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Using the Science of Language and Reading to ensure success for all students

Speech Pathology for Schools Conference
September 21, 2020

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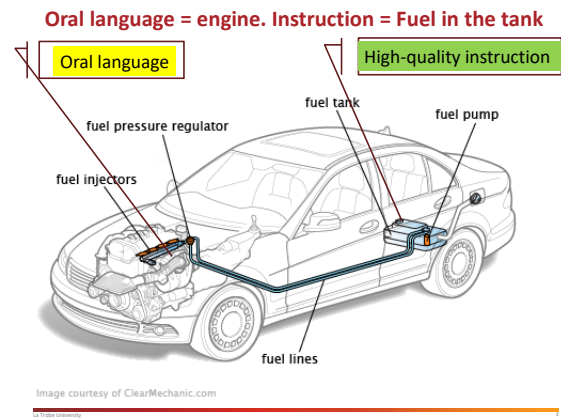
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CRICOS Provider 00115M

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In this presentation

- Oral language and oral language competence
- Spoken Vs written language
- Discourse level skills
- Vocabulary and the lexical bar
- English orthography
- Frameworks for thinking about reading
- Orthographic mapping
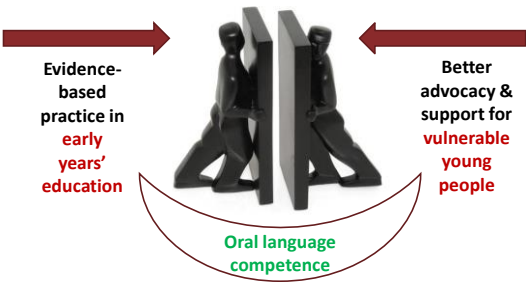- The importance of knowledgeable teachers and support staff

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Oral language = engine. Instruction = Fuel in the tank

Oral language

High-quality instruction

fuel tank

fuel pump

fuel pressure regulator

fuel injectors

fuel lines

Image courtesy of ClearMechanic.com

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Knowing about language matters across the entire curriculum

Evidence-based practice in **early years' education**

Better advocacy & support for **vulnerable young people**

Oral language competence

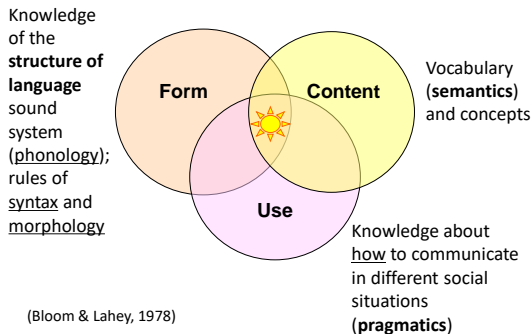La Trobe University

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ORAL LANGUAGE ?

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ORAL LANGUAGE ?

Everyday talking (expressive) and listening (receptive / comprehension) skills and the mental representations that sit behind them

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Language consists of many component skills

Knowledge of the **structure of language** sound system (<u>phonology</u>); rules of <u>syntax</u> and <u>morphology</u>

Form

Content

Vocabulary (**semantics**) and concepts

Use

Knowledge about <u>how</u> to communicate in different social situations (**pragmatics**)

(Bloom & Lahey, 1978)

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"Language is a dynamic human creation and, thus, inherently a bit of a mess".

(McKeown, 2019, p. 467)

I know I'm a bit of a mess

But I swear I'm doing my best

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Language entails both surface (literal) and deep (non-literal or figurative) meanings

▶ Similes
▶ Metaphor
▶ Idiom
▶ Jokes
▶ Sarcasm
▶ Analogy
▶ Irony
▶ Satire
▶ Parody
▶ Politeness conventions

LOL!
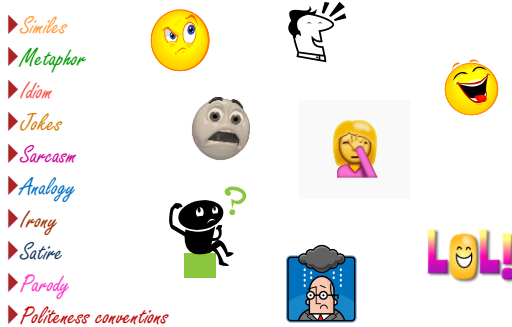
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Metaphors in written text

Well, you keep away from her, cause she's a rat-trap if I ever seen one. Of Mice and Men, John Steinbeck

The past is a foreign country. They do things differently there. The Go-Between. L.P. Hartley.

