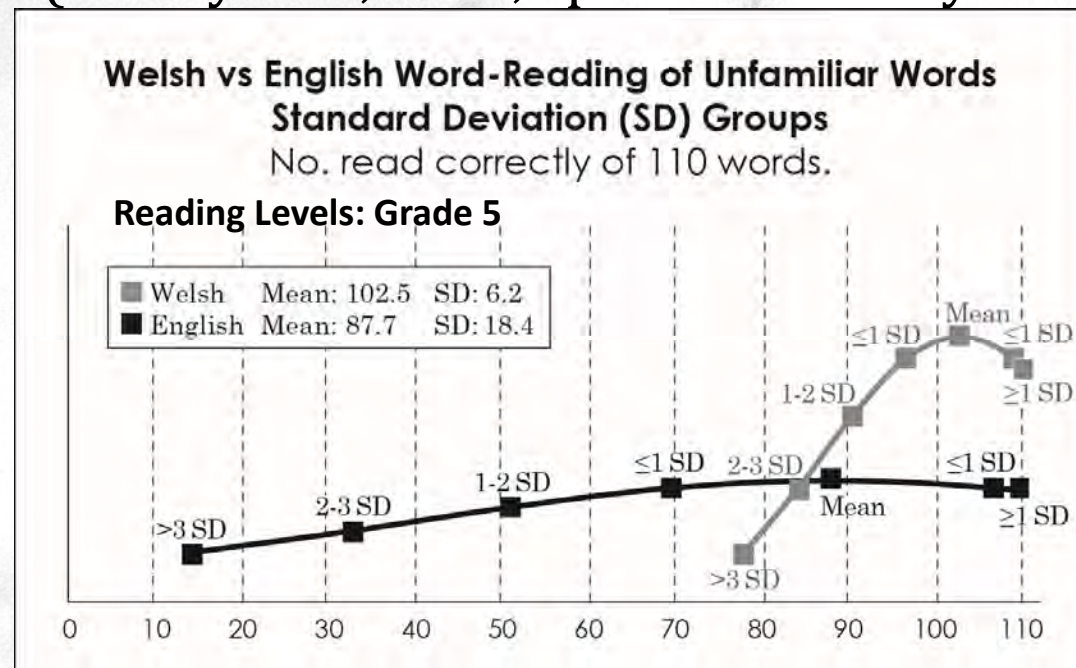
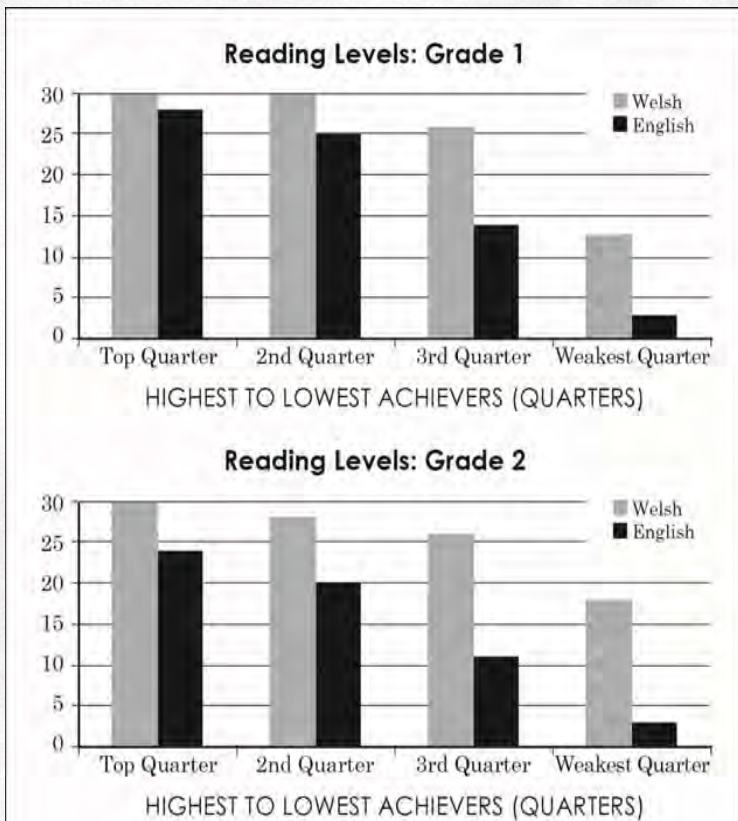
(Seymour, Aro, & Erskine, 2003, discussed in Galletly, 2023, Tour 1; Knight & Galletly, 2017, Knight, Galletly & Gargett, 2017).

Nation	Orthographic Regularity	Word-Reading Results			Age Levels	
		All Words	Frequent Real Words	Unfamiliar Words	Age	Age Gap UK Yr1
Finland	Extremely Regular	96.7%	98.3%	95.0%	7.9	2.3
Greece		94.8%	97.6%	92.1%	6.8	1.2
Italy		92.4%	95.3%	89.4%	6.9	1.3
Spain		91.8%	94.7%	88.8%	6.8	1.2
Austria		94.7%	97.5%	91.9%	7.6	2.0
Germany		96.0%	97.7%	94.4%	7.4	1.8
Norway		91.3%	91.8%	90.8%	7.9	2.3
Iceland		90.3%	94.1%	86.5%	6.9	1.3
Portugal	Highly Regular	75.2%	73.5%	76.9%	7.0	1.4
Sweden		91.4%	95.1%	87.7%	7.5	1.9
Netherlands		88.8%	95.4%	82.2%	7.0	1.4
Denmark Yr1	Moderately Regular	62.4%	71.1%	53.7%	7.7	2.1
Denmark Yr2		86.9%	92.6%	81.3%	8.6	3.0
France Yr1		82.0%	79.1%	84.9%	6.7	1.1
France Yr2		98.3%	99.2%	97.4%	7.9	2.3
UK Yr1	Highly Complex	31.6 %	33.9%	29.3%	5.6	--
UK Yr2		70.0%	76.4%	63.5%	6.6	--

Orthographic Complexity Has Vastly Stronger Impacts Than Age!

- Spencer and Hanley's longitudinal studies controlled for age and environment.
- Differences in word-reading and phonemic awareness start early, and expand over time.

(Hanley et al., 2004; Spencer & Hanley



High cognitive load from English orthographic complexity HUGELY disadvantages our kids with intellectual disability

	Regular-Orthography Cohorts	Standard English Cohorts
Italian Vs English Readers with Down Syndrome - Tour 4	High word-reading accuracy: 94% real words, 88% unfamiliar words. Difficulty finding subjects who weren't already highly accurate	One child reading well. Most at low level, and 30% of control group omitted, as unable to score on tests. Lists other studies showing similarly.

(Cossu et al., 1993; Groen et al., 2006)

We could move from current struggles, to enjoying the regular-orthography success story

From Tour 3 of *The Research Tours*:

'Giuseppe Cossu and his team show this gentle, easy word-reading development in their research on Italian children with Down Syndrome learning to read (Cossu et al., 1993, Cossu, 1999).

The children they studied had severe intellectual disability (Mean IQ of 44 and IQ range of 40 to 56), but mastered word-reading relatively easily, correctly reading 93.8 % of real words, and 88% of pseudowords, which were used to test reading of unfamiliar words.

Speaking with Professor Cossu when our CQU team visited researchers and schools in Italy, one big challenge in setting up the study was finding children with Down Syndrome who weren't yet reading well, because word-reading development happens quite easily for Italian children with intellectual disability.'

Phonemic awareness develops as slowly as word-reading.
Reading unfamiliar words is an issue even for stronger readers.

	Regular-Orthography Cohorts	Standard English Cohorts
Welsh vs English Word-Reading Development - Tour 2	<p>Learning to read Welsh: Much stronger word-reading in Grades 1, 2 & 5. Strong phonemic awareness from Grade 1. Very few weak readers.</p>	<p>Learning to read English: At-risk readers developed severe word-reading difficulties. Phonemic awareness still weak in Grade 5. Most v. weak reading unfamiliar words</p>

(Hanley et al., 2004; Spencer & Hanley, 2003, 2004)

Phonemic awareness is impeded by slow word-reading & spelling development

- Finnish children take 4-weeks to develop accurate word-reading, & develop strong phonemic awareness in that 4-weeks (Aro, 2004).
- Taiwanese children developed strong phonemic awareness in the 10 weeks they learned to read fully-regular ZhuYin (Huang & Hanley, 1994, 1997).
- Phonemic awareness for our English-readers starts at age 5 when word-reading instruction starts, but develops extremely slowly, as slowly as our word-reading and spelling develop,
- e.g., Hanley & Spencer's studies of Welsh & English readers in Grade 1, 2, and 5 showed the English children well behind in Grade 1, and still well behind, with under-developed phonemic awareness in Grade 5 (Hanley et al., 2004).

The sad irony of phonemic awareness needs, haves and have-nots !!!

- The best and fastest means of developing strong phonemic awareness is to learn to read a fully-regular orthography (4wks Finland, 10wks Taiwan).
- Regular-orthography children don't need strong phonemic awareness, but they develop it quickly and have it in abundance.
- English readers desperately need strong phonemic awareness, as it would be a huge help for mastering highly complex English, **BUT!!!** They can't develop it, because too-slow word-reading & spelling development slows phonemic awareness development.
- **The way forward: 2-Stage Early Literacy!!!**
Let's have our children read and write a fully-regular beginners' orthography for weeks to months, before we introduce complex English. That way, they'll have well developed phonemic awareness plus other learning skills.

There are 2 types of regular-orthography nations: Users of 1-Stage vs 2-Stage early literacy

- **Sole-orthography 1-Stage early-literacy nations:** use a single highly-regular orthography, e.g., Finland, Italy, Spain, African nations.
- **Nations that use a fully-regular beginners' orthography in 2-Stage early literacy:**
 - They retain their complex orthography, while preventing its damaging effects, and empowering their children's learning.
 - e.g., Taiwan, Japan, China & Korea.
- **Anglophone nations dropped the ball for 2-Stage early literacy**
 - We researched it extensively in 1960s, finding it highly effective.
 - Then we buried the research, when Whole Language swept through.

Taiwan, Japan & China use a regular orthography first, with massive success!



- Their main orthography is far more complex than English: it's not a problem, as they use 2-Stage early literacy.
- We do 2-Stage handwriting: first printing, then cursive.
- They do it for reading & writing! It works brilliantly:
 - Super low cognitive load for earliest reading & writing.
 - Children build strong cognitive-processing, skills and confidence, self-teaching to read & write new words.
 - They then transition very effectively to reading & writing their complex orthography.

These nations are powerful role models!

Do we need spelling reform? Should we be a sole-regular-orthography nation? No!

- If we did drastic spelling reform, we too could have the easy, rapid early literacy development of Finland, Estonia, & many other nations.
- We'd be time rich, with teaching & learning vastly easier.
- BUT!!! We don't need to, for many reasons, e.g.,
 - The time seems past for such drastic-ness: written English is used internationally, and is flourishing.
 - Adding in a beginners' orthography reaps the benefits of regular orthographies, plus allows keeping of one's main orthography.
 - The Initial Teaching Alphabet (ITA) Research shows English beginners' orthographies work extremely well (Galletly, 2023c).

We DON'T need spelling reform. We DO need to explore beginners' orthographies

- We'd use Taiwan, Japan & China as role-models.
- We'd choose a beginners' orthography, e.g., ITA or Fleksispel, my fully-regular English beginners' orthography, with transitioning stages, free for non-commercial use.

19 Vowel GPCS				22 Consonant GPCS					
ae	maet	ar	mart	b	bat	n	nat	sh	shot
a	mat	er	mert	d	dat	p	pat	ch	chat
ee	meet	or	mort	f	fat	r	rat	th	that
e	met	ow	now	g	gat	s	sat	ng	tang
ie	miet	oo	foot	h	hat	t	lat		
i	mit	ooo	mooo	j	jat	v	vat		
oe	moet	oy	boy	k	kat	w	wat		
o	mot	air	hair	l	lat	y	yat		
ue	muet			m	mat	z	zat		
u	mut								
u	sistu(ə)								

Fleksispel Stages

Stage 1

Total: 43 learning concepts

Stage 2 + 5-14

Total: ≤50-59

Stage 3 + 36

Total: ~100

Stage 4 + ~200

Total: ~300

Stage 5 + ~250

Total: ~550

Stage 6 + ~250

Traditional English

Total: ~800

a		æ		b		h		n		v	
e		ee		c		j		p		w	
i		ie		d		k		r		y	
o		oe		f		l		s		z	
u		ue		g		m		t			

Wuns upon u tjem thair wer three litul pigz hoo livd in u kotuj with thair muthu.

Wun dae muthu pig sed tooo her kidz, 'It's tjem for yooo tooo bild yor oen howzuz.' Soe of thae went.

Thu ferst litul pig met u farmu with a loed of stror.

'Pleez cood I hav sum ov yor stror?' thu pig arskt pulietlee.

'Sertunlee, yooo fien yung pig,' ansud thu farmu, hoo gaev thu litul pig az much stror az woz wontud.


















a		au		r				sh		th	
w		w		3		ig		ch		th	
ou		oi						wh			

wuns thær wus u litl œld wwmun.

when thær wus u problem, uthr peepł wwd sæ, "ie canot dœ it. thær is noe wæ." but not thu litl œld wwmun! shee wwd sæ, "thiirk! fiend u wæ."

The Initial Teaching Alphabet (ITA) has been thoroughly researched in the 1960s, and continues to be used and researched in a range of projects across the USA.

- ITA font is available from the ITA Foundation (itafoundation.org)
 - The ITA app, with >20,000 common words in ITA, available from 2024, is likely to proliferate use of ITA.
- Just write a sentence or paragraph, and click, to have it in ITA.

a 	æ 	b 	h 	n 	v 
e 	ee 	c 	j 	p 	w 
i 	ie 	d 	k 	r 	y 
o 	oe 	f 	l 	s 	z 
u 	ue 	g 	m 	t 	
ɑ 	au 	r 		ʃh 	th 
ω 	ω 	3 	ɪg 	ch 	th 
ou 	oi 			wh 	

wuns thær wus u litl œld wɔmun.
 when thær wus u problem, uthr peep
 wɔd sæ, “ie canot dɔ it. thær is noe
 wæ.” but not thu litl œld wɔmun! ʃhe
 wɔd sæ, “thɪŋk! fiend u wæ.”

There were a myriad of ITA studies (Galletly, 2023), e.g., Mazurkiewicz' (1971, 1973) Pennsylvania study

- Mazurkiewicz (1971, 1973) reports on the 11 year study of 14,000 Pennsylvania children, half in ITA classes, half in Standard-English classes.
- Findings highly in keeping with other ITA studies (e.g., Block & ITA Foundation, 1968; Downing, 1969a; Warburton & Southgate, 1969).
- Numbers reading above grade level: 75% (ITA) vs. 6% (Standard-English).
- Three times more Standard-English children repeating a year-level due to low achievement, twice as many receiving remedial intervention.
- Definite differences in remedial needs, with
 - ITA children needing support just with comprehension not word-reading.
 - Standard-English children needing intervention in both areas.
- Workload was reduced and teaching was empowered.

“The most dramatic flowering of all is evident in the large numbers of free, self-expressive, six-year-old writers. They write more abundantly and about many more subjects. They write alone, without help or editing.”

A beginners' orthography would mean success for our at-risk readers and low cognitive load for reading & writing

	Regular-Orthography Cohorts	Standard English Cohorts
German Vs English Weak Word-Readers - Tour 13 (Landerl, Wimmer & Frith, 1997)	Highly accurate reading of both real words and unfamiliar words. Read 3-syll pseudowords (<i>quaduktrisch, miktanie</i>) highly accurately, better than the English cohort could read 1-syll pseudowords (<i>foo, bish</i>).	Severely weak word-reading, with many at very low levels. Major weakness on real words and pseudowords. Major weakness on vowels: 16 times more vowel errors (342:20 errors).

A beginners' orthography would reduce literacy struggles and increase effectiveness of instruction & intervention

	Regular-Orthography Cohorts	Standard English Cohorts
Word-Reading Interventions Finnish Vs English Readers - Tour 14	Weakest word-readers catch up to adult level with relatively minimal intervention (e.g., GraphoGame): most children by/in Grade 2, those with more severe difficulties by Grade 4	Even with highly intensive, ongoing intervention, most children make gains, but not to age-level, and an appreciable number make very limited progress.

