Exploring Australia's Potential Towards Optimising Language, Learning and Life

Dr Susan Galletly

SEPLA-CON 2023 National Conference
Change, Challenge and Choice
Sydney, Tuesday 18 July, 2023

Dr Galletly's SEPLA-CON Presentation Files:

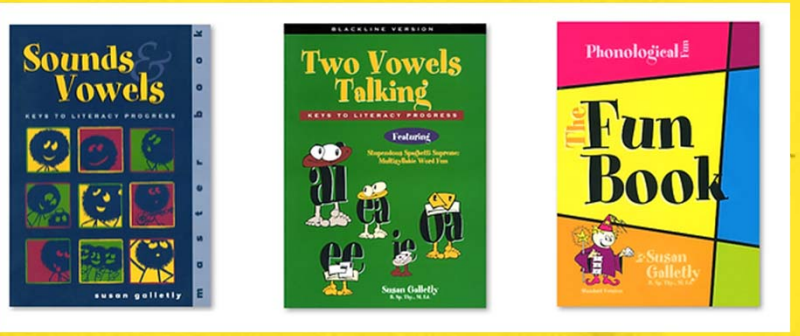
Handouts for 2 Sessions & Poster at www.susangalletly.com.au

1. Poster: The High Cost of Orthographic Disadvantage

2. Session (Mon 11.05am): **Optimising Cognitive Load & Cognitive Processing for At-Risk & Struggling Readers**

3. This session (Tues 2.20pm) **Exploring Australia's Potential Towards Optimising Language, Learning and Life Outcomes**

Chat with Susan: Afternoon Tea: Pro-Ed Australia display



Conference Poster – We've Severe Orthographic Disadvantage

Check out the video of the poster at susangalletly.com.au

Download its handout.

Q: Why is it so hard for so many Aussie children to master reading & writing?

It's all about cognitive load vs cognitive processing

A: We're hit with a massive 'cognitive load crash' of the high cognitive load of learning to read against the low cognitive processing skills of young Aussies, especially those with major risk factors!

- English's complex orthography (26 letters, 44 sounds, >>560 spelling patterns) means learning to read words (a) has VERY high cognitive load and (b) makes massive demands on our children's processing skills.

- We start teaching reading when our kids are very young: 4.5-5yrs.
- Processing capacity is v. small then, esp. if kids are anxious.
- Overwhelmed kids 'give up' (feel incapable), making learning harder.

Our children need strong cognitive-processing skills

- Because English is such a complex orthography, it places very high demands on children's cognitive-processing skills (working memory, etc).
- Most at-risk children (including children with disabilities) have weak cognitive-processing skills:
- They're greatly disadvantaged by this need for strong cognitive processing skills

Let's briefly review this session's abstract

Why does Australia have
*1. An **epidemic** of language-skills and literacy weakness, and*
*2. Continuing **low literacy outcomes**?*

*Why do **children** with major communication and learning disabilities so often **miss out** on optimally funded school and NDIS supports?*

… this session's abstract

While many factors are involved,
little ***attention*** *has been paid to*
1. The very major impacts of
English ***orthographic complexity****, and*
2. The weak ***cognitive-processing*** *skills of*
children aged 4.5 to 5.0 years,
on ***early-literacy development****,*
teaching pressure *and*
difficulties achieving improvement.

… this session's abstract

Nations differ *in orthographic complexity (spelling regularity), & thus* ***ease of learning*** *to read and write.*

Many nations, e.g., Finland, use ***highly-regular*** *orthographies.*

Learning to read and write is ***rapid*** *and easy, and word-reading and spelling difficulties are* ***minimal****.*

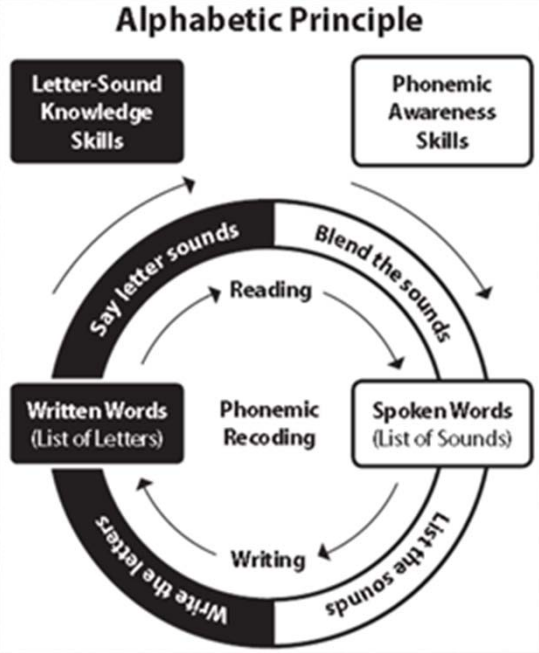
What's an orthography?