The sun was a toddler insistently refusing to go to bed: It was past eight thirty and still light. The Fault in Our Stars, John Green

Memories are bullets. Some whiz by and only spook you. Others tear you open and leave you in pieces. Kill the Dead, Richard Kadrey

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Fast Forward: **Inferencing in <u>reading</u>**

Jane was annoyed. How many times did she need to remind her adolescent children about the importance of locking the house before going out? She knew one of the first questions the police would ask would be whether she was insured. Now *that* was going to be a fun conversation with Brad – if he would even answer her call.
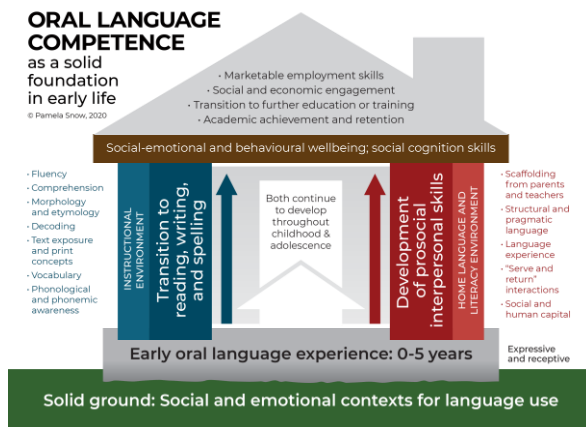
What hypotheses have you formed about information not directly stated?

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Some possible inferences: to be noted and tested by a skilled reader

➢ Jane has been burgled
➢ She has teenage children who sometimes don't lock the house properly when they go out
➢ She has been addressed this with them previously
➢ Her insurance is possibly not up to date
➢ Her husband/partner is probably someone called Brad
➢ Jane and Brad may not be on very god terms at the moment

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Slide 13

ORAL LANGUAGE COMPETENCE as a solid foundation in early life
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- Marketable employment skills
- Social and economic engagement
- Transition to further education or training
- Academic achievement and retention

Social-emotional and behavioural wellbeing; social cognition skills

- Fluency
- Comprehension
- Morphology and etymology
- Decoding
- Text exposure and print concepts
- Vocabulary
- Phonological and phonemic awareness

INSTRUCTIONAL ENVIRONMENT — Transition to reading, writing, and spelling

Both continue to develop throughout childhood & adolescence

Development of prosocial interpersonal skills — HOME LANGUAGE AND LITERACY ENVIRONMENT

- Scaffolding from parents and teachers
- Structural and pragmatic language
- Language experience
- "Serve and return" interactions
- Social and human capital

Early oral language experience: 0-5 years — Expressive and receptive

Solid ground: Social and emotional contexts for language use

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Slide 14

Language consists of…….

Sounds – the first thing that babies can produce:
- Crying, squealing, cooing, babbling – all are <u>communicative</u> (serve and return)

Words & word parts

Phrases

Sentences

Connected talk (discourse):
- ✓ Conversations
- ✓ Narratives (stories)
- ✓ Explaining things
  - procedures (how to….), rules
  - teaching about topics (e.g. planets)

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Slide 15

Language has many layers

- ❖ Structural / Literal
- ❖ Figurative / Non-literal
- ❖ Discourse
- ❖ Metalinguistic
- ❖ Pragmatics

<u>All</u> are relevant to the transition to literacy and ongoing achievement of competency in reading, writing, and spelling.