Word-Reading Interventions Finnish Vs English Readers
(Lyytinen, 2023, Lyytinen et al., 2021; Torgesen et al., 1997))

Learning to Read & Write a Beginners' Orthography Builds Powerful Phonemic Awareness

Children rapidly strong phonemic awareness as they learn to read and write their beginners' orthography (Aro, 2004; Huang & Hanley, 1997):

- In the 4 weeks it takes Finnish children to read (Aro, 2004).**
- In the 10 weeks Taiwanese children master their beginners' orthography, prior to transitioning to their main orthography.**
- Well before Grade 2 for Welsh readers (Hanley et al., 2004).**

Galletly (2023c) Research Tour 1. Too Slow Word-Reading & Spelling Development

Emeritus UNESCO Chair Prof Heikki Lyytinen

- led Finland's Jyväskylä Longitudinal Dyslexia Study (JLD).
- is expanding use of GraphoLearn technology (GraphoGame & ComprehensionGame) across nations (now >30 nations).
- wrote the *Foreword* to *The Research Tours* (Galletly, 2023).

He emphasises:

Across nations, we need to be discussing orthographies.

Their impacts on education are often overlooked.

While many nations use highly transparent orthographies, English is highly complex.

Orthographic impacts and crosslinguistic differences are major, with widespread ramifications.

The Regular-Orthography (Finnish) Experience 1

In Finland, letter names and sounds are highly consistent, with every letter name emphasising the letter's sound, which is not the case for English.

Most Finnish children attend Kindergarten, at age 6 years, and there they learn letters and their sounds, using play-based learning and with much exposure to words and letters, e.g., classroom walls display letters in motivating ways.

Emeritus UNESCO Chair Prof Heikki Lyytinen

Foreword, The Research Tours: The Impacts of Orthographic Disadvantage.

The Regular-Orthography (Finnish) Experience 2

*Children who know all letters are usually proficiently accurate **two months into Grade 1**, while those not knowing all letters can struggle. ...*

[When] dynamic assessment shows weak letter knowledge, schools start GraphoGame preventive training.

*Most at-risk children **catch up to their peers by Grade 2**, and, using GraphoGame, those with **severest difficulties** read and write accurately **by Grade 4**.*

Emeritus UNESCO Chair Prof Heikki Lyytinen

*Foreword, *The Research Tours: The Impacts of Orthographic Disadvantage*.*

The Regular-Orthography (Finnish) Experience 3

*Formal letter and reading instruction is **not** recommended at Kindergarten as, **at age 6 years, it is a time for playing.***

However, those children interested in playing with letters are provided with opportunities to learn letters' shapes, names and sounds, and how to write them, to the extent the child chooses.

In earliest reading and writing in Finland, including in Grade 1, only capital letters are used, with no lowercase letters.

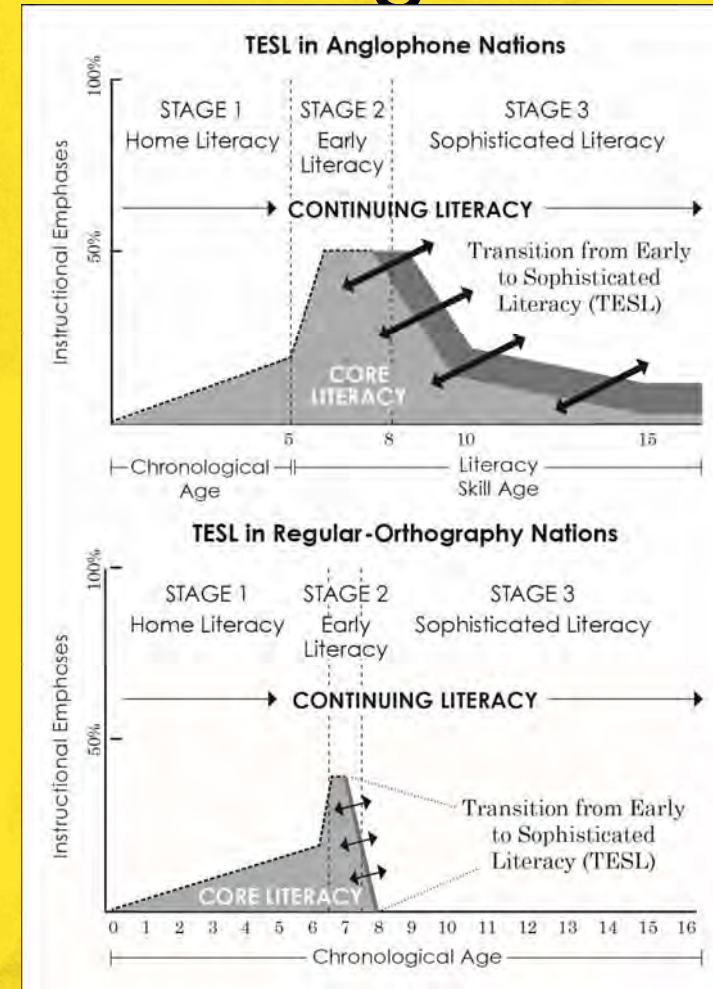
This keeps early learning simpler, and cognitive load low.

Emeritus UNESCO Chair Prof Heikki Lyytinen

*Foreword, *The Research Tours: The Impacts of Orthographic Disadvantage.**

Orthographic advantage vs disadvantage build from cognitive load, workload & learning ease

- Regular-orthography readers have low cognitive load and minimal learning, and transition easily to be confident readers, writers, self-teachers & learners.
- Our children have high cognitive load across many years.
- Our teachers & children have much higher workload for subject-area & literacy learning because of the extra time needed to build & support developing literacy skills: we've an enormous *Find the Learning Time Challenge*



Let's Ignite Innovation, and Research 'The 10 Changes'

(Galletly, 2022, 2023c, In press)

Change 8. *Investigate the potential of fully-regular beginners' orthographies: Research shows they're key.*

(Role-models: Taiwan, Japan, China & Korea changed to 2-Stage early literacy in the 1940s-50s)

Change 9. *First, play to learn: Start Standard English word-reading instruction from mid-Year 2.*

(Role models: The many European nations where children play until they're 7-8 years old in Grade 1).

They're Changes That Reduce Cognitive Load & Demands on Cognitive Processing

- **Change 8** (explore beginners' orthographies) reduces cognitive load and needs for children to have strong cognitive-processing skills.
- **Change 9** (explor starting reading mid-Grade-2) increases cognitive-processing skills through children being older plus having had 2.5 years of teaching that builds language & learning skills .

Have we some blindspots?

IT SURE
SEEMS SO!

IT'S AN
ANGLOPHONE
THING.



WE'VE LOTS OF
BUNYIPS IN OUR
CLASSROOMS.

EXPLORING THE
RESEARCH CAN END
BLINDSPOTS, ISSUES
BECOME CLEAR.

We've Anglophone **blindspots & bunyips** about

1. The **excessively high cognitive load** our children and teachers live with.
2. **Orthographies** & their impacts: **easing vs impeding** learning to read & write.
4. How **most nations** use regular orthographies, which **keep cognitive load low**.
5. **Flow on effects**, e.g., our **excessive** child and teacher **workload**.



**Educators, allied-health professionals
are the gate-keepers for the
education provided for our children.**

It's likely current practices are detrimental.

Research is needed!

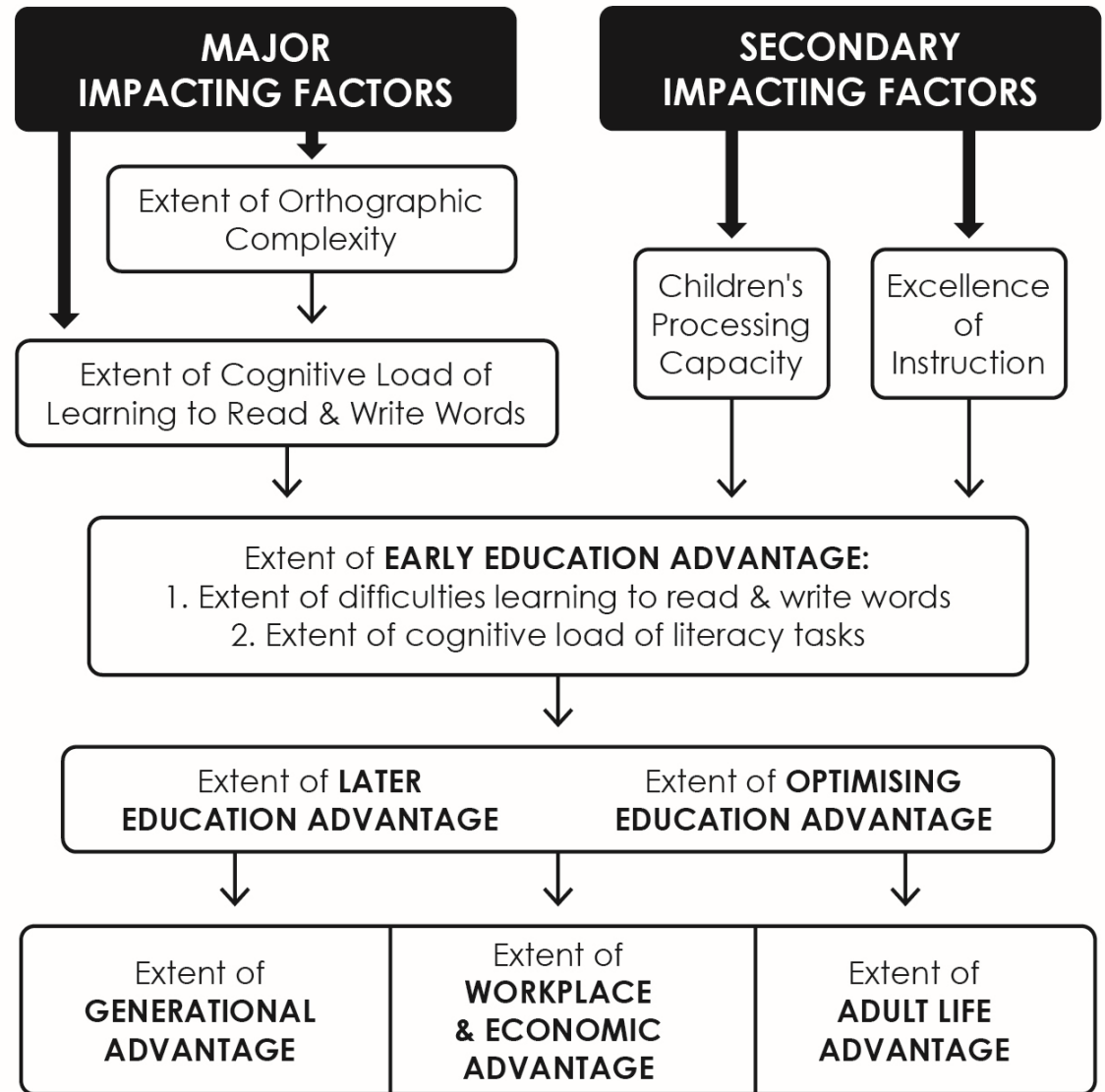




**The future
is bright.
Let's move
there!**

Orthographic Advantage & Disadvantage impact children, teachers, schools & the nation.

Knight, Galletly, & Gargett. (2019). **Orthographic Advantage Theory: National advantage and disadvantage due to orthographic differences.** *Asia Pacific Journal of Developmental Differences*, 6(1, January), 5-29.



A Beginners' Orthography Is a Powerful Tool for Transitioning & Self-Teaching

As Huang and Hanley (1997) explain, of Taiwan,

Before they are taught any characters in school, all Taiwanese children learn Zhuyin Fuhao, an alphabetic script [of 37 symbols] ... is taught in the first 10 weeks of 1st Grade. ...

It is not permitted to teach any [Taiwanese] characters during [this time]...

After 10 weeks, the children learn [Taiwanese Hanzi characters] via Zhuyin Fuhao: On the right side of the Hanzi characters in primary school textbooks [is] the word written in Zhuyin Fuhao appears.

Knowing Zhuyin Fuhao thus helps children to pronounce new characters ... without assistance from the teacher.

Research Tour 1. Too Slow Word-Reading and Spelling Development

Galletly (2023) The Research Tours: The Impacts of Orthographic Disadvantage

English Beginners' Orthographies at Age 5 prevent Acquired Helplessness

Warburton & Southgate's (1969) ITA review of 1500 UK schools found

- **Strong Success Inoculation** in beginning ITA word-readers,
- **Acquired Helplessness** of Standard-English weaker word-readers:

Even the youngest, [most delayed] child can have a go. ...

Children feel on top of it instead of struggling. ...

The shutters don't go down when the child meets a word he doesn't know. He'll try it. ... One doesn't now find children in the middle of infant school who have, as it were, given up. Even if a child is going slowly, he feels he is making progress.

Research Tour 5: The Power of Beginners' Orthographies

Galletly (2023) The Research Tours: The Impacts of Orthographic Disadvantage

Acquired Helplessness quite likely compounds our children's difficulties

Maier & Seligman's revised Learned Helplessness theory has major implications re successful and unsuccessful learning (Knight & Galletly, 2020):

“ Acquired helplessness is not learned, but instead an automatic default path when success is averted, and failure, stress and difficulties are experienced. ”

(Galletly, 2023; Knight & Galletly, 2017, 2020; Knight et al., 2017a, 2019; Maier & Seligman, 1976, 2016)

English Beginners' Orthographies at Age 5 prevent Acquired Helplessness

Warburton & Southgate's (1969) review of ITA in 1500 UK schools:
The majority of teachers interviewed appeared to consider the change in children's attitudes to reading to be at least as important, or even more important, than the increased progress in reading. ...

Children don't get blockages as they did with traditional orthography.

One doesn't now find children in the middle of infant school who have, as it were, given up. Even if a child is going slowly, he feels he is making progress.

*Research Tour 5: The Power of Beginners' Orthographies
Galletly (2023) The Research Tours: The Impacts of Orthographic Disadvantage*

Beginners' Orthographies Are Powerful Supports for Vulnerable & Struggling Readers

Regular-orthographies are powerful intervention tools (Anderson, 2021) for children and adults, e.g., (Pitman, 1973): Struggling-reader UK soldiers, taught using the Initial Teaching Alphabet (ITA)

- Made impressively rapid reading and writing progress.
- Transitioned well to Standard English.
- Made strong social-emotional and citizenship gains.

The rapid success rate induces more controlled emotional responses and gain in self-respect. The students gain self-confidence and a new awareness and independence. The striking increase in morale fosters motivation. There is a surprising carry-over of ability and confidence to arithmetical attainment. The men concerned have become more cooperative and less antisocial, ... better citizens and more proficient soldiers.

(Research Tour 5: The Power of Beginners' Orthographies (Galletly, 2023))

Pablo Freire's (1974) literacy empowerment similarly used a highly-regular orthography

Key learnings from Freire's work:

- 1. Literacy is empowering, e.g., for socio-political emancipation in Brazil.*
- 2. Teach word-reading strategically & explicitly, using isolated words & word parts.* Freire taught word-reading explicitly: *'Teaching men how to read and write a syllabic language like Portuguese means showing them how to grasp critically the way its words are formed, so that they themselves can carry out the creative play of combinations.'*

He used drills, using meaningful, relevant words, e.g., Favela (SLUM):
Favela → Fa-ve-la → (3x. Fa-fe-fi-fo-fu → Va-ve-vi-vo-vu → La-le-li-lo-lu)
→ Fa-ve-la *(Freire, 1974; Galletly, 2008).*

We manage English orthographic complexity extremely poorly for beginning readers.

This creates **excessive cognitive load**, which causes **literacy struggles**, which lead to **acquired helplessness**: Together these **greatly reduce** likelihood of **catching-up** to healthy progress.



Current efforts to improve prevention & intervention show too little improvement

Al Otaiba and Fuchs' 2006 comment of English readers stays relevant today:

The gap between proficient and less proficient readers widens over the elementary years ... and remediation of reading problems becomes increasingly difficult after third grade ...

We join a growing number of researchers and educators who have expressed concern that as many as 30% of children at risk for reading difficulties ... may not benefit from generally effective early literacy interventions ... These students have been called "Treatment Resisters" or "Nonresponders" ...

Our work and investigations by others ... have suggested that the percentage of nonresponders among children with learning disabilities may be as high as 50%.

We start children TOO YOUNG on reading & writing words: High cognitive load meeting immature cognitive processing skills exacerbates literacy/learning weakness

- Processing capacity is working memory +/- other impacts.
- Working memory & other executive function skills are significantly low at 4-5yrs, and increase considerably by 7-8yrs
- They're even lower for children with family history or significantly weak cognitive processing, e.g., those with weak language skills.
- Stress hugely reduces functional processing capacity.
- When low processing capacity meets the high cognitive load of learning to read, kids who don't succeed easily, lose heart...& the downward spiral of learning difficulties begins.
- We need literacy development that's much gentler!