A spelling system!

Nations choose the orthographies they use.

Ours is excessively complex; other nations use highly-regular orthographies.

Regular orthographies have 1:1 matching of letters and sounds, so there's very little to master to learn to read and write



Fleksispel - Stage 1

Wuns upon u tiem thair wer three litul pigz hooo livd in u kotuj with thair muthu.

Wun dae muthu pig sed tooo her kidz, 'It's tiem 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, hooo gaev thu litul pig az much stror az woz wontud.

41 Grapheme-Phoneme Correspondences (GPCS)

19 Vowel GPCS				22 Consonant GPCS					
ae	*maet*	**ar**	*mart*	**b**	*bat*	**n**	*nat*	**sh**	*shat*
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**	*tat*		
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)*								

Most nations use regular orthographies.
English spelling is so complex that researchers consider it an outlier on the continuum of orthographic complexity.

	No of letters	No of sounds	No of Spelling Patterns (GPCs)
English	26	44	>>560 - >1100
Finnish	23	23	23
Italian	22	25	33
Korean	24	24	~24
Welsh	29	29	~29

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

- Their main orthography is hugely complex, but they succeed brilliantly, by using 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.

Taiwan, Japan & China are great role models!

… this session's abstract (continued)…

In strong contrast, high orthographic complexity ***impedes*** *English early-literacy development, making it extremely* ***slow****, with* ***difficulties*** *far more frequent and far more severe.*

Regular-orthography *delayed word-readers* ***catch-up****, while Anglophone children, schools, and education in general,* ***struggle****.*

… this session's abstract

*This session explores **research** showing the impressive **ease** of regular-orthography early literacy, and Anglophone nations' **struggles**, e.g.,*

- ***Far slower** reading and writing development, e.g., **31%** vs 90-98% word-reading accuracy at end-Grade 1 for **English** vs regular-orthography children of ten European nations (Seymour et al., 2023).*

… this session's abstract

- *Intellectual disability having **minor** vs major impacts on **regular-orthography** vs English readers' word-reading (Cossu et al., 1993; Poskiparta et al., 1999).*

- ***Impressive effectiveness** of regular-orthography early-literacy **intervention** (Hanley et al., 2004; Landerl et al., 1997; Poskiparta et al., 1999), vs **low effectiveness** of English interventions (e.g., Torgesen et al., 1997).*

… this session's abstract

- ***Markedly low*** *ranges and standard deviations in* ***regular-orthography*** *cohorts of word-reading studies,* ***contrasting*** *with* ***particularly high*** *English ranges and standard deviations, with indications regular-orthography* ***'weaker' readers*** *read better than* ***at least half*** *of English readers.*

… this session's abstract

The session also explores the relevance and potential of Galletly's (2022, 2023, In press) ***10 Changes****:*

1

Understand how orthographies matter: English spelling is dragging us down.

2

Own our struggling reader woes: End hypocrisy and pretence.

3

Weigh workload: Our children and teachers are working far too hard.

4

One-size education does not fit all: Teach to the decidedly different instructional needs of upper-third and lower-third readers.

5

End our data deficiency:
Build strong knowledge
on word-reading levels.

6

Enrich every child: Ensure effective supportive tailored education.

7

Insist on easy literacy development: Reach regular-orthography nations' achievement levels.

8

Investigate the potential of fully-regular beginners' orthographies: They're winners.

9

Play to learn first: Start Standard English word-reading instruction from mid-Year 2.

10

Build needed research knowledge as quickly as possible: Use collaborative school-based research.

Research is needed!