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Slide 16

There are large population-level differences in children's pre-school language exposure as a function of SES.
BUT

Not all low SES families provide linguistically under-nourishing environments

Not all high SES families provide linguistically enriched environments

Language skills are related to <u>human and social capital</u>, not just economic capital

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Slide 17

Language is a paradox

- ❖ Humans have evolved a special facility for oral language (a "language instinct"), such that it is innate **BUT**
  - o It is highly vulnerable to a range of <u>developmental conditions</u>, e.g. hearing impairment, intellectual disability, autism spectrum disorders, brain injury;
  - o It is highly sensitive to <u>environmental exposure</u>.

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Slide 18

SES-based language differences in pre/early-school years mean that instructional approaches and interventions need to <u>accelerate</u>, <u>not just promote</u> early language and literacy skills if children are to succeed academically

(Roy & Chiat, 2013)

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Slide 20

**Oral language Vs written language:
Same, same but different**

Oral language

- **Often interactive (co-constructed)**
- **Contains pauses, hesitations, dysfluencies; false starts**
- **Constrained by social conventions (pragmatic rules)**
- **Degree of formality varies**
- **Punctuation implied by prosodic contour**
- **Conversational partners try to promote mutual understanding / communication success**

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Slide 21

**Oral language Vs written language:
Same, same but different**

Written language

- **Typically more formal but this varies according to genre**
- **Pauses, hesitations, dysfluencies, false starts removed (unless in quotes)**
- **Syntactic complexity may be greater than spoken language**
- **Contains punctuation to aid with understanding**
- **Spelling and grammar can change meaning**

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Slide 22

The transition to literacy....

- Is not biologically primary ('natural') – requires specific and prolonged instruction;
- Reading is a very recent development in evolutionary terms (about 6000 years).
- Builds directly on oral language competencies acquired before school entry;
- **Requires explicit instruction**
- Promotes
  - ✓ academic achievement,
  - ✓ school attachment and retention,
  - ✓ positive self esteem
- An important protective factor

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Slide 23

A word about English orthography

- English has a history of being a bower bird
  - ➤ Wars, trade, politics, plagues, and religion have all resulted in the appropriation of words from other languages
- When early scribes first started writing language down, there was little uniformity in how they chose to represent sounds (phonemes) using letters (graphemes)
- Today, English has a semi-transparent orthography
- It is rule-governed, not "random"
- Knowledge of morphology and etymology helps to de-mystify orthographic conventions
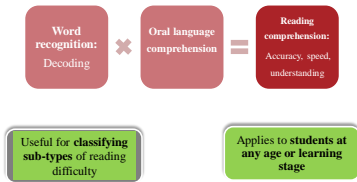- De-emphasised in teacher pre-service education in recent decades

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Slide 24

Unlocking reading comprehension: getting to the meaning treasure (Alison Clarke via Maria Murray)
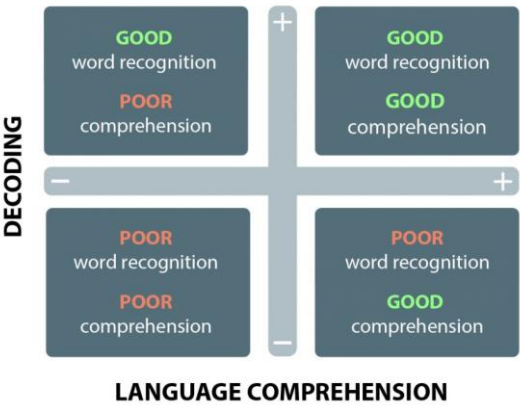

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THE SIMPLE VIEW OF READING (Gough & Tunmer, 1986)

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The Cognitive Foundations Framework

Figure 1 presents the overall Cognitive Foundations Framework. In presenting the Framework, we need to note two restrictions. First, the Framework is concerned with
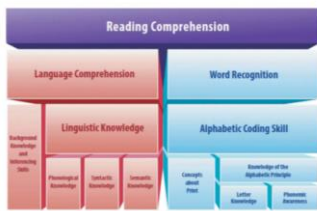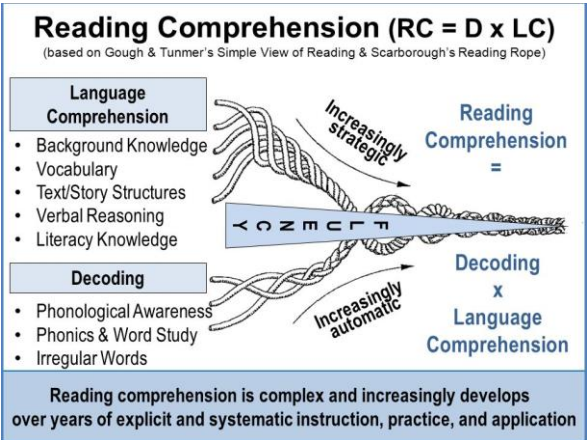