We need to investigate effective changes to drastically reduce cognitive load and demands on cognitive processing.

Cognitive load and cognitive processing are major players!!!

Let's build understanding of their impacts and our needs to manage cognitive load effectively.



Let's ignite innovation in key areas ...

- Reducing cognitive load
- Maximising cognitive processing skills
- Managing orthographic complexity effectively for beginning readers to
 - Ease & speed literacy development.
 - Prevent & reduce struggles.



Acquired Helplessness quite likely compounds our children's difficulties

Maier & Seligman's revised Learned Helplessness theory has major implications re successful and unsuccessful learning (Knight & Galletly, 2020):

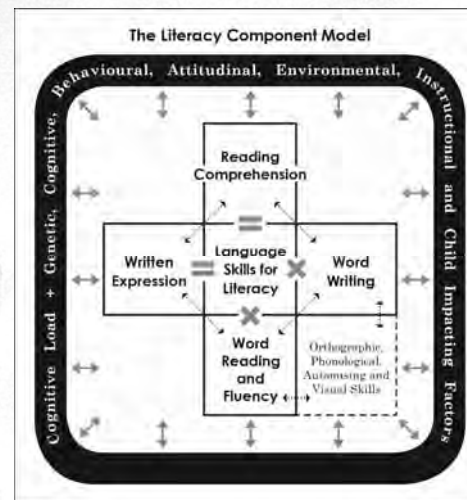
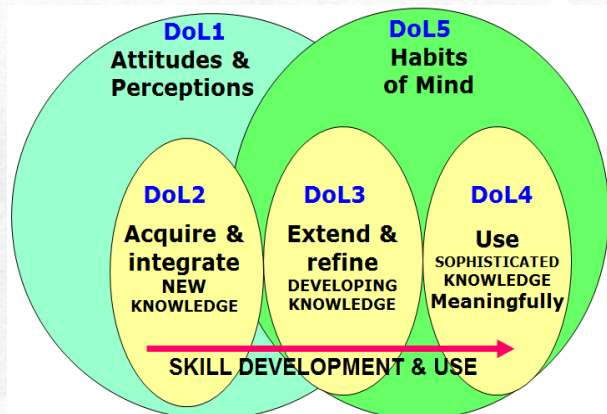
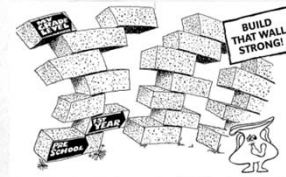
“ Acquired helplessness is not learned, but instead an automatic default path when success is averted, and failure, stress and difficulties are experienced. ”

(Galletly, 2023; Knight & Galletly, 2017, 2020; Knight et al., 2017a, 2019; Maier & Seligman, 1976, 2016)

Useful models for effective instruction

e.g., Knight, Galletly & Gargett (2017b) Principles doc

- Galletly's Analogies for Learning, e.g., cups, Filers, mottos.
- Marzano & Pickering's 1997 Dimensions of Learning (DoL)
- Orthographic Advantage Theory
- Statistical Learning Theory
- Cognitive Load Theory
- Literacy Component Model



Factors supporting Statistical Learning & Managing Cognitive Load

Avoid task clutter: it can add Task & Content cognitive load

Ensuring your teaching focus is on the skill you want to improve greatly reduces Content Load.

When our focus is misplaced, the learning task we've chosen often adds 'clutter' which may confuse the child, increase Content Load & Task Load, & decrease learning.

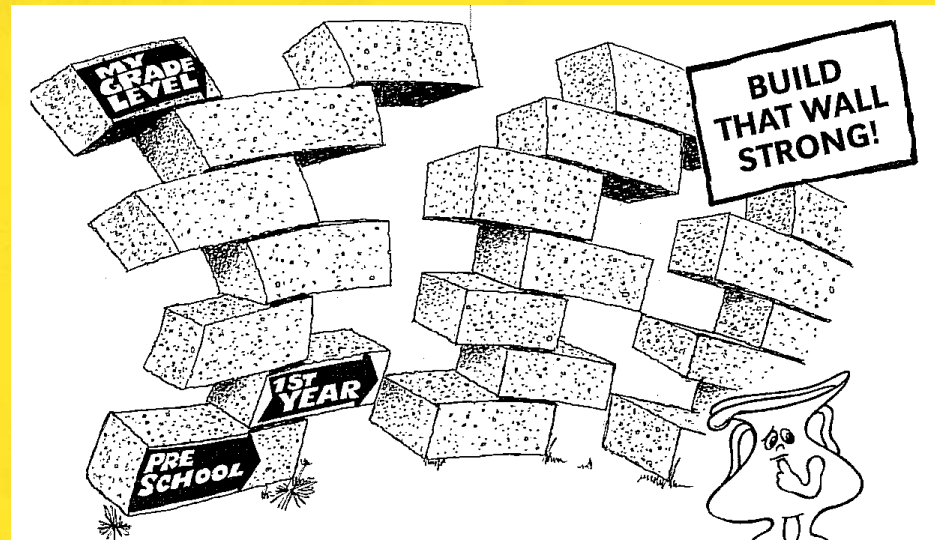
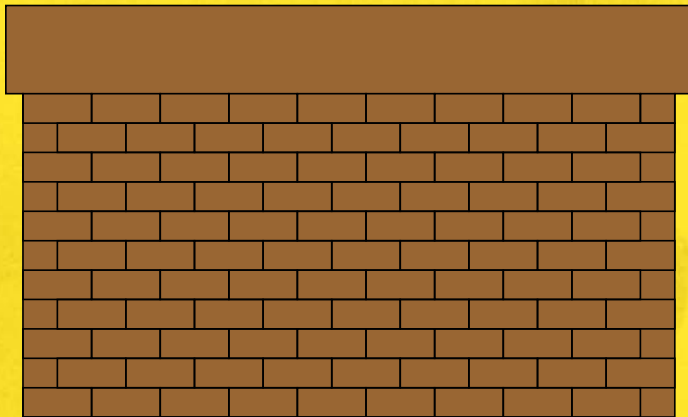
Often we're tricked in this area, eg., what's the teaching versus learning focus of these tasks for a naïve learner vs. an active self-learner:

- A spelling list: farm barn cart car sharp
- Homework task: writing sentences with spelling words.
- Getting weak readers to rewrite first draft spelling errors.
- Using Qns when a weak reader struggles on a hard word.
- Homework sentence writing for spelling words.

Strategically use subskills to *Build that Wall Strong!*

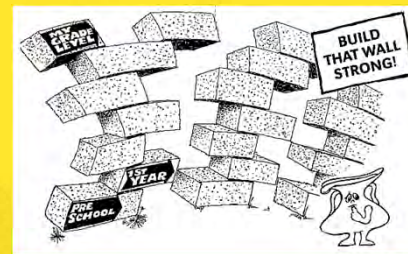
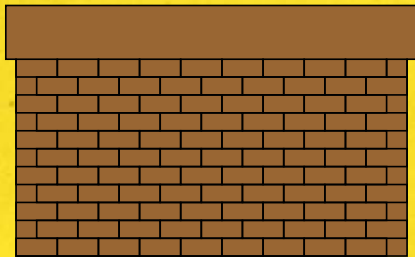
1. Task Analysis, thinking on subskills (lower & higher bricks).
2. Strategically planning curriculum which has depth across year-levels, pruning less valuable breadth.

The brick wall model is also useful for helping kids see why it's powerful to build early skills, i.e., it's not 'baby work'.



Task Analysis empowers differentiation: seek subskills building skills & skill sequences

- Later skills can be hard to master if subskills are weak, and happen easily when subskills are strong and automatic.
- When a child is nervous, think subskills & 1-step-easier
 - Needed subskills might be weak & need building, e.g., if can't do written persuasive text genre structure, go back to practising informal verbal persuasive texts.
 - Tweak activities, Right NOW!, in the teaching moment, so the child has success, by moving to lower (easier) bricks.
- NB For kids not yet at 'first base,' just enjoying an activity & being keen to do it again is a powerful subskill

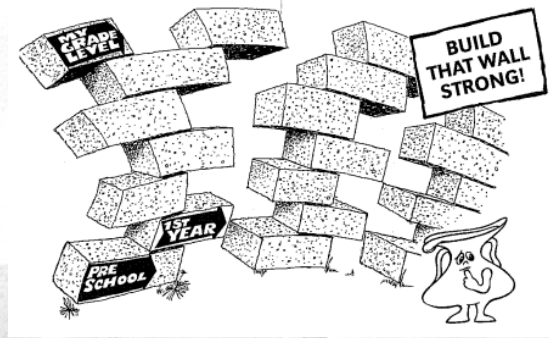
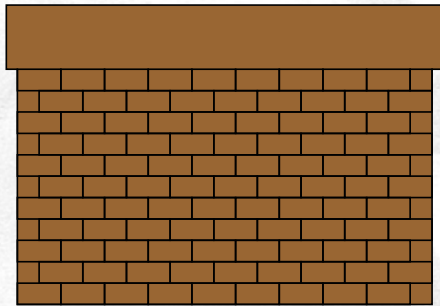


Virtually every skill has subskills which in themselves are skills to be taught

- Skill: Proofread/Edit your work
- Subskills: 4 cycles of proofreading, each taught as a separate skill
- 2 language cycles then 2 editing cycles:
 1. M My Meaning
 2. G Grandma's Great words, sentences & grammar
 3. P Pig Punctuation
 4. S Stinks Spelling
- Use whole-part-whole teaching to reduce confusion, and provide powerful statistical learning, e.g., teach the mnemonic and model it, then build skill on each subskill, whilst using the whole system. Four-colour pens, and four tables (MPGS) kids move to as they proofread also helps.

Use subskills and 1-step-easier to move from anxiety & failure to scaffolded success.

- When you see a 'train wreck' coming (lack of success that will cause failure, and possible loss of confidence), quickly & subtly move to easier levels to ensure success.
 - Skill aimed for. Do this! E Use more complex sentences
 - Subskill. Do this with support:
 - Join in the learning. 'Let's see. Lots of 'ands'. Can we use some better joiners (aka conjunctions)?
 - Use an 'or' question (Forced Alternative Qns): 'and it was raining' or 'despite the heavy rain falling'?



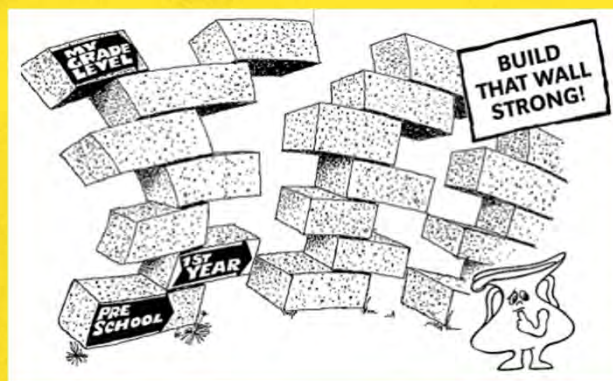
Gentle literacy instruction manages cognitive load well & maximises statistical learning

- It uses a steady stepwise progression of skills to learn.
- It manages cognitive load magnificently:
 - The Cognitive Load Rule: For learning to be effective,
Content Load + Task Load < Kids' Processing Capacity
 - Maximised processing capacity through relaxing learning activities with NO stress or pressure.
 - Manageably low curriculum content: not >> concepts.
 - Low learning task load: Choose tasks that won't overload.
- It maximises efficient statistical learning:
 - Virtually no confusion, and high metacognition, with kids understanding well what they're learning and why.
 - Highest instructional intensity (practices/experiences per minute) to maximise learning.

Literacy Plus Mottos: Cognitive Load Principles matching teaching to kids' needs

- Focused on ensuring
- Successful Engaged Learning,
- Instructional Intensity,
- Mastery & Automaticity,
- Fun effective activities,
- No learning breakdowns,
- Building bricks in the child's wall quickly & effectively

(Galletly, 1999a, b)



Match instructional intensity to the child's needs.

- Use Instructional Intensity (number of practices or exposures per minute of teaching/learning time) to scaffold effective statistical learning.
- Use massed practice (lots of practice) & spaced practice.
- Combine this with removing confusion & building confidence for powerful effective learning.
- Be strategic choosing activities,
 - Achieve high practice rates by aiming for high instructional intensity using massed practice.
 - When the curriculum is crowded, games with instructional intensity are a teacher's best friend.
 - 5 to 20 practices/min → faster progress.

Memory & Snap are powerful for massed practice & highest instructional intensity

Strategic Memory (28 'cards': 7 words, each on 4 cards)

A card game, with all cards spread out face down on the table, taking turns to collect pairs: the winner is the one with the most pairs, after all cards have been turned over:

- Turn over 4 cards, not 2, every turn (This greatly increases instructional intensity).
- The rules for pairs in each turn:
No pairs or two pairs: that's the end of your turn.
One pair, you get just one extra turn to turn over four cards (and a chance to get a total of 3 pairs for that turn).
- 'Read up the line then count down the line': As you play, line pairs up strategically, face up, ready for 'reading the line'. At the end of the game, you 'read up the line' then count down the line, to see how many pairs you have.

Play Memory till 'Correct' then Snap till Automatic

- **Strategic Snap** (28 'cards': 7 words, each on 4 cards)
A card game with the pack shared out, turning one card over each turn, 'snapping' pairs, with the winner having the whole pack or the most cards
- Share the pack out between players.
- After a Snap, the Snapper puts cards at bottom of pack.
- 'Last Chance!': Players who run out of cards get one chance to get back in, if they get the next Snap.
 - Often kids read lots of words till Snap happens.
 - The reason cards were put at the bottom of your pack is so you know there's some Snaps coming through.
- **Advanced/Timed Snap** (≥ 56 'cards': ≥ 14 words on 4 cards)
 - Combine ≥ 2 card packs. Use a timer, eg 5 mins. The winner is the one with the most cards.

Enjoy Instructional Intensity ++ through school & home use of 'Strategic Memory/Snap'

- Strategic Memory/Snap work for many skills, e.g., word reading, letters, maths facts, vocabulary, etc.
- Teach parents the system in Prep & Year 1, using colours, shapes, letters, numbers, then as part of individual
- Strategic Memory/Snap & Rapid Reads provide highest instructional intensity (practices/minute).
- These activities are great for differentiated homework & school activities.
- Train both families and students in Strategic Memory/Snap from Prep (letter-names, colours, shapes, sight words), then use them across school (Phonics word-reading, Maths Facts, Vocabulary).

Be proactive re Automatisation Weakness & Acquired Helplessness

- Automatisation weakness:
 - Difficulty becoming automatic – needing >> practice.
 - Learned skills being later forgotten because they hadn't been learned to a sufficiently automatic level.
 - Newly mastered skills are still high cognitive load; when automatic, children's processing capacity is freed up.
- Acquired Helplessness: Feeling one isn't capable.
- These difficulties block literacy development in major ways.
- These children need intensive, expert, scaffolded instruction
- This strategic high resource use pays big dividends.

Be on the alert for automatisaion weakness

- When the cognitive load of what we are learning is high and the child's information processing is weak, learning breakdowns can occur with 'learned skills' now forgotten
- The four key areas of learning breakdown are
 - Initial learning:
 - Use careful introducing of skills using microsteps.
 - Becoming automatic:
 - At-risk learners may need LOTS & LOTS & LOTS of practice before they are automatic.
 - Generalisation (using skills in new contexts):
 - Carefully help kids to move skills to wider contexts, e.g., Literacy Plus Newsletter 2: Microsteps article & R-vowel download.
 - Maintenance (remembering concepts long-term):
 - Monitor kids' learning to check it stays learned.
 - Use memory stretching programs (1wk, 2wks, 1mth, 3mths).



For vulnerable kids doing complex learning, loss of confidence can be catastrophic

KIDS **MUST** FEEL CAPABLE AND CLEVER IF THEY ARE TO MAKE EFFECTIVE WORD READING PROGRESS

- Learned Helplessness is VERY common in struggling children:
 - LH = depressed behaviour, passiveness, feeling incapable in that area, seeing success as luck, blocks progress ++.
 - Henry Ford was right: **Whether you think you can't or whether you think you can, you're right!**
 - **When the going gets tough, the depressed give up!**

WE NEED TO ENSURE SUCCESSFUL ENGAGED LEARNING:

- Lots and lots of success, and very little failure.
- Kids enjoying their learning, and feeling capable & clever.

Expect learning breakdowns even with excellent teaching & learning

- Many at-risk readers have automatisation weakness – trouble getting skills automatic (Correct + Fast + Supereasy).
- 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 can be missed.
- 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'.