- If you've ever thought on doing Masters or Doctoral studies, please consider potential studies in this area.
- It's a neglected area, so there are a myriad of easy studies which can be done.
- *100 Research Questions* is the final chapter of *The Research Tours*, and those 100 are just examples of potential studies.

… this session's abstract (Conclusion)

We are a ***nation***
in need *of major improvement.*

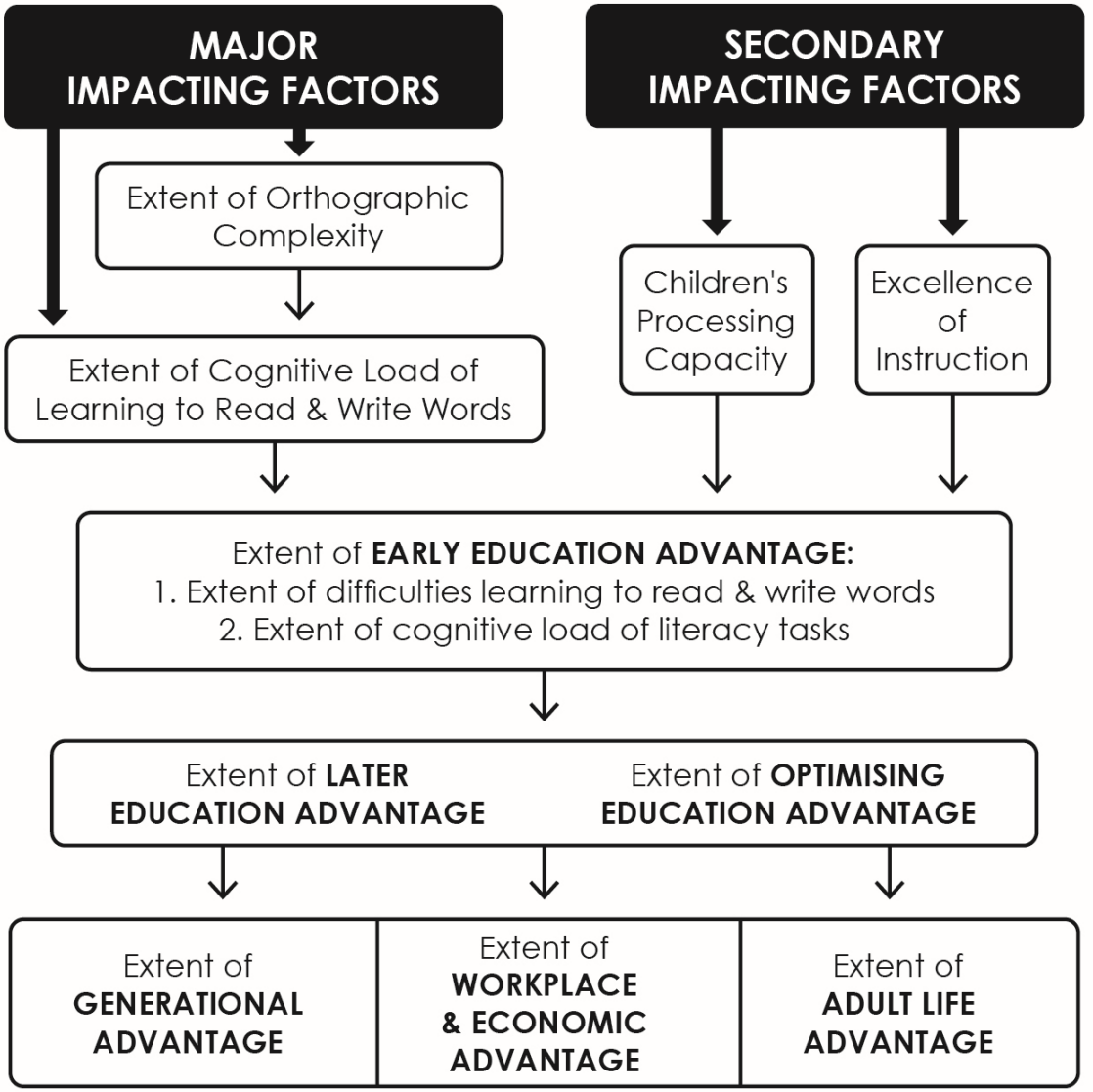
Fortunately,
working strategically,
we are ***also*** *a nation*
with ***excellent potential***
for improvement.