Figure 1. The cognitive foundations framework.
Source. Graphic from Hoover and Tunmer (2019).

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## Orthographic Mapping

Orthographic?

Ortho = correct, right

Graphic = pertaining to writing

Hence, "orthographic" = **correct written representation of a word**

The goal of progress in reading is for **all words to become sight words**, such that they are instantly and **automatically recognised**.

Explicit and systematic phonics instruction plays a role in this by reducing effort (**cognitive load**) and enabling **self-teaching** of new GPCs

When a child has a word "**orthographically mapped**" she can

- ✓ Recognise it
- ✓ Pronounce it
- ✓ Spell it

Meaning is stored in longterm memory
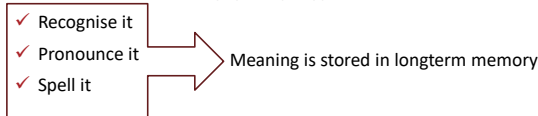
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Sight words?

Sight words are an **end-point** of effective instruction rather than a teaching input, with a small number of exceptions for high-frequency words that have GPC "irregularities", e.g.

the, some, my, was, of, said – to support early success with **decodable texts**

BUT – the structure of such words should still be discussed with and explained to children at a sublexical level.

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How quickly can you learn these sight words?

☝☞◆
☝☐♏
☝☐○♏
☝☐
☝☐○♏
☝♏■◆
☝☞♓♌
❄♒♏▣
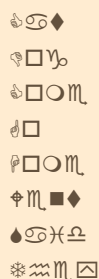
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How quickly can you learn these sight words?

Cat
Dog
Come
Go
Home
Went
Said
They

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ALL children need to learn to decode.
Most need to be taught to do so very explicitly

1. **English is a morpho-phonemic language**
2. **Phonics is a necessary but not sufficient skill-set for all children**

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Children's mastery of language (and hence reading comprehension) is supported by early and ongoing vocabulary development

- Vocabulary = **our store of words**
- More words = more **background knowledge** to bring to conversations and later, to reading
- Vocabulary size promotes **shades of meaning** and shades of **understanding**
- Children need **repeated contextual exposure** to learn and retain new words
- Vocabulary is a strong **predictor of reading success** on school entry

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On their own, oral language skills do not turn a good talker into a good reader

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Oral language abilities ⇄ Reading abilities
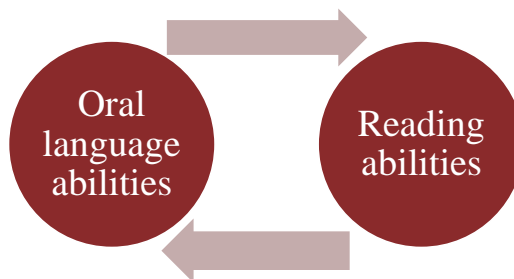
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Vocabulary growth: a closer look

Pre-school years

Mainly from **oral language** interactions: conversations, stories (spoken and being read to), song, rhyme

Context is vital – physical surroundings, activities, gesture, eye contact, pointing, intonation

Scaffolding from adults who monitor in real time whether child understands and explain/re-word etc.

Lots of **repetition**

Store of **Tier 1** words is built this way

School years

Vocab expansion becomes more reliant on children's **own reading**

Everyday conversations do not provide enough opportunities for **Tier 2** vocab development

Writers convey meaning through words. It is **not their job to explain what words mean**. Context is less helpful in discerning word meaning but is critical in teaching new vocab..