Principles of effective teaching for weak readers 1

- Locate the child's areas of difficulty.
- Work at the appropriate level for the child
(often lower than you first think).
- Introduce new work carefully.
- Teach crucial pre-skills of a strategy before the strategy is presented.
- Provide bulk practice of new work.
Automatic = correct + fast + supereasy.
- Continue practice till new skill is automatic.
(Games help keep it fun.)
- Don't introduce exceptions to a strategy till well after it's learned.

Principles of effective teaching for weak readers 2

- Help children generalise the new skill to other work areas (DoL2, then DoL3, then DoL4)
- Ensure permanent memories have been made of the new work. *(Check known work after longer and longer periods of time, eg. 1 week, 1 fortnight, 1 month, 3 months.)*
- Build trust that the work you set will be of a very manageable level of difficulty.
- Teach high utility skills before less useful ones.
- Teach easy skills before more difficult ones.
- Contrast new information with old once the new info is VERY familiar (DoL2 moving to DoL3).
- Use performance records to monitor mastery.
- Be very aware of morale and self-esteem.

Focus on building confidence & self-belief while progressing needed skills

- Build trust, relationships & mutual respect.
- Instructional intensity using games, rewards & fun.
- Build progress, and link progress to 'I can do this now. And I can do this now too.'
- Focus strongly on reversing Learned Helplessness: Often these children inwardly don't feel capable of becoming good readers: *'Whether you think you can't or whether you think you can, you're right!'*
- If current activities seem 'contaminated' (child is bored and unmotivated), use completely NEW activities, taking a fresh approach (activities tried in the past often link to Learned Helplessness).

Use multiple cycles of teaching, revisiting skills over weeks, terms and years

e.g., for word reading:

- **Cycle 1: Jolly Phonics** (Lloyd, 1992), teaches 43 common GPCs (spelling patterns), starts word reading once first 6 letters known, uses tricky/regular words:
 - Enables 'advanced readers' to move on to advanced word reading and effective independent reading.
 - A good introduction for average and at-risk readers.
- **Cycle 2: Word Reading Fun** using
 - Memory/Snap games to learn letters & early sight words
 - '*Sounds & Vowels*,' '*Two Vowels Talking*' games, etc.
 - Enables 'average readers' to move to advanced reading.
- **Cycle 3. Intensive Early Intervention**: for weak readers, uses Level 2, Skills Building Intervention and Level 3, Intensive Remediation, discussed above.

English readers need strong cognitive-processing skills

- Research on cognitive processing is proliferating exponentially.
- English readers with language impairment and children with reading-writing difficulties have significantly lower skills in
 - Short-term and/or working memory skills.
 - Statistical learning and self-teaching skills.
 - Executive-function skills.
 - Other cognitive-processing skills, e.g., phonological and phonemic awareness.

Orthographic differences create major literacy differences

- High cognitive load impacts Australian children across the years it takes to become skilled, confident readers and writers.
- English readers weak at these skills tend to develop word-reading, spelling and literacy struggles.
- Regular-orthography readers weak at these skills develop accurate word-reading and spelling.

Finnish
23 GPCs

Italian
33 GPCs

English
>> 500 GPCs

Why? Cognitive Load and Cognitive Processing Skills

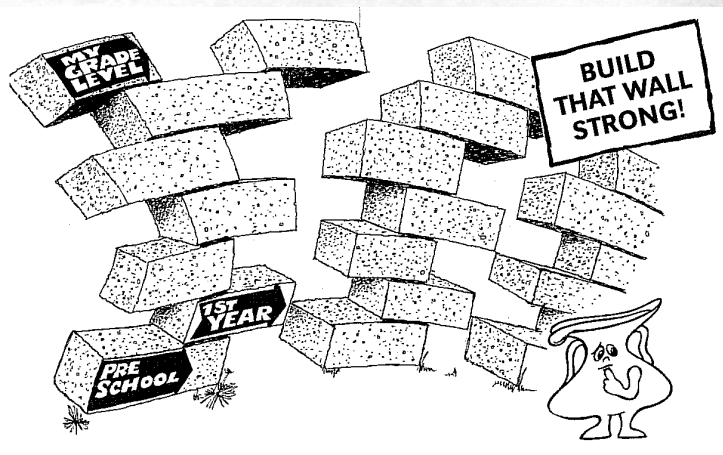
Regular-orthographies

- Have very low cognitive load.
- Are easy and gentle to master.
- Are quickly mastered in weeks to months, e.g., 4 to 12 weeks in Finland & Taiwan.

English orthography

- Creates high cognitive load.
- Thus needs for healthy cognitive processing skills.
- Are difficult and slow to master, taking many years
- Across MANY years it takes to master word-reading & writing, e.g., ≥ 6 years (word-reading) and ≥ 9 years (spelling).

Features of Useful Strategies



- Have low cognitive load, so don't overload processing capacity.
- Simple to teach.
- Enjoyable.
- Help kids progress quickly.
- Build skills + confidence
- Powerful for supporting progress in multiple areas.
- Don't have lots of subskills kids aren't automatic on.

Think of learning as strengthening neural connections & neurological representations

- Think of representations as the number of strands and the strength of strands. Practising makes strands stronger.
- How many strands of knowledge do you have re 'giraffe' e.g., word, syllables, sounds, spelling, picture, animals, Africa, zoos, personal experience, stories, anecdotes (11)?
- Weak representations have only one or two connections: they're not strong so easily lost/forgotten.
- Strong representations have LOTS of strong connections – they stay remembered.
- At-risk kids, have weakness making strong durable representations (effective useful long-term memories).
- Strengthen representations by careful teaching, multiple aspects (e.g., hear it, say it, see it, count syllables, define it, categorise it), and lots of practice.

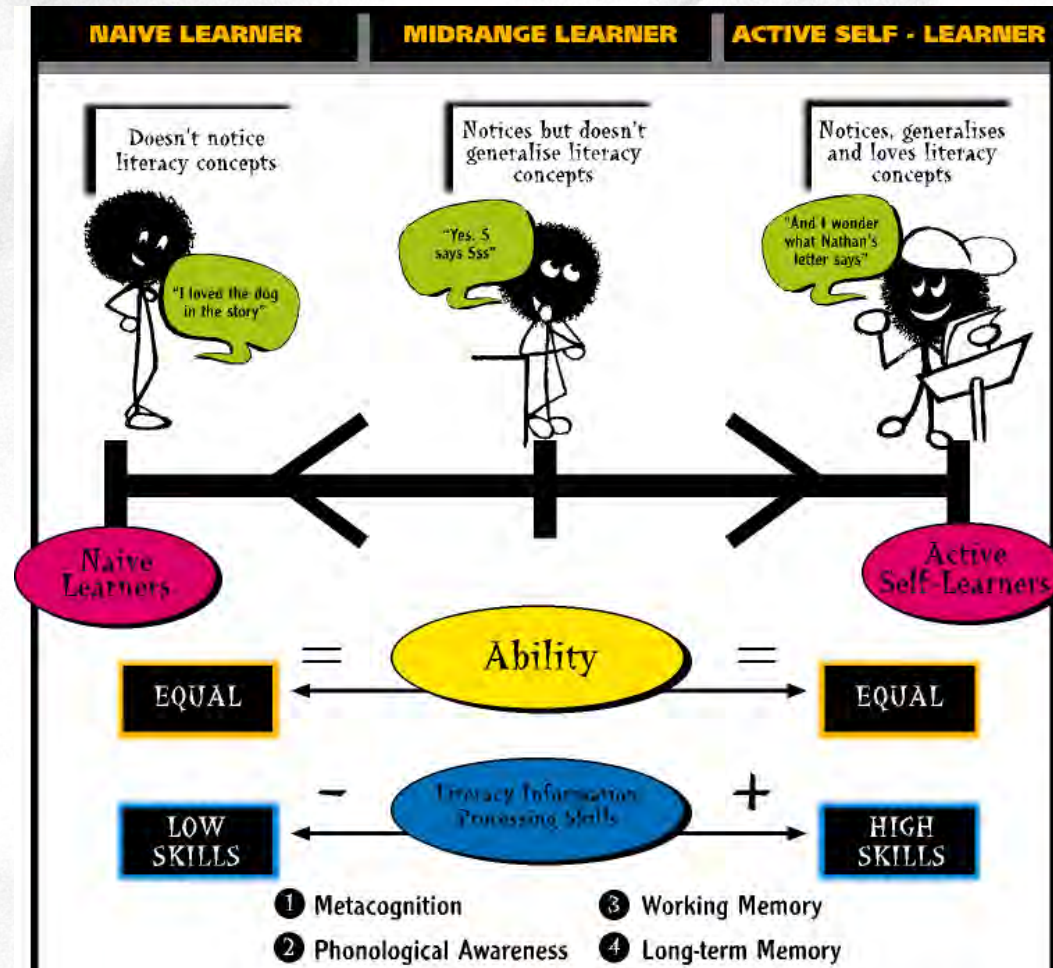


Processing capacity (working memory) varies in 'the teaching moment'.

- Short term memory: remembering content, e.g., repeat number list.
- Working memory: retaining that content while you work on it, e.g., repeat number list in reverse order.
- Short term & working memory reduce when there's noise, distractions, & if feeling stressed.
- Teach 'to the child's eyes' to monitor levels of confidence in the teaching moment; it's a very useful proxy for working memory.
- Differentiate instruction 'in the teaching moment' so children's working memory isn't overloaded

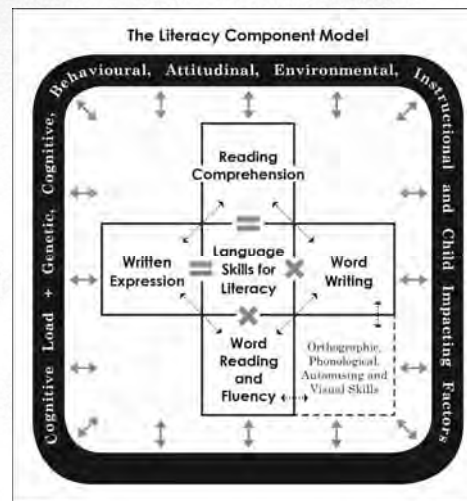
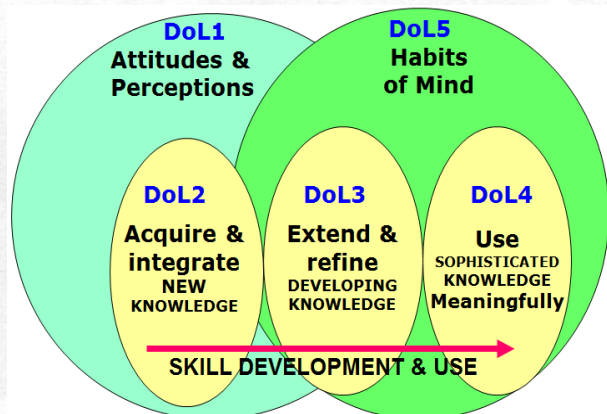
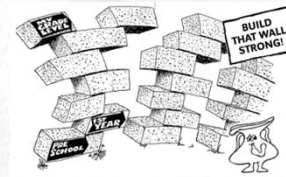
Notice weak verbal-phonological information processing

- Children with particular weakness are those with
 - Family history of LD,
 - Language weakness,
 - Low working memory,
 - Low phonological skills.
- Many kids have good visual-spatial information processing but weak verbal-phonological information processing:
 - You-tube clip, *'Like a Dyslexic'*,
 - Eide & Eide *'The Dyslexic Advantage'*



Useful models for effective instruction e.g., Knight, Galletly & Gargett (2017b) Principles doc

- Galletly's Analogies for Learning, e.g., cups, Filers, mottos.
- Marzano & Pickering's 1997 Dimensions of Learning (DoL)
- Orthographic Advantage Theory
- Statistical Learning Theory
- Cognitive Load Theory
- Literacy Component Model



Use the Literacy Component Model to decide areas for strong intervention focus:

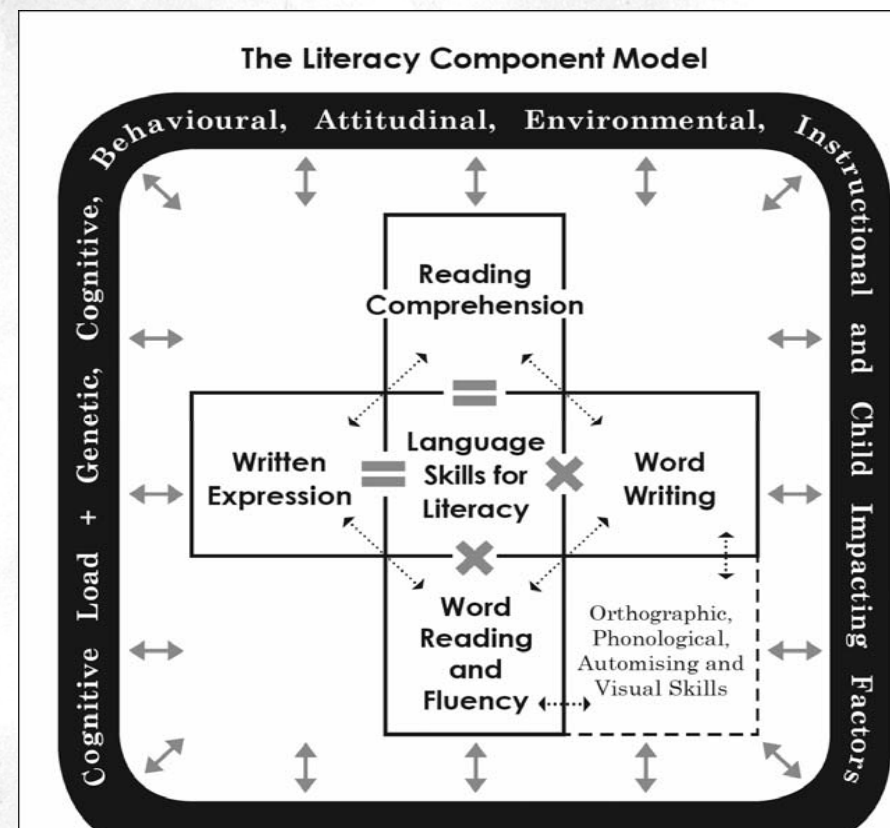
Reading Comprehension = Word Reading x Language Skills

Written Expression = Word Writing x Language Skills

5 VIP Literacy Components we want to develop:

1. Language Skills
2. Word Reading
3. Word Writing
4. Written Expression
5. Reading Comprehension

Knight, Galletly & Aprile (2021)



Reading Comprehension

Understanding what is read

Enjoys both fiction & nonfiction

Does lots of independent reading

= Language Comprehension

Vocabulary: words, phrases, idioms.

Literal & inferential comprehension

Logical reasoning & problem solving

x Word Reading

Reads age-level text with mostly familiar words fluently
and with expression

Reads unfamiliar words without hesitation.

Written Expression

= **Language Expression**

Vocab, definitions, synonyms

Summaries & descriptions

Sequencing & details

Genre skills, e.g., Story grammar

Brainstorming ideas, planning, editing

Inferential reasoning

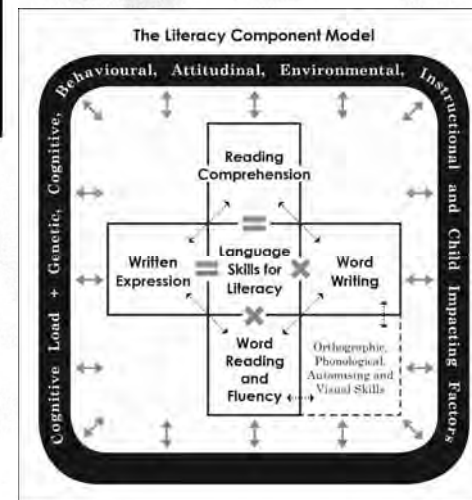
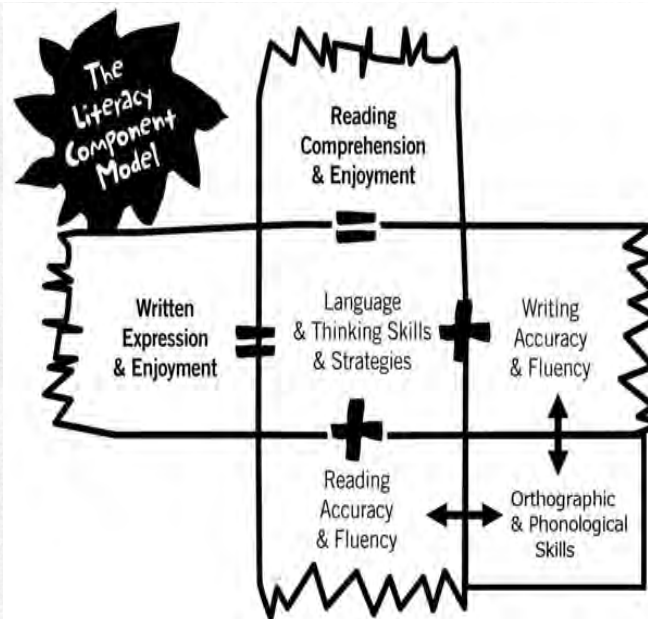
x Writing Accuracy

Spelling & phonemic approximations

Speech-to-text s'ware, handwriting, typing

The Component Model helps us see kids' needs

- All 5 components are VIP.
- Effectively differentiated instruction
 - Scaffolds success in KLA tasks
 - Progresses skill development
- **Different children need Different levels of intensity on Different components.**
- **Give children what they need: Right instruction on the right areas at the right time!**
 - If it ain't broke, minimise time on it.
 - If it needs work, focus sufficient instructional intensity on it until it's automatic and effective.
 - Effectively differentiated instruction is both powerful and vital if kids are to achieve as well as possible.