End of abstract


The 10 Changes
The future is bright. Let's move there!

Orthographic Advantage & Disadvantage impact the child, teacher, school & 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.



Q: So why is it so hard for so many Aussie children to master reading & writing?

It's all about cognitive load vs cognitive processing

A: We're hit with a massive 'cognitive load crash' of the high cognitive load of learning to read against the low cognitive processing skills of young Aussies, especially those with major risk factors!

Q: Who are most disadvantaged?

A: Our most vulnerable Aussies: our children & adults with weakest cognitive processing skills, e.g., those with intellectual disability, language disorder, autism, AD/HD.

Q: Is this fair? Is it ethical?

A: **? ? ? ?**

Learning to read English has too high cognitive load & cognitive-processing demands

- **Cognitive load** = the amount we have to think on and process at any one time, and over time.
- **Cognitive-processing** = the skills we use in thinking about and processing information.
- **Cognitive load and cognitive processing work in tandem:**
  - Easy learning creates low demands for efficient cognitive processing.
  - Complex learning creates high demands.
- **The Cognitive Load Rule** = For learning to be effective,
  - Content Load + Task Load < Children's Processing Capacity (their working memory & cognitive processing efficiency)

Let's now consider useful research studies.

Read more about these studies and lots more in

- The handout for this presentation: it includes these slides, additional slides, plus I've attached the handout of a keynote I did for an American organisation.
- My recently released book, *The Research Tours: The Impacts of Orthographic Disadvantage*.
- Download Knight, Galletly & Gargett (2017a) *Managing cognitive load as the key to literacy development: Research directions suggested by crosslinguistic research and research on Initial Teaching Alphabet (i.t.a.)* from ResearchGate.
- Watch my 2021 keynote presentation exploring research & its implications at **itafoundation.org/conferences/**

Seymour, Aro, & Erskine (2003). *Foundation literacy acquisition in European orthographies*.

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

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

Seymour, P. H. K., Aro, M., & Erskine, J. M. (2003). Foundation literacy acquisition in European orthographies. *British Journal of Psychology, 94*(2), 143-174.

The study is discussed in

- Knight, B. A., & Galletly, S. A. (2017). Effective literacy instruction for all students: A time for change. *International Journal of Innovation, Creativity and Change., 3*(1), 65-86.

& in Tour 1 of

- Galletly, S. A. (2022a) The Research Tours: The Impacts of Orthographic Disadvantage. Vol. 2. *Aussie Reading Woes*. Mackay, Qld, Australia: Literacy Plus.

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**	- -

Spencer & Hanley's studies of Welsh & English cohorts, all aged 5 years in Grade 1.

	Regular-Orthography Cohorts	Standard English Cohorts
2 **Welsh vs English Word-Reading Development** - Tour 2	**Learned to read Welsh:** Much stronger word-reading in Grades 1, 2 & 5. Strong phonemic awareness from Grade 1. Very few weak readers.	**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