Children who are not reading are not being exposed to Tier 2 vocab and complex sentence structures = **Matthew Effect**

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Reading Comprehension Requires Knowledge— of Words and the World

Scientific Insights into the Fourth-Grade Slump and the Nation's Stagnant Comprehension Scores

By E. D. Hirsch, Jr.

https://www.aft.org/sites/default/files/periodicals/Hirsch.pdf

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Why is vocabulary growth important?

✓ It promotes ability to engage in **oral conversations of greater complexity and subtlety**

✓ It enhances use and understanding of **shades of meaning**

✓ It increases the likelihood that **written text will be understood** and that reading itself will be seen as a **worthwhile activity**

✓ It promotes **academic achievement** and better **vocational outcomes**

✓ There is a **lexical bar** that needs to be crossed for academic success: the **divide** between spoken and written language

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The lexical bar (David Corson, 1985)

*"Language theorists in education have often overlooked a fact that experienced classroom teachers tacitly acknowledge in their daily practice: that **it is the different ways children can and want to use words in schooling which is the measure of their language ability and the measure of much of their success potential in education".***

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Vocabulary Tiers: A conceptual framework*

Tier 1

The most **basic words**; learnt through everyday oral conversations and experiences, e.g. *come, go, happy, sad, car, dog, home, hat, banana, tree, truck, sleep.* Repetition aids learning.

Children from NESB or those with neurodisabilities may need some explicit instruction to support Tier 1.

Accounts for about 8000 words families

Tier 2

Common, high-frequency words used across a range of domains by mature language users. Important for reading comprehension. May have multiple meanings. Examples: *measure, create, cooperate, establish, mainstay.* Strong overlap with general academic language. Less repetition.

Teachers should explicitly teach these words as not all children will acquire them naturally.

Accounts for about 7,000 word families

Tier 3

Specialised vocabulary that is **subject-specific** and needs to be **taught**

*Beck et al., 2013

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What are the likely Tier 2 words here?

The Jacobs family had not had a holiday for three years, so this trip was eagerly anticipated. Everyone had their bags packed, but the process of getting all the gear into the back of the car wasn't straightforward. Dan was insistent that his surf-board had to come with them, much to Melissa's annoyance. Things were getting testy when Dan had the inspired idea that they could connect a small trailer to the car. This would enable them to include everyone's gear and avert a family crisis.

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What are the likely Tier 2 words here?

The Jacobs family had not had a holiday for three years, so this trip was eagerly anticipated. Everyone had their bags packed, but the process of getting all the gear into the back of the car wasn't straightforward. Dan was insistent that his surf-board had to come with them, much to Melissa's annoyance. Things were getting testy when Dan had the inspired idea that they could connect a small trailer to the car. This would enable them to include everyone's gear and avert a family crisis.

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Discourse skills

- Using spoken language for different everyday purposes
- 4 key genres to be mastered in childhood/adolescence:
  - ✓ Conversation
  - ✓ Narrative ⎫
  - ✓ Procedural ⎬ *The language of instruction*
  - ✓ Expository ⎭

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Conversation

- Interactive – "serve and return"
- May be child or adult-initiated
- Pauses and waiting are important
- Involves the learning of many social "rules" and conventions:
  - Turn-taking
  - Initiating and ending topics
  - Interrupting
  - Level of detail
  - Eye contact
  - Physical proximity
  - "Speaker rights"

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Narrative discourse

- The means by which we **share experiences** with each other; important for friendships; social glue
- Emerges in toddlerhood
- Exposure to *story grammar structure* beneficial
- Related to **cognition, memory, planning & organisation, perspective taking**
- Often **co-constructed** within conversation
- Emerges in stages; becomes more complex with **advances in vocab and syntax** in particular

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Procedural Discourse

The ability to explain a procedure to a (more or less) naïve listener

Requires

- Ability to consider prior knowledge (and not over or under-estimate this)
- Ability to place steps in logical order
- Ability to include all relevant steps
- Ability to monitor listener understanding

Common examples

- Directions on how to get somewhere
- Instructions on how to make something
- Recipes
- How to play a game

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Expository Discourse

- **Explaining** or describing a topic – may be informative or persuasive in intent
- An **academically important** skill, esp. in secondary years