(Knight, Galletly & Aprile, 2021)

If we use tests of
1. Word Reading
2. Language Skills

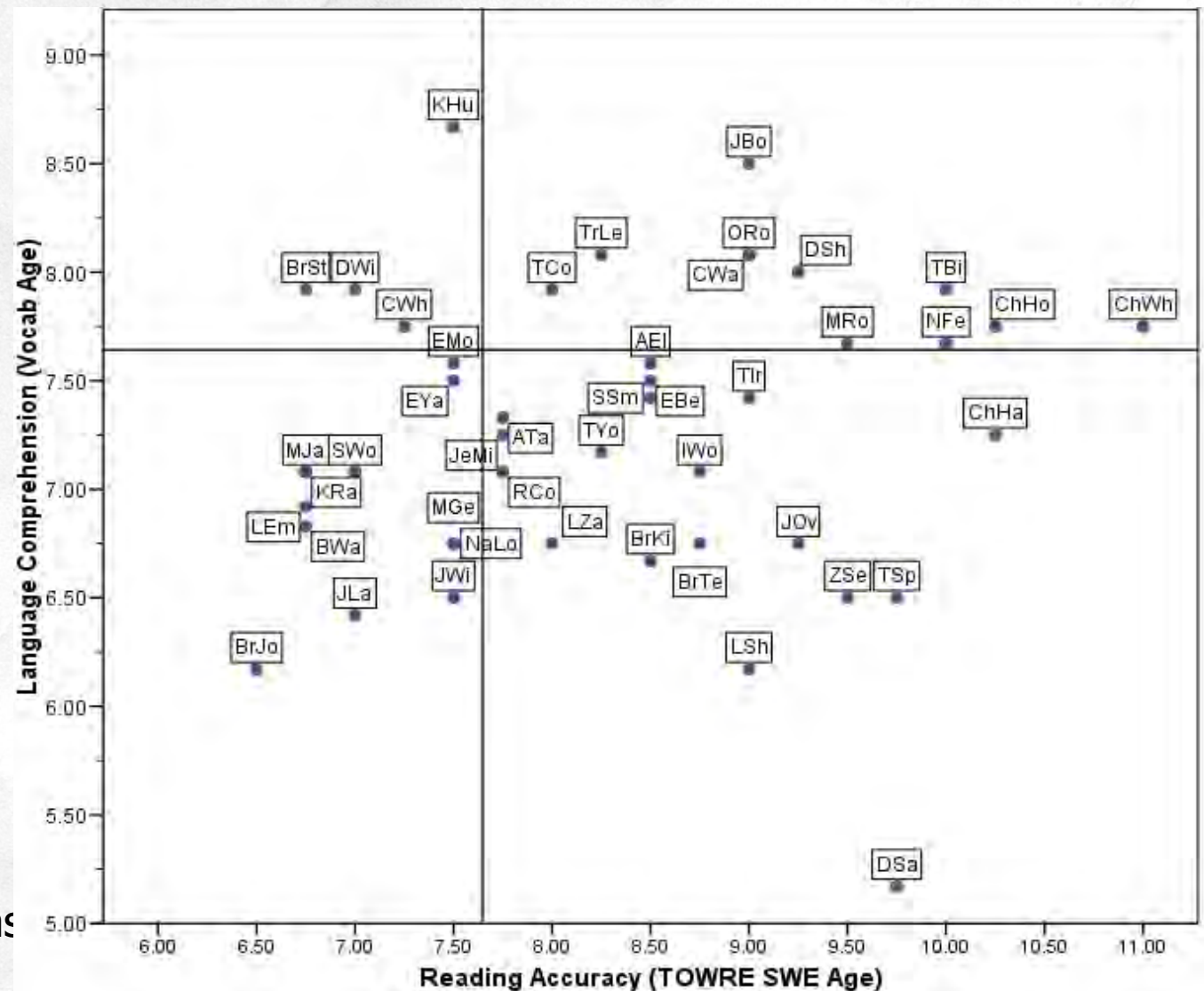
The 4 quadrants
indicate four sets of
instructional needs.

TOP RIGHT: Healthy
skills, use enrichment.

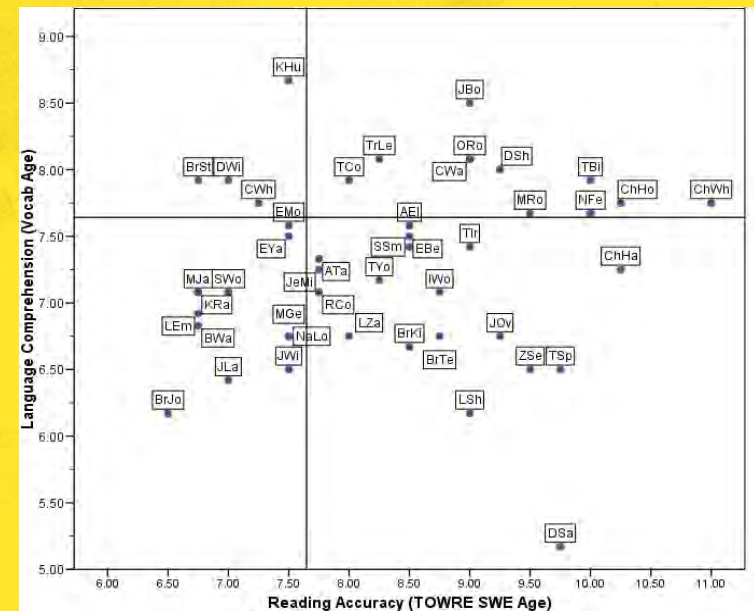
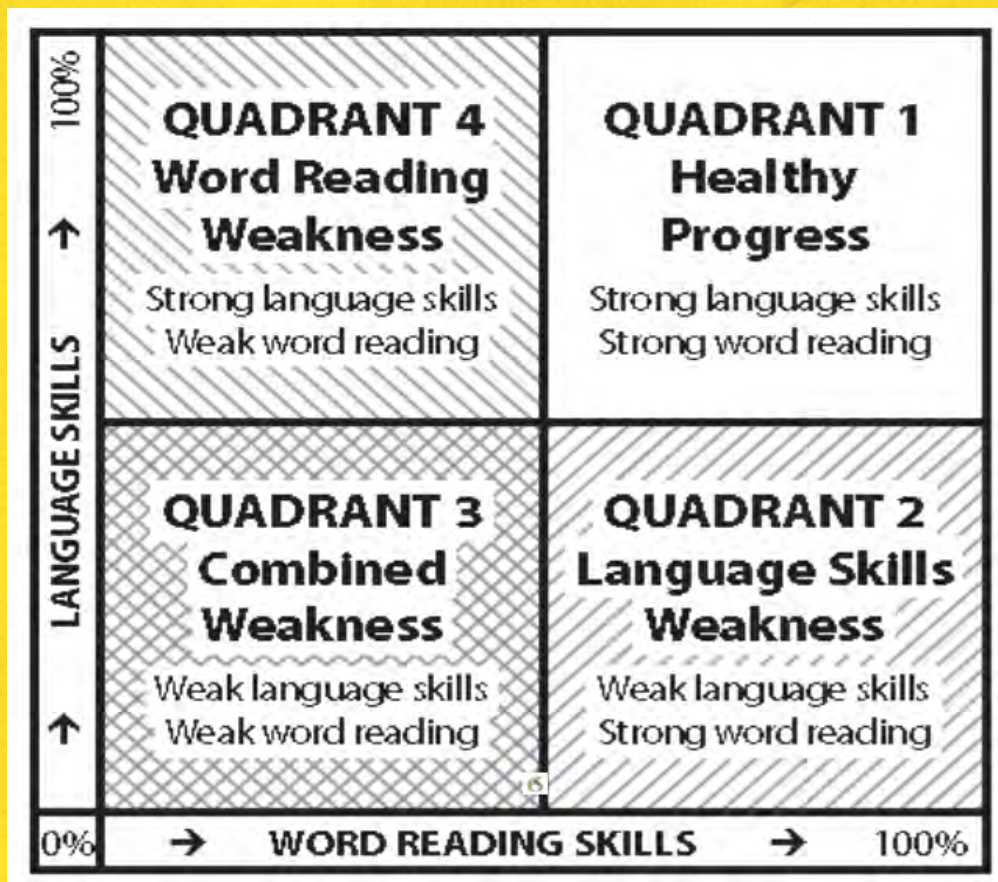
LEFT HALF: Need
word reading
skill building.

BOTTOM HALF: Need
language skills
skill building.

BOTTOM LEFT: Need
skills built in both areas

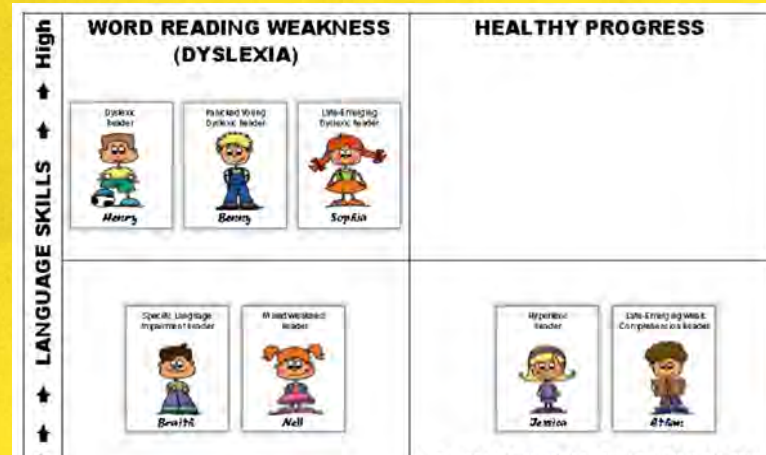


4 groups of children, established by language & reading/spelling scores



3 groups: 7 (now 9) 'types' of weak readers

Use the Component Model to consider their instructional needs and plan groups & strategies to optimise reading progress.



[RC: Reading Comprehension LS: Language Skills (Language & Thinking) WR: Word Reading (Reading Accuracy) M&E: Motivation & Engagement Y: Yearlevel]

WORD READING WEAKNESS			COMBINED SKILLS WEAKNESS		LANGUAGE SKILLS WEAKNESS	
Late-emerging word reading difficulties	Dyslexic reader	Panicked young dyslexic reader	Lower ability Mixed weakness reader	Severe <i>Specific Language Impairment</i> (Mixed RA & LC reader)	Hyperlexic reader	Late-emerging comprehension difficulties
Sophia	Henry	Benny	Nell	Braith	Ethan	Jessica
WR good Y1, low Y4 RC good Y1, low Y4 LS varies M & E varies Maths varies	WR & Spelling low Maths high LS good RC low due to WR low, M & E varies	WR very low M & E very low LS varies RC varies Maths varies	WR low LS low RC low Maths low M & E varies	WR & Spelling very low LS low RC low M & E varies Maths low	WR very high LS low RC low M & E varies Maths varies	WR good LS good Y1, low Y4 RC good Y1, low Y4 M & E varies Maths varies
Y3Test Band 1-3	Y3Test Band 1-2		Y3Test Band 1-2	Y3Test Band 1-2	Y3Test Band 2-3	Y3Test Band 2-3
Poor phonics skills. Did well in Prep-Yr1 due to good skill learning sightwords and texts	Family history of literacy weakness. Struggles to learn word reading and spelling.	Reads own name but very few other words. Usual early intervention which is effective for	Low general ability. Mild intellectual weakness. Low achievement in all	Good ability 'masked' by severely low school achievement. Significant difficulties with	Great word reading and spelling skills. Poor inferential language skills so has very poor	Good literal comprehension. Poor vocabulary or/and inferential

Three Categories (& 7 types) is available with Literacy Plus Newsletter 1








'Three Categories (& 7 'Types') of Weak Readers: Common Patterns of Strength & Weakness in Children with Learning Difficulties' is a free download for Newsletter 1.

Visit www.literacyplus.com.au to download this handout.

Three categories (& 7 'types') of Weak Readers: Common patterns of strength and weaknesses in children with reading difficulties Dr Susan Galletly, June 2014

All weak readers are individuals with highly specific instructional needs. That said, many weak readers have features in common making it useful to think of categories and patterns of weakness, and corresponding features of effective instruction to meet their needs. Reflect on your own students' characteristics and how they fit these profiles.

[RC: Reading Comprehension LS: Language Skills (Language & Thinking) WR: Word Reading (Reading Accuracy) M&E: Motivation & Engagement Y: Yearlevel]

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9 'types' & their main instructional needs

All need cognitive load managed well!!!

Mostly Word Reading / Spelling

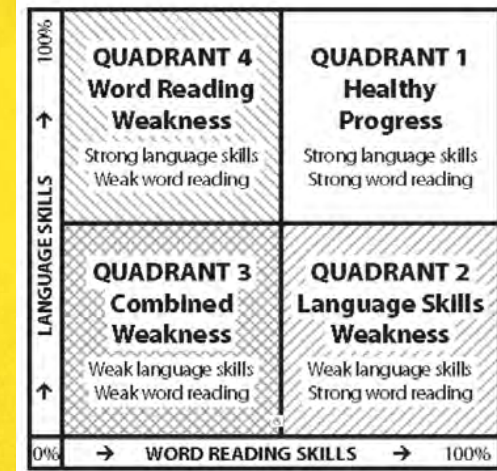
1. Dyslexic reader
2. Panicked young Dyslexic reader
3. 'Dyslexic reader

Combined Word Reading & Comprehension

4. Mixed Weakness Reader
5. Specific Language Impairment (SLI) reader
6. Late-Emerging Combined-Weakness reader
7. Panicked young Autistic reader

Mostly Language & Reading Comprehension instruction

8. Hyperlexic Reader (often on Autism Spectrum)
9. Late-Emerging Weak-Comprehension reader.



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

Effective learning depends on

1. How many **successful experiences** the child has +
2. How much **confusion** he experiences -
3. How high his **confidence** is about being able to learn +/-
4. How **actively engaged** he is in the learning +/-
5. His extent of Automatisation Weakness -
(Learning Breakdowns)

Effective teaching optimises these areas

$$\text{Effectiveness of Learning} = \text{Number of Successful Engaged Practices} - (\text{Extent of Confusion} + \text{Confidence} + \text{Automatisation Weakness})$$



See Lit Plus Newsletter 2 article: *Maximise Statistical Learning*

We teach to maximise statistical learning

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

When confusion is low, learning is easier.
When it's high, learning is much harder.

- **Example 1. Learning numbers 1-10**

- There's relatively little confusion (3 is always 3),
- so if numbers are introduced carefully,
- and kids get lots of practice thinking about and working with numbers and counting,
- they build a strong sense of numbers one to ten,
- and never forget them.

- **Example 2. Learning words 'one'(wun) & 'put'(poot)**

- Lots of confusion because the letters and sounds don't match (o=w? n=u? e=n?), (u=oo?).
- Many weak readers find it easy to forget these words.
- Teaching Goal: Avoid/reduce confusion

Use Cognitive Load Theory

Centre for Education Statistics and Evaluation. (2017).
*Cognitive load theory: Research that teachers really
need to understand.* www.cese.nsw.gov.au.

Cognitive Load Theory helps us develop effective instruction meeting each kid's needs.

- 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 & anxiety level in the teaching moment.
- In the teaching moment means 'right now', so
 - 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.
- In planning instruction, think on both Content & Task Load.

High levels of Successful Engaged Learning are vital for vulnerable learners

- Ensure Successful Engaged Learning!
- Avoid failure wherever possible, as it's very damaging:
 - Care-factor-low kids inwardly take their bat & ball & go home.
 - Anxious kids move into Learned Helplessness:
I can't do this. It doesn't make any difference if I try or not. I'm just dumb!
- In my work with low achievers, I aim for Errorless Learning: when I see a train crash coming (overloaded processing capacity resulting in an error and loss of confidence), I step-in before it happens, using scaffolding, joining in, and using microsteps to make tasks one- or two-steps easier.