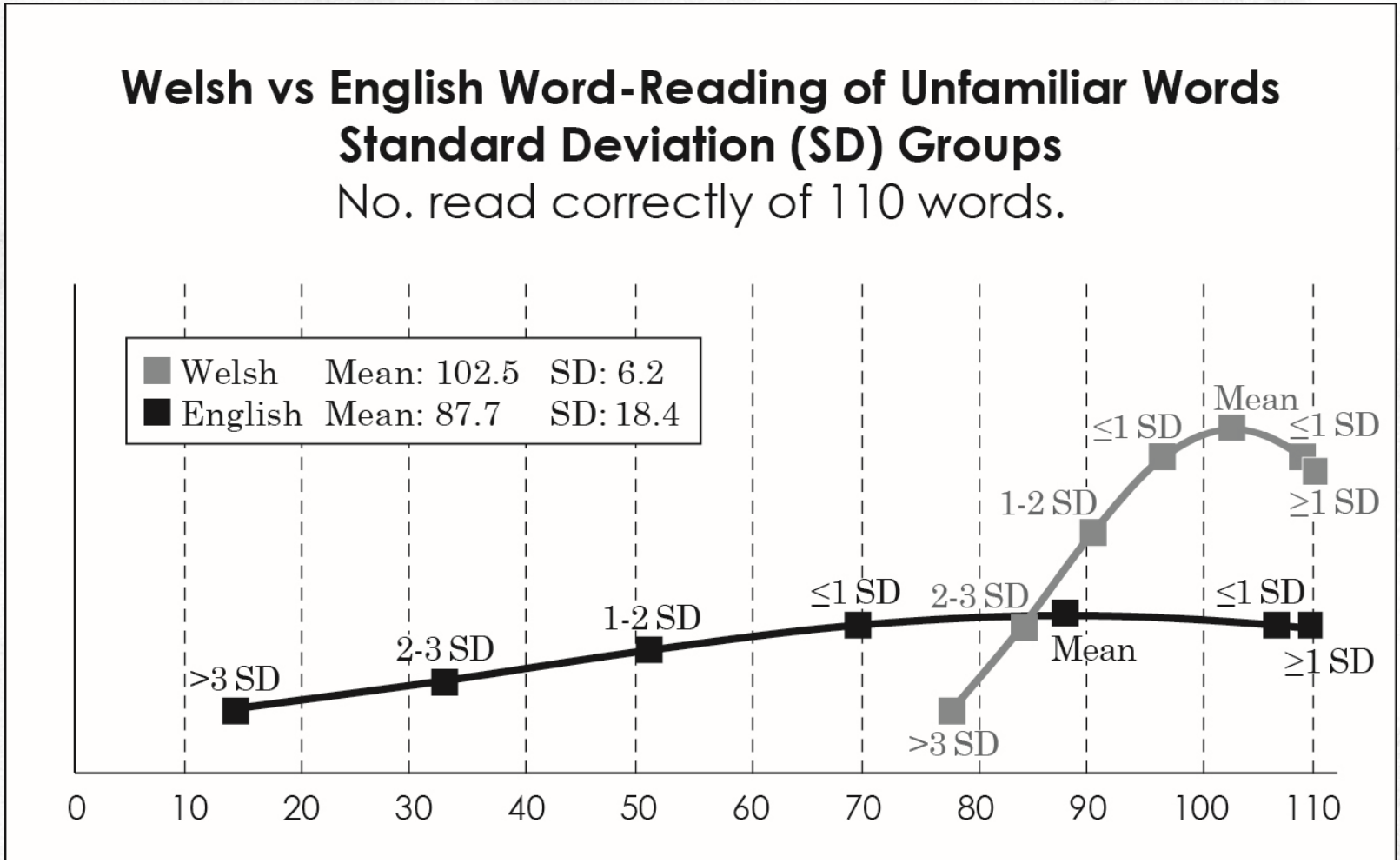
(Spencer & Hanley, 2003, 2004, Hanley et al., 2004)

2

Grade 5 word-reading in Hanley et al. (2004)

Alarming spread of English weak readers: our long sad tail!

Very few weak Welsh readers



Italian Vs English Readers with Down syndrome

	Regular-Orthography Cohorts	Standard English Cohorts
3 **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)

3 Italian Vs English Readers with Down syndrome

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.'

German Vs English Weak Word-Readers

4	Regular-Orthography Cohorts	Standard English Cohorts
German Vs English Weak Word-Readers - Tour 13	Highly accurate reading of both real words and unfamiliar words. Read 3-syll pseudowords (*quaduktrisch, miktanie)* highly accurately, better than the English cohort could read 1-syll pseudowords (*foo, bish*).	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).

(Landerl, Wimmer & Frith, 1997)

Finnish Vs English Response to Intervention

5

	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 5 .	Even with highly intensive, ongoing intervention, most children make gains, but not to age-level, and an appreciable number make very limited progress.

(Lyytinen, 2023, Lyytinen et al., 2021; Torgesen et al., 1997)

Initial Teaching Alphabet Vs Standard English Cohorts

6	Regular-Orthography Cohorts	Standard English Cohorts
Word-Reading Development **ITA vs Standard-English Cohorts** - Tour 5	Results very much in keeping with more recent studies of children in regular-orthography nations. Reading & writing developing much faster & more easily. Transitioning done easily. Very few weak word-readers. Teacher workload lowered, as children were confident independent readers.	Results very much in keeping with more recent studies: Much slower early literacy development. Large numbers of struggling readers, many with severe difficulties. Teachers very busy supporting children's reading & writing.

(Downing, 1969a, 1969b; Mazurkiewicz, 1971, 1973; Warburton & Southgate, 1969).

There is MASSES!!!! of ITA Research,
e.g., visit https://eric.ed.gov/ & google Initial Teaching Alphabet.

Dig deeper when you see articles criticizing ITA. You'll find hearsay, with no exploring of the ITA research.

Let's explore one giant ITA study of American children

- Mazurkiewicz (1971, 1973) reports on the
  11 year study of 14,000 Pennsylvania children,
  half in ITA classes and
  half in Standard-English classes.
- The findings are highly in keeping with other ITA studies (e.g., Block & ITA Foundation, 1968; Downing, 1969a; Warburton & Southgate, 1969).

ITA was highly effective with at-risk children

Mazurkeiwicz (1971) discusses

- Three times more Standard-English children repeating a year-level due to low achievement.
- Twice as many Standard-English children receiving remedial intervention, and
- Definite differences in remedial needs, with
  - ITA children needing support only with comprehension but not word-reading, but
  - Standard-English children needing intervention in both areas.

ITA children were much stronger readers

- Eight months into Grade 1, only 6% of the Standard-English cohort were reading above grade level, e.g., reading Grade 2 or 3 reading materials.
- The ITA cohort were far ahead:
  - The top 25% of children were reading Grade 3 reading materials.
  - The middle 50% of children were reading Grade 2 reading materials.
- 15% were reading Grade 1 (grade-level) reading materials.
- Some delayed readers: 11% reading below Grade 1 level.

ITA children were much stronger writers

"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 than do children learning the traditional alphabet.

They write alone, without help or editing from teachers, sounding-out their own spellings and using any words they feel like using in any sentence pattern that occurs to them."

Workload was reduced & teaching empowered

- *Other observations indicate that the first-grade teacher's complaint about "what to do with the other children when working with one group" seems no longer to be a problem in ITA classes….*
- *While learning may start with whole class activity, this disappears in a short time in favor of individualized activity based on the rates of learning of individual children.*
- *The range of ability begins to show itself and the teacher finds himself working with individuals within groups.*
- *The teacher with many years' experience in first grade feels that an ITA approach answers the first-grade teacher's cry [that] "there must be an easier way of teaching reading."*

The facts are in: We're mismanaging English orthographic complexity rather badly

- The problem is not English orthographic complexity.
- It's how we manage that complexity for beginning readers.
- By Taiwanese, Japanese and Chinese standards, we mismanage it appallingly.
- In times past they had excessive struggling readers and illiterate adults.
- Then they added in ITOs: Taiwan's Zhuyin Fuhao, Japan's Hiragana & China's Pinyin.
- Now they have very few struggling readers and widespread high literacy.
- That evidence has been there since the 1950s: The ITA research grew out of awareness of the major progress Asian nations were achieving.

ITA and Sadly-Missed Opportunities!!!

- The ITA research ended when Whole Language swept the world, with meaningful reading planned to end our reading struggles.
- How tragic it is that Whole Language didn't embrace ITA.
- After all, struggling word readers and time pressure are the big rocks Whole Language crashed against.
- Whole Language + ITA would have been a winning combination:
  - Few word-reading and spelling difficulties.
  - Rapid easy early literacy development.
  - Schools time-rich and teacher workloads very manageable.
  - Ample time for great literacy and learning enrichment.

(Galletly, 2022b)

Beginners' orthographies are a strong solution

- Children cope vastly better
  using two orthographies
  when the first is fully-regular,
  than they do,
  learning a single,
  highly-complex orthography.

Few children have word-reading difficulties and most difficulties are minor by Anglophone standards

Levels of word-reading and writing difficulties in Japanese children (Uno et al., 2009):

- Hiragana: 0.2% with reading difficulties,
  1.6% with writing difficulties.
- Katakana: 1.4% with reading difficulties,
  3.8% with writing difficulties.
- Kanji: 6.9% with reading difficulties,
  6% with writing difficulties.

We'd love those low numbers!