Strategies for managing cognitive load

- A huge area, e.g.,
 - I do 1 & 2 day seminars on this area, online & face-to-face.
 - We've a 10,000 word article on strategies written.
- Hundreds detailed in Knight, Galletly & Gargett (2017b)
Principles of reading instruction towards optimising reading instruction for at-risk readers in Prep to Year 3: Principles developed through teacher reflection on research and practice in the ARC project 'Bridging the gap for at-risk readers: Reading theory into classroom practice'.
Qld: CQUniversity.

Download free from www.ResearchGate.net

Now let's explore strategies!

Let's aim for 20+ of this list of 50

- **Section 1: School-level strategies for managing cognitive load (Strategies 1 to 8)**
 - 1: Prioritise achieving cognitive load balance
 - 2: Prioritise building increasingly strong neurological representations
 - 3 to 5: Use Successful Engaged Learning, and Instructional Intensity (practices/min) to achieve Mastery & Automaticity
 - 6: Differentiate instruction using the Literacy Component Model
 - 7: Use resourcing levels commensurate with researched instruction
 - 8: Achieve a gentle path through literacy development
- **Section 2: Literacy Strategies Managing Cognitive Load (Strategies 9 to 41)**
 - 9: Build strong Literate Cultural Capital and literacy readiness
 - 10: Teetch thu too rulz ov English speling
 - 11: Empower written expression using 'Guestimated' spelling
 - Strategies 12 to 17: Build verbal skills to transfer to literacy: Synonym Sentences, Synonym Duos, Wrapped Nouns, Jolly Joiners, the Language of Literacy, & Sensational Sentence books ... **Strategy 50**

(continued ...) Let's aim for 20+ of this list of 50

- ... **Section 2: Literacy Strategies Managing Cognitive Load (Strategies 9 to 41)**
 - 18: Prioritise 'great wording' and 'Get my fine mind down on paper' in first-draft writing [9]
 - 19: Use four step editing: My Grandmother's Pig Stinks! [10]
 - 20: Use technology accommodations
 - 21: Build metacognition about confusing letter names and shapes.
 - 22 and 23: Teach the multiple meanings of 'vowel' and play with the 20 vowel sounds.
 - 24: Teach the three word and syllable types (orthographic grainsizes) [11]
 - 25: Use 'Count the Syllables' to read multisyllabic words [12]
 - 26 to 30: Use "I'm an orthographer" spelling strategies for focused orthographic learning
 - 31: Use Echo Reading for successful engaged reading [13]
 - 32: Prioritise and expedite independent reading
 - 33: Use familiar texts as genre examples
 - 34 and 35: Teach word-reading of sight-words and unfamiliar-words
 - 36: Use word-reading games for motivating, enjoyable practice
 - 37: Use Rapid Reads to build word-reading proficiency
 - 38: Teach word-reading strategically across all school years

(continued ...) Let's aim for 20+ of this list of 50

- ... **Section 2: Literacy Strategies Managing Cognitive Load (Strategies 9 to 41)**
 - 39: Ensure teachers have age-, curriculum-, and personality-appropriate resources
 - 40: Use Response-To-Intervention frameworks
 - 41: Integrate vocabulary, word-reading and spelling instruction
- **Section 3: Strategies for achieving a Gentle Start to Literacy (Strategies 42-50)**
 - 42: Heighten out-of-school literacy development
 - 43: Build pre-school readiness and resilience for school word-reading instruction [14]
 - 44: Consider delaying early-years word-reading
 - 45: Consider spelling options and letter-name changes
 - 46 to 50: Explore using 2-Stage early literacy initially using a fully-regular beginners' orthography prior to Standard English orthography (Galletly's Changes 1, 7, 8, 9, 10)

**Building Language Skills is
GOOD for all children, but
VITAL for those with weak language skills.**

For school children,

- 1. First build skills verbally,
for lower cognitive load,**
- 2. Build them to a confident level:
fluency lowers cognitive load**
- 2. Then transition them to use
in reading & writing**

Building Language Skills Really Is VITAL for kids low in language.

- Language can be built around many different topic areas. Building language using children's literature & literacy wins twice over, as kids build Literate Cultural Capital (LCC) plus powerful language & thinking skills.
- Six useful language areas: Vocabulary, Narrative Skills, LCC, Literal Comprehension, Inferential Comprehension, and Verbal Expression (eg talking, discussing, describing).
- Kids with strong language skills soak up language learning like sponges, learning quickly, often from minimal input.
- Kids with weak language don't learn as easily, so exposure is not enough. They need multiple exposures, careful explanations & lots of use of skills to build confidence and expertise.
- Ensure skills you build are retained and used well.

There are lots of powerful language activities

- Waffling & Summarising, Brainstorming & Categorising, Compare & Contrast.
- Vocab: Loving Tier 2 Words. Getting WORDY about them.
- The 'Text Talk' system: A great program or make your own.
- Bounce off books to build language & LCC.
- Repeating a sentence, changing one or two parts.
- Wrapping Nouns: An 'easy' formula for powerful description.
- Guestimating: Enabling great writing vocabulary.
- Synonym Sentences: Playing with words & flexibility of sentences, building skill using paraphrasing.
- Synonym Duos: Enjoying synonyms.
- Have a school 'Talk Curriculum': being strategic wins ++.
- Build inferential thinking by making language visible.

Waffling, Brainstorming, Summarising, Categorising, Compare & Contrast

- These are powerful complementary key skills underlying P-12 reading comprehension, written expression, and assignment writing.
- Kids need to be able to be increasingly proficient at these:
 - Waffle: be expansive on a topic – change a few words (e.g., It's a phone) into extensive discussion.
 - Brainstorm words & categories on a topic.
 - Summarise: contract many words to one or a few words, whilst honing in on key concepts.
 - Categorise: Notice, think up, and use logical categories to create order for groups of words and waffling.
 - Compare and contrast: think on and discuss what is the same and different about 2-3 objects or concepts.

Waffling: talking expansively on a topic

Waffling: Talking at length on a topic, a key subskill of doing oral presentations, writing longer texts, doing assignments.

- Many kids don't feel capable of it, so need to see they can.
- Start with an aim of 'Talk for one minute on this topic.'
- Start with common objects, e.g., table, wall, book, dog.
- Use a stopwatch & the challenge of talking for 1 minute.
- Have random objects in a feelie bag, or a pack of cards with simple topics kids randomly pick from the pack.
- Kids working in groups, morning talk, etc.
- Waffling leads logically into categorising, and showing visually the categories a child has used, and the potential these categories offer for longer talking, e.g., '*John did a great job then on 'carrot'. Now let's think of categories he used.*' *John, let's see how long you can talk now. Go!*

Brainstorming words & concepts

Kids benefit greatly from feeling confident & skilled, effortlessly enjoying the challenge of thinking up words related to a topic. Topics are endless, e.g.,

- Book responses: Action/Foods Mr McGee or Spot might do/eat. animals, things in a bedroom/kitchen.
- Describing words: words which describe flower, book.
- KLA words to do with the topic being studied.
- Genre/text options, e.g., reasons backing an opinion, possible complications fitting a single orientation.
- Circumstances/adverbials for a base sentence, e.g., '*He hit the ball*', either Collectively (random ideas for how, what, where, when, why) or Just one type', e.g., options for 'why' (*so he could run, they could win*) or 'when' (*yesterday, when..., one cold, windy day*).
- Use for rotations, groupwork, reading/KLA responses, differentiating by using individualised responses.

Summarising: Reducing many words to key words & concepts

Help kids become increasingly skilled summarisers:

- Talk about summarising being isolating key concepts, which may or may not be words written in a text, e.g., friendship.
- Issue the challenge of summarising, using 1 word, ≤ 5 words, one sentence, etc., to build the idea of summarising being key words/ concepts.
- e.g., Pause after a paragraph being read in a text, and say 'quick summary – 1 word, and collect the words kids offer.
- Use for rotations, groupwork, reading/KLA responses, differentiating by using individualised responses, etc.
- Summarising (many words to few) is the opposite of waffling (few words to many). Point this out to kids, and talk about the value of these skills & where they can be used.

Categorising: Noticing, thinking of & using categories to organise information

- Categorising is a powerful skill for organising information, underlying reading comprehension and written expression.
- Help kids notice how categorising helps organise information, plus offers options for thinking on more info.
- E.g., after brainstorming, use e.g., mind-maps to categorise the words and concepts discussed.
- Show how categorising works well in different contexts eg,
 - As a group response to a child's waffling for 1 minute, moving from initial 'waffle', to categorising, to showing how those categories are nice stimuli for brainstorming other things one could say, to showing how categories & brainstorming in categories helps one build a potentially much longer text useful for an oral, assignment, etc.
 - Top Level Structures (List/Description/Sequence, Compare/Contrast, Problem/Solution, Cause/Effect) used as reading/KLA responses.

Compare & Contrast: Thinking on similarities & differences between objects & concepts

- Doing Compare & Contrast builds inferencing and analysing skills. It incorporates brainstorming, and categorising.
- Start this one from Prep, as it's a useful LCC skill, e.g., Use in a range of contexts, using cue questions of *What's the same?* & *What's different?*, e.g., What's the same about a cow and a horse. What's different?
- Use in diverse curriculum areas, e.g., compare & contrast
- 2 characters in a story,
- The house/pet of a child in a story and one's own.
- Two books which have been read and enjoyed.
- Subject area topics, e.g., science & history areas.

Vocab: Teach Tier 2 Words

- Tier 1 Everyday basic words: Teach these if kids need them.
 - *warm, dog, tired, run, party, talk, swim, look*
- Tier 3: 'Technical' subject-specific terms:
 - *Metamorphic, igneous, sedimentary*
- Tier 2: High utility words, used in many contexts, used by mature language users, great words for vocab lists.
 - *Brilliant, fantastic, marvellous* words to teach
 - And maybe use them for Brave Spelling 😊.
 - And later use them as word reading words in Rapid Reads (as part of your school's integrated vocab/reading-accuracy/spelling program) 😊.
 - And then maybe a year later learn their spelling 😊.

Vocab Goals

- Have yearlevel vocab lists, send them home, make board games.
- Build vocab lists from Tier 2, KLA & favourite books/texts.
- Introduce words through children's literature: locate the Tier 2 words.
- Use Robust Vocab instruction: weak kids must interact with words, use them in multiple contexts, play with them – hearing them isn't enough.
- Use WORDY to think of 5 levels of knowing words more strongly, & to build children's metacognition of how well they know a word.
- A great book explaining effective vocab teaching: *Beck, McKeown & Kucan (2014) Robust Vocabulary Instruction: Bringing Words to Life.*

WORDY: A Useful Tool I've Developed

- Use WORDY to think of 5 levels of knowing words more strongly, & to build children's metacognition of how well they know a word.

WORDY Stages of knowing a word

Being WORDY with VOCAB	W	O	R	D	Y
	<u>W</u> hat's that?	<u>O</u> nce or twice, I've heard it	In the <u>R</u> egion of.. something to do with	Do-able: word families, sentences	Yes!!!! It's mine! <u>detailed definition.</u>
	0	★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



Strategies for boosting literacy

Easing first draft writing

- Use speech to text software.
- Teach how to write spelling approximations.
- Build needed spoken language skills to a high level:
 - Synonym Sentences
 - Narratives, persuasive texts
- Reduce demands for correct spelling:
Make the Goal to *Get Your Fine Mind Down on Paper*

Use Speech to Text Software

- It hugely greatly reduces cognitive load.
- The language children use improves.
- Writing is now easy and fast.
- Time saved means editing and honing work can be fun.
- **IT MUST BE STRONGLY SUPPORTED UNTIL CHILDREN ARE CONFIDENT & SKILLED.**

Teach Writing of Spelling Approximations, to Expand Expressive Vocab in writing.

1. Say the word by syllables on your fingers.
2. Write syllable by syllable.
 - a) Flick a finger as you say the syllable.
 - b) Write it, & make sure it has a vowel
(any vowel – no pressure re correctness).
3. Check the word.
 - a) Count the vowels then
 - b) Read syllable by syllable, listening for sounds.

Teach Guestimating (Brave Spelling) from Kindergarten, with words assigned to each yearlevel.

- Strong push for 'Getting our fine minds down on paper'.
- No push for correct spelling: *'We haven't learnt Gr6 spellings yet but that won't stop us using those words in our writing'*
- Strong emphasis on putting a (any) vowel in each syllable.
- Schools win by allocating 'Brave Spelling' words to each year level & scaffolding use of those words in written expression.
- 8 words per yearlevel means that, by Grade 4, 24 big words are used regularly in writing.
- Use of these words will encourage risk taking on other words.

Examples of Core Brave Spelling words:

Prep	fantastic	today	happy	very	terrible	gigantic	delicious	quickly
Year 1	wonderful	yesterday	excited	really	dreadful	excited	comfortable	accidentally
Year 2	spectacular	exhausted	satisfied	extremely	revolting	generous	special	fortunately
Year 3	exceptional	reasonable	worried	particularly	terrifying	especially	astonished	scrumptious

Build readiness & resilience in 3-4 year olds using a tiny word reading curriculum

Early skills to empower kids & prevent later difficulties:

- I can sing alphabet songs (letter names & letter sounds!!!).
- I can read my name.
- I can read 5 words: my name and family/school names.
- I can play with rhyme, syllables and sounds of words (phonological awareness).
- I know 5-7 letters (5Cs, ≥ 2 Vs): my letter first.
- I can play with 2-sound words using my letters.
- I can 'find the word' in books, e.g., Spot, Peppa, Maisie.

These will be even more powerful if well consolidated over time, well before 'formal' word reading instruction begins.

BIG advantages of a tiny word reading curriculum well ahead of starting word-reading instruction

- Kids are relaxed & feel strong & positive about knowing these letters, words, and phonological awareness skills.
- The words & letters are concrete concepts they understand.
- They've mastered crucial pre-reading skills.
- Kids at risk of word reading difficulties can be identified, and provided with fun Early Intervention.
- Early intervention is easier, as it's a small curriculum.
- They've got strong readiness for learning the very big word reading curriculum later on:
 - They're much more likely to experience success then.
 - They're less likely to panic & inwardly give up in K-Gr1

Echo Reading lowers cognitive load, provides strong word-reading practice & heightens comprehension

- No time is spent struggling on or working out difficult words.
- 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.
- Adult adds intonation, & useful comments building comprehension.
- No words are repeated, so the child is hearing a relatively smooth flow of words & sentences – this greatly increases contextual cues (meaning cues) the child experiences.
- Echo Reading focuses on & builds successful reading via
 - increasing the amount of successful reading, and
 - maximising contextual supports.
- No time is spent correcting or helping kids work out words.
- Cognitive load is lowered, children read faster & more easily, with greater understanding.
- The child has high levels of success, stays engaged, and has high Instructional Intensity: words read correctly/minute.

Synonym Sentences are fun! They say the 'same' info in wonderfully different ways

- Builds vocabulary, flexible thinking & paraphrasing.
- Do verbally, initially using pairs and groups until kids are confident working on their own.
- Then move gradually to writing, encouraging guessimating to 'get your fine mind down on paper'.

Synonym Sentences say the same idea many different ways

Powerful readers and writings love words and saying the same things different ways

Synonym Sentences is a strategy to build your skills in

1. Having fun with words
2. Brainstorming different words, especially synonyms (Words meaning the same thing).
3. 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 – ginormous – 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, the sedan hit the tree.
The car hit that eucalypt after the driver lost control.
The small hatchback left the road and ended...
This is the poor old she-oak that...
The single vehicle -

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:

Move from Synonym Sentences into Paraphrasing: a powerful skill for life and written expression

- A logical extension of Synonym Sentences
- 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.
- Make this a fun part of your Talk Curriculum

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 nicked me up after a match.	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.
		... scary movies if

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 that kids generated, this creates strong ownership of the words.

Play SYNONYM TWOSOMES: Make pairs of synonyms. Turn over four cards each turn. For each turn, players flip one (only once) extra non-over of four cards the first time they turn over two pairs. First to have 3 pairs wins.

immense W	huge woed	massive W	gigantic WOR
colossal W	mammoth woR	unwell W	ill WORD
sick woRp	poorly W	ailing W	suffering WOR
chuckle W	giggle woRp	snigger W	chortle W
titter W	guffaw W	ecstatic W	euphoric W
delighted woR	elated W	joyful woR	thrilled WOR
small woRD	tiny woRD	minute W	little woRD
undersized woR	petite W	wintry woR	frosty woR
freezing woRD	chilly W	nippy W	icy W

Practice Makes Perfect: Instructional Intensity = BULK practices/min of practice time.