We don’t need spelling reform but we’d benefit hugely by using a beginners’ orthography before Standard English

- We’d use Taiwan, Japan & China as role-models for 2-Stage early literacy.
- e.g., Fleksispel: my free-to-use fully-regular English beginners’ orthography.
- Very low content load & cognitive load for beginners and struggling readers.
- Available free for non-commercial use to educators & researchers.

Fleksispel - Stage 1

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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**	*tat*		
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)*								

‘*Change, Challenge and Choice*’:

a provocative conference title!

'*Change, Challenge & Choice*' is a provocative title!

- ***The Challenge: To build reading & writing in beginning readers as quickly as many other nations do! To manage cognitive load well!***
- **An Ethical & Instructional Challenge:** Children in so many other nations develop reading and writing skills so much more easily and rapidly than our children do, by using only highly-regular spelling when children first learn to read and write.
- **Taiwan, Japan, China & Korea are our role models**: They added in beginners' orthographies in the 1940s-50s, e.g., Pinyin &Hiragana.
- **They optimise cognitive load and cognitive processing magnificently for their at-risk and struggling readers.**
- **Our best efforts don't come close!**
- **Is that fair? Is it ethical? Are our children entitled to easier learning?**

The Challenge for Change:
Should Australia Move to 2-Stage Early Literacy?
Research is needed!

- **We do 2-Stage early-literacy for handwriting: Printing Cursive.**
- **We probably should also do it for reading and writing.**
- **Taiwan, Japan, China & Korea are our role models, for:**

  1. 2-Stage early literacy: used for >6 decades, with outstanding success.

  2. Showing the enormous power of
  (a) lowering cognitive load, and
  (b) reducing demands for strong cognitive-processing skills.

Let's Research 10 Changes areas

Change 1. *Understand how orthographies matter: English spelling is dragging us down.*

Change 2*. Own our struggling reader woes: End hypocrisy and pretence.*

Change 3*. Weigh workload: Our children and teachers are working far too hard.*

Change 4*. One-size education does not fit all: Teach to the decidedly different instructional needs of upper-third and lower-third readers.*

Change 5*. End our data deficiency: Build strong knowledge on word-reading levels.*

Let's Research the 10 Changes!

Change 6. *Enrich every child: Ensure effective, supportive, tailored education.*

Change 7. *Insist on easier early-literacy development: Reach regular-orthography nations' achievement levels.*

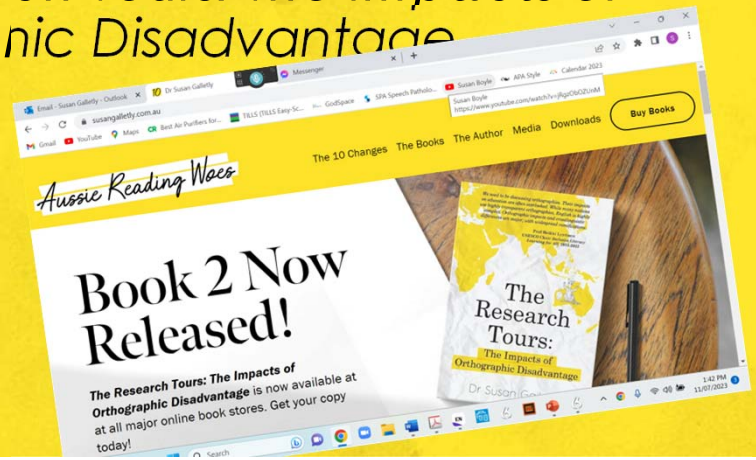
Change 8. *Investigate the potential of fully-regular beginners' orthographies: Research shows they're key.*

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

Change 10. *Build needed research knowledge as quickly as possible: Use collaborative school-based research.*

For more on that challenge: www.susangalletly.com.au

- Handouts for SEPLA-CON sessions & poster.
- Galletly & Knight research publications:
  - Download free from ResearchGate.
- Poster:
  - *The High Cost of Orthographic Disadvantage.*
  - *See video & slides at susangalletly.com.au.*
- Books:
  - *Bunyips in the Classroom: The 10 Changes*
  - *The Research Tours: The Impacts of Orthographic Disadvantage*



The 10 Changes

> “That child development and education across Australia might be eased and enhanced.”

- **Dr Susan Galletly**