- Appoint 2 PLAYERS
- Appoint two COUNTS (to count vocab practice their player experiences = no. of words heard or read).
- Play Memory using Synonym Duos & these rules:
- Turn over four cards each turn.
 - Two pairs = Lucky you = the end of your turn.
 - No pairs = Tough Luck = the end of your turn.
 - One pair = LUCKY YOU! = (only) one extra turn.
- Players make a vertical line of their pairs on their side of the game. At the end of the game, READ UP THE LIST then COUNT DOWN THE LIST.
- Reflect on the massive count numbers you got.



Teach '**Wrapping Nouns**' verbally, then, when confidently skilled, transition it into writing.

- 2 adjectives before noun & postmodifying phrase or clause after it.
- A dog: *a big fierce dog that's chewing on my ankle.*
- Wrap the nouns in this sentence: *The cat fell in the water.*
- Scaffold noun wrapping:
 - Use 'or' questions: *'Is it big black dog that XXX or a big black dog that YYY?'*
 - Child wraps nouns in sentences you provide.
 - Child makes a base sentence then wraps the nouns.
 - Start a sentence writing book: big rewards for wrapped nouns.
 - Wrap nouns as part of editing.
 - Reward instances in first-draft writing:
'Today I'm giving stickers for well-wrapped nouns.'

Sentence writing books bridge spoken language to written expression.

*Weev got a reelee
humugis slerpey dog
corld Hekyulees.*

Rulz for Writing Great Sentences.

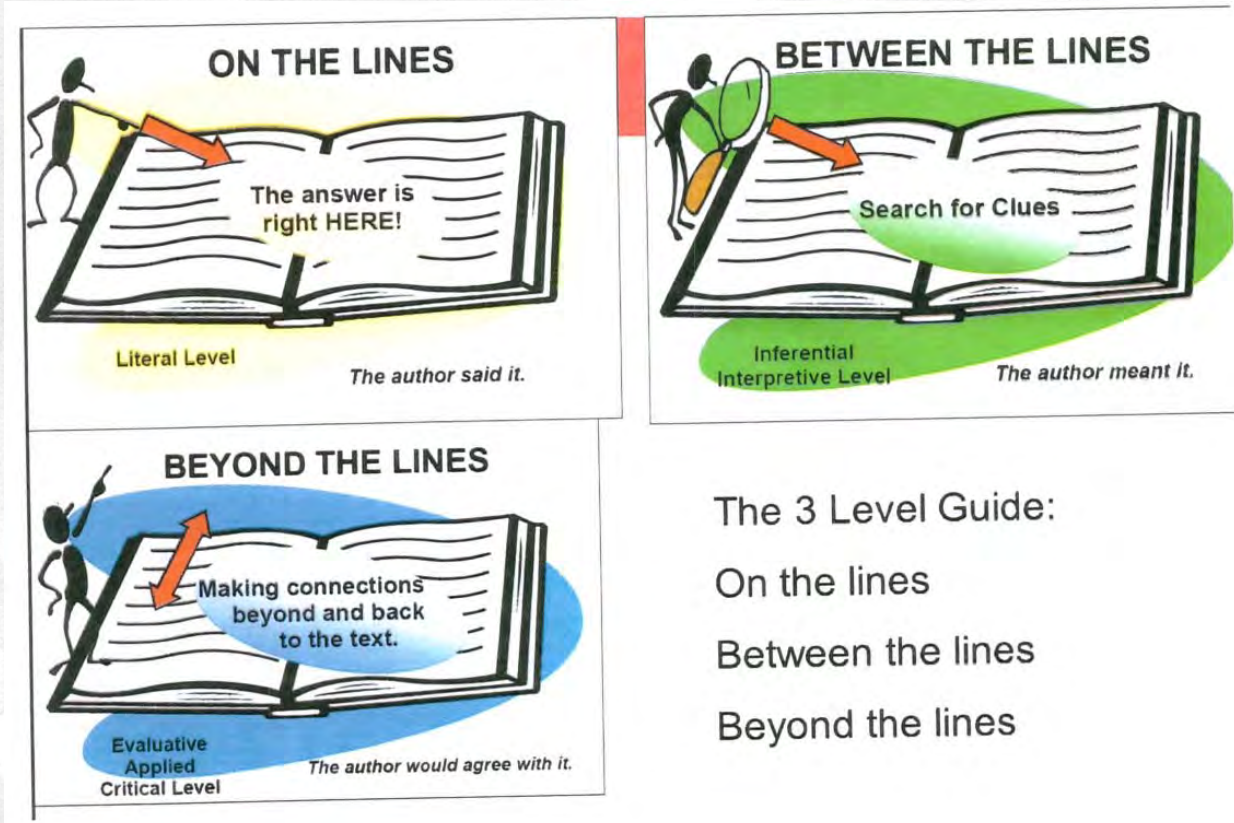
1. **Get Your Fine Mind Down on Paper!!!!!!**
2. Spelling doesn't matter! Don't worry about it.
3. Write on every second line.
4. **Be Bold! Be Brave!**
Use Extravagant Vocabulary!
(BIG WORDS)
5. May be written or dictated word by word.
6. One sentence per week.
7. Write the date, e.g., 23/2/13

Use a strong school 'Talk Curriculum'

- It will boost weak and advanced learning.
- Kids LOVE talking but many don't like writing. So build the language skills for writing using Talk activities, not writing.
- Instructional Intensity ++, as talk activities are much faster than writing activities, so >>practice / minute.
- Include activities to boost common weaknesses:
 - Compound & Complex sentences.
 - Creating sentences from a given word.
 - Lack of description: noun wrapping, verb wrapping.
 - (Yr2-3) Irregular plurals (mouses) & verbs (catchded).
- Include activities which fire imagination & brainstorming.
- Have year-level vocab lists.
- Have year-level 'brave spelling' lists (10 words Prep, 10 words Yr1) words to use in writing

Inferential Comprehension

- So much of Reading Comprehension is actually Language Comprehension (Language & Thought).
- Your 'Talk Curriculum' engages your at-risk readers far more than reading activities do, and it builds the same 'Reading Comprehension' skills you want for reading.



The 3 Level Guide:
On the lines
Between the lines
Beyond the lines

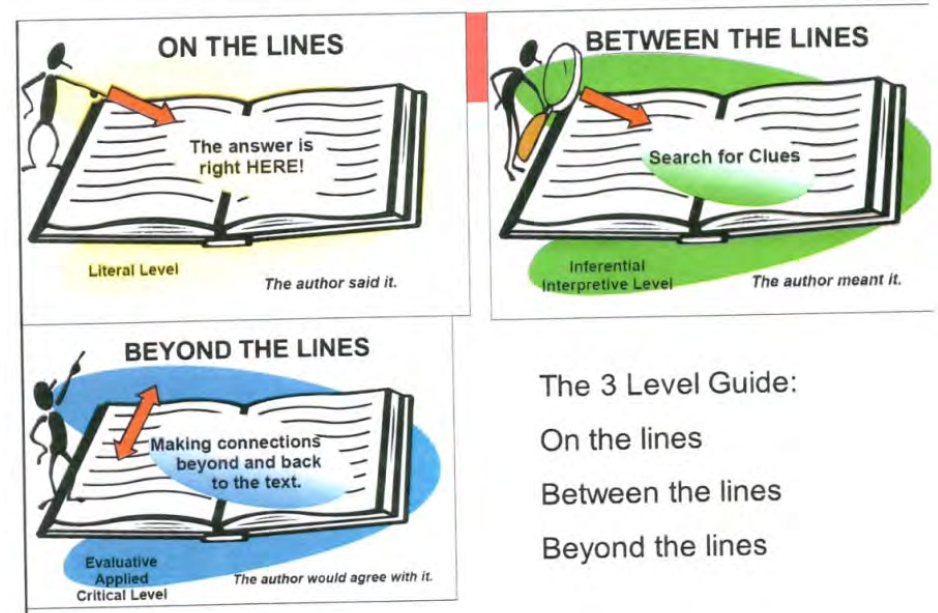
Examples of tasks building language skills

- Vocabulary:
 - Brainstorm 5 synonyms for each word: *very big good*.
 - Write a synonym sentence: *The big dog ate the old apple*.
- Literal Comprehension:
 - Back-to-back picture drawing. How similar will they be?
- Inferential Comprehension:
 - Draw *On the Lines & Between the Lines* pictures to show what these idioms mean: *Hang on, Hot under the collar*
- Precise Thinking and Expression:
 - Define these words so Marsie (from Mars) knows exactly what they are. Remember poor Marsie gets confused: *dog, television, pencil*.
- Pragmatics/Social Reasoning:
 - Rewrite these sentences so they are more subtle:
(Picture of boy being offered cake) *I don't want it. It's Yuk.*

Use the 3-Level Guide as a thinking tool, part of conversations

- Teach the 3 levels:
 - L1. On the lines /Here/Literal
 - L2 Between/Hidden/Inferential/Use the clues
 - L3 Beyond the lines/Head/Applied
- Then use those terms in conversations:

*'I think I can see some
'Between the Lines'
thinking here. Can you?'*
*'Oh-Oh! Is he talking on
or between the lines?'*



The 3 Level Guide:
On the lines
Between the lines
Beyond the lines

Tools for building inferential reasoning: the crux of sophisticated thinking

- Tighten Your Thinking: A schoolwide tool.
- Questions, conversations & discussions.
- On, Between, Beyond the Lines: The 3 Level Guide
- Idioms (Sayings, Figures of Speech).
- Make it visible: Draw On vs Between Lines.
- Thinking Bubbles, Talking Bubbles: Draw story scenes.
- Finding 'Beyond the Lines' thinking in picture books.
- Teacher made activities within *Reading on the Same Page*: inferential reasoning happens best in second & later reads.
- Jokes and humour: Drawing Set-up & Punchline Pictures.

Build inferential reasoning by making language visible (drawing, drama, charts)

- Tighten Your Thinking: A schoolwide tool encouraging children towards increasingly sophisticated reasoning.
- Giving definitions (Explaining to Marsie from Mars what things are)
- Idioms (Sayings, Figures of Speech): Drawing On vs Between Lines pictures
- Thinking Bubbles, Talking Bubbles: Drawing the story.
- Jokes and humour.

'Tighten your Thinking'

- Try this tool I've developed. I've found it an incredibly powerful & extremely supportive tool for building inferential thinking, useful for all school years.

Tighten Your Thinking			
0	1	2	3
Totally wrong Totally unlikely	A tiny bit right Slightly possible Very unlikely	Fairly right Fairly possible Not very likely	Totally right Highly likely

'Tighten your thinking':

Building students' logical reasoning skills.

Use a framework of 0 to 3 whereby 0 means 'totally wrong/unlikely/inappropriate/off task', 1 means 'a bit', 2 means 'fairly' and 3 means 'totally right/highly likely/very appropriate/an excellent solution.'

	0	1	2	3
Facts	Totally wrong	A tiny bit right	Fairly right	Totally right
Possibilities	Totally unlikely	Slightly possible but extremely unlikely	Fairly possible but far from the most likely option	Highly likely options.

Once everyone is familiar with this 0-3 framework and the concept of 'tightening your thinking', the framework is very powerful for building awareness of better options, and can become part of family and school life,

e.g. 'Why is the boy crying?.... 'He might have seen a sad movie'... 'Maybe. That's more of a 1 or 2. Tighten your thinking. Why else might he be crying?'; and e.g. 'Can I have an icecream Mum?'.... 'You had one yesterday'... 'Now that's a real 1, Mum, you need a better answer than that'

Definitions: How precise can you be?

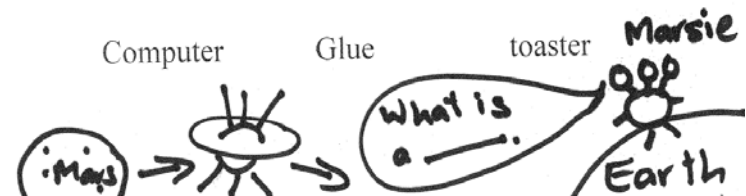
Use a framework of 0 to 3 whereby 0 means 'totally wrong/unlikely/inappropriate/off task', 1 means 'a bit', 2 means 'fairly' and 3 means 'totally right/highly likely/very appropriate/an excellent solution.'

0	1	2	3
Completely wrong	A tiny bit right	Fairly right	Totally right
×	✓	✓✓	✓✓✓

Make definitions of these words?

Hint: ① Category ② Most distinguishing features

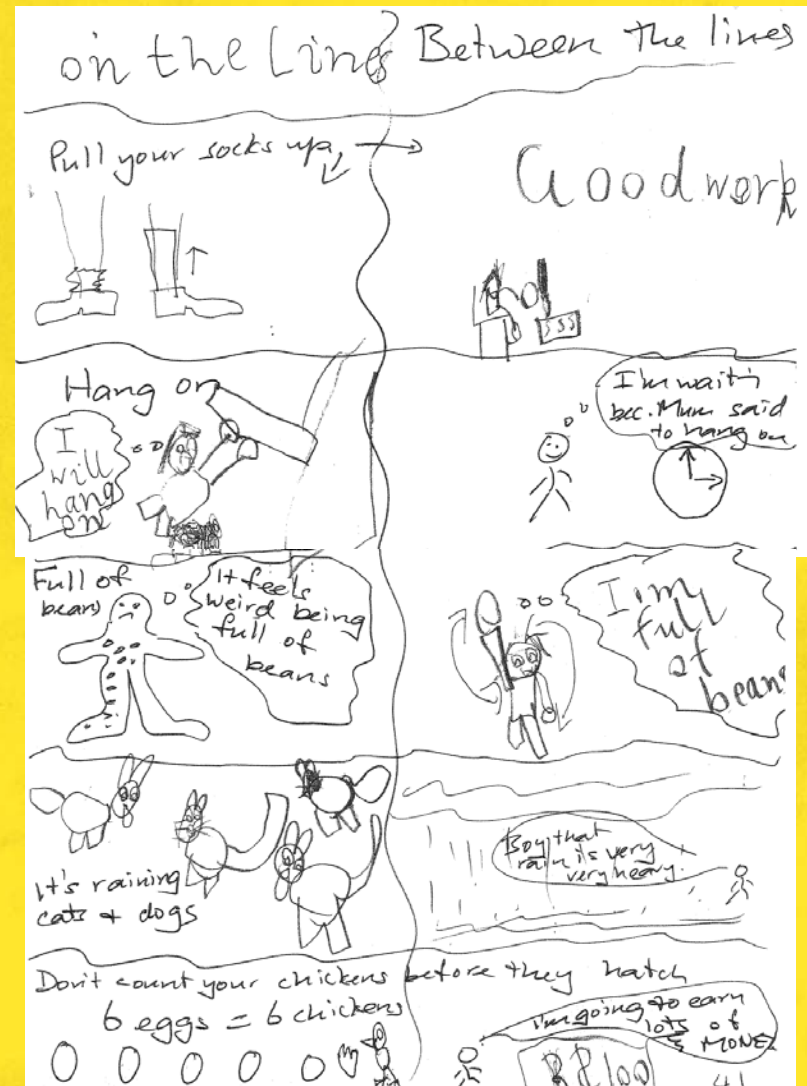
TV	Dog	dessert
Pencil	Groceries	House
Cousin	Mum	Flower
Potato	Possum	Book
Computer	Glue	toaster



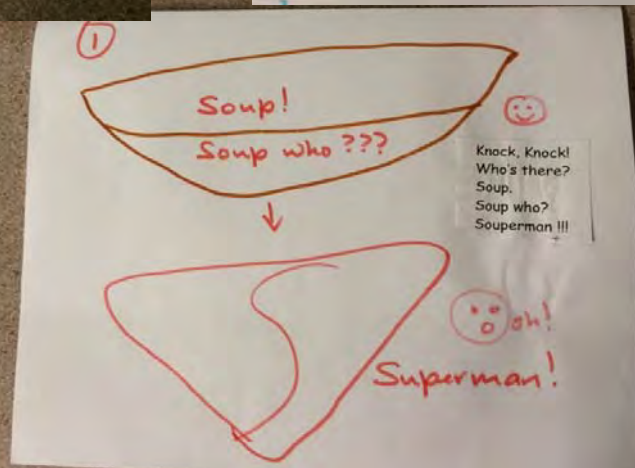
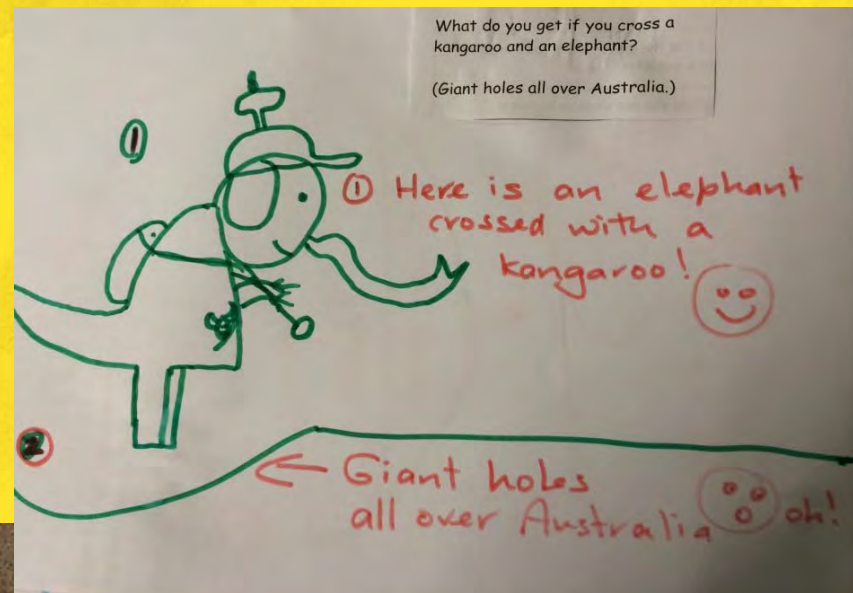
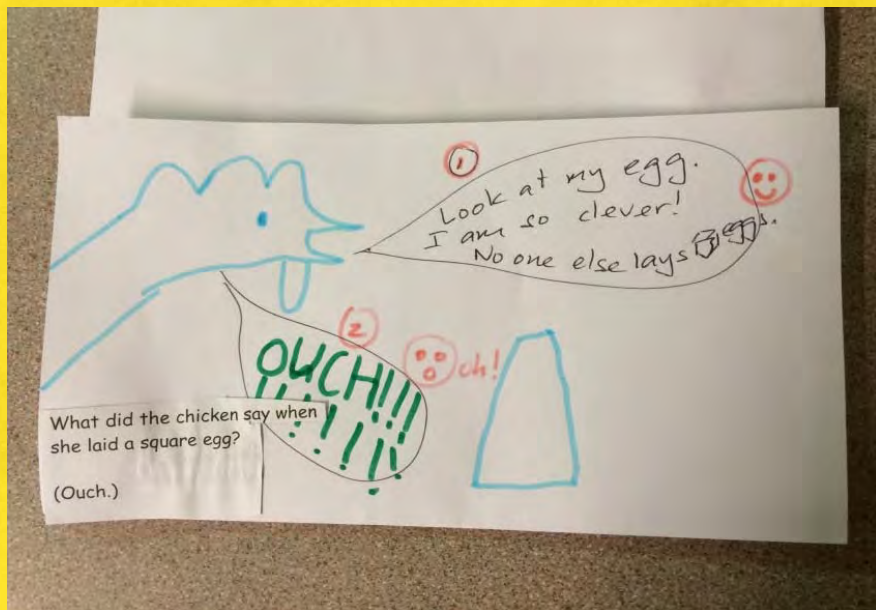
Make Language Visible

Inferential thinking develops more easily when thinking is visible:

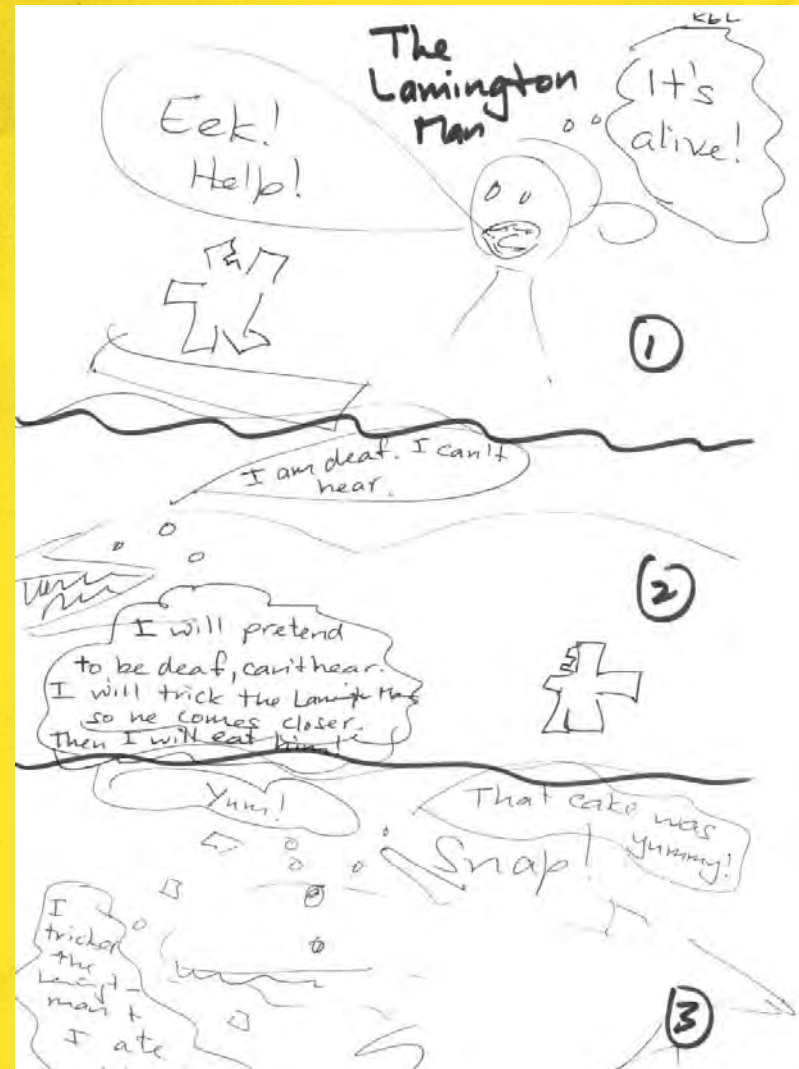
- Idioms: *On the Lines* vs *Between the Lines* views.
- Jokes: *Set-up* meaning vs. *Punchline* (Surprise!) meaning.
- Talking & Thinking bubbles for
 - Narratives.
 - Social scenarios.
 - Understanding subtle aspects of stories and situations.



Jokes: The Set-Up meaning vs the Surprise one



Talking & Thinking Bubbles



Proofread in 4 Stages

(to expand working memory x4)

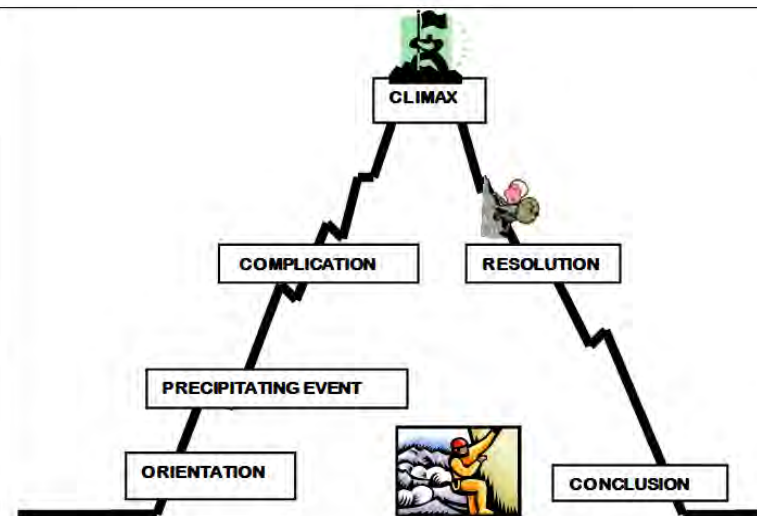
- Reduce cognitive load to build skills & confidence
- First two language-skill cycles then two editing cycles:
 1. M My Meaning
 2. G Grandma's Great words and sentences
 3. P Pig Punctuation
 4. S Stinks Spelling

Build kids' story-grammar (6-part narratives) verbally then move into 6-paragraph writing

- Kids master genre structure easiest as Talk Curriculum.
- Content load is low and processing capacity is high, because kids love talking about great stories & love giving their opinion.
- Parents & kids LOVE Story Mountain, & the 6 BIG words (& other big words: *Genre! Narrative! Author! Illustrator! Characters! Protagonist!*)
- Have fun discussions that build metacognition about enjoyed stories, e.g., *'What might have been the Precipitating Event in that story?'*

The 6 Parts of a Narrative

1. Orientation: Sets the Scene
2. Precipitating Event: Starts things off
3. Complication: The problem
4. Climax: Getting to the most exciting bit
5. Resolution: Solves the problem
6. Conclusion: A great ending



Have verbal fun with persuasive texts

- Use IBERT (or IRRI) as a reading response tool: kids deconstructing persuasive texts.
- Use IBERTS for morning talks, and just for fun, e.g., 'go out 5mins early if you persuade me VERY professionally!'

What pet shall the Jones get?

Sarah's Opinion
I think we should get a chook for a pet.
Chooks bite you when you pick them up, and they poo on the carpet if they get inside. It would be fun.
That's why I think we should get a chook for a pet.

The Jones family have decided to get a pet, and are trying to decide what pet to get. Here is what the children said.

Josh's Point of View
I think we should get a dog for a pet.
I think this because dogs are nice.
They play and you have fun with them.
And that's why I think a dog would be a good pet. Can we get one please?

Demi's perspective
D.O.G...?

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Be Persuasive: Use IBERT

I

'I' Statement (Thesis):

- 'I believe that ...'



B

'Because' Statement (Supporting Arguments):

- 'I believe this BECAUSE...'
- 'Another reason I believe this is that ...'

E

Elaboration & Examples:

- 'One example of this is...'
- 'Why, just the other day...'



R

Recommendations:

- 'I strongly suggest that...'
- 'I therefore recommend that...'

T

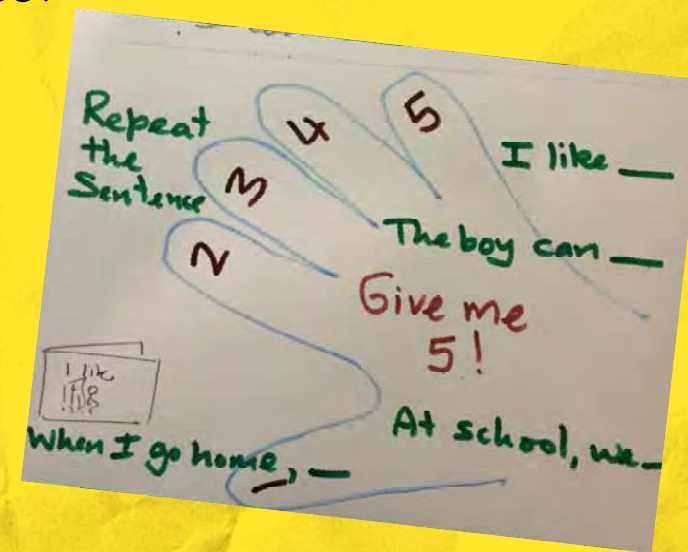
Tie it together: Repeat your thesis ('I' Statement):

- 'I know I have convinced you that ...'
- 'That's why I believe...'
- 'I am sure you will agree with me that...'



Use repeated sentence games as a fun powerful way to build strong sentence skills

- Repeated sentence games empower language building in all kids (low to high skills). I say my sentence, you say yours.
- Choose a sentence and make one section changeable.
- Don't correct too much: often your modelling & repeated practice kids get results in steady progress.
- Good scaffolds (subskills) for better sentences include:
 - 'Or' Questions: *'I go to the shop or I went to the shop?'*
 - 'Give me 5!' A finger up for each sentence, then do High 5.



Appreciate the emotional burden of struggling readers: Acquired Helplessness & depression

- A few instances of low success reduces healthy readers' success expectations, effort & persistence (Hole & Crozier 2007)
- In healthy learners, putting easy questions after hard ones results in low scores, frustration, & attributions of learned helplessness (Firmin et al., 2004).
- With short-term failure having strong effects, weak readers who experience ongoing low success often feel crushed.
- Acquired Helplessness is VERY common in weak readers - AH: 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

'Teach to the child's eyes!' monitoring cognitive load & using microsteps

- We've discussed a lot of strategies today.
- None of them are foolproof 'Do this using Steps A, B & C.'
- We have to carefully tweak instruction 'in the teaching moment' according to the child's level of confidence.
- This will vary from day to day and (for low confidence children) from teaching moment to teaching moment.
- 'Teach to the child's eyes!' means look to check that the child is confident and learning well. If you see low confidence or the child is struggling, quickly modify the task so it works for the child.
- Make 'Teaching to the Child's Eyes' a professional goal. It takes a while to be confident and skilled at doing it, but it makes all the difference for young and struggling readers.

How we teach effectively:

- We are reflective: We think a lot during and between lessons -
 - We monitor progress and attitude:
 - How far have we moved since we started?
 - What was easy, hard, scary, stressful?
 - We plan: How can I make that easier?
Maybe I'll try ___ next time.
- We teach: we implement what we've decided on, then we think & plan again.

Let's focus on managing cognitive load effectively both

1. **NOW:** Using strategies that reduce cognitive load to a certain extent.
2. **THE FUTURE:** Researching 10 Change issues and areas to create a future of low cognitive load across literacy development



Managing cognitive load effectively makes a massive positive difference

When instruction and intervention is focused on keeping cognitive load at manageable level, practitioners will increasingly think of and develop useful high-gain strategies which keep cognitive load low, whilst building powerful skills used across multiple aspects of literacy.

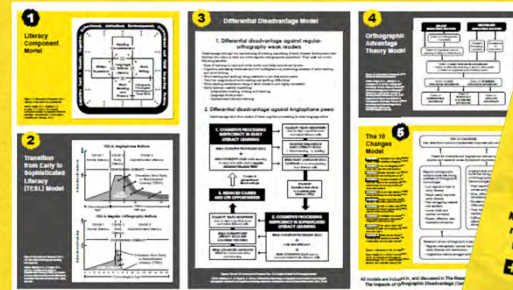
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- Posters, resource files, videos at www.susangalletly.com.au
- Articles, etc at researchgate.net
- Literacy Plus videos, modules at www.literacyplus.com.au

Let's Optimise Early Literacy! Watch the poster video explanation!



The High Cost of Orthographic Disadvantage

Orthographic complexity dictates how hard it is to learn to read and write. English is one of the world's hardest orthographies - it's damaging for at-risk children. Most nations use highly regular spelling - their at-risk children have strong success.

What's an orthography? The spelling system a nation uses.

Kid in regular orthography nations take just months to read and spell well. Many have adult-level accuracy from grade 1.

vs

Kids in Anglophone nations take 2-6-9 years to read and spell well. Many children & adults have major difficulties.

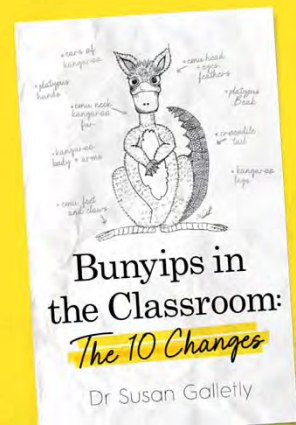
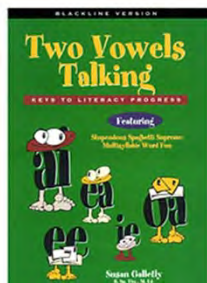
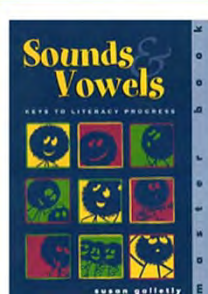
Orthographic Impact	Awsome Systems (Dated)	Awful Fontaines (US)
EARLY LITERACY DEVELOPMENT	• Easy & Rapid • Low Cognitive Load	• Confused & Slow • High Cognitive Load
TEACHING AND LEARNING	• Minimal Difficulties • Maximized Literacy	• Maximized Difficulties • Minimized Literacy
SCHOOL EFFICIENCIES	• Few Rich Schools • Low Referral Needs	• Many More Poor Schools • Very High Referral Needs
ACADEMIC LEARNING	• Comprehensive • Subject Learning	• Impaired Learning

How can Australia fix this?

Do as Taiwan, Japan and China do and implement a beginner orthography that's changed to the 10-20 with overwhelming success!

If research lined We need to replace English beginner orthographies, e.g. 60 and Recept!

For more information visit www.susangalletly.com.au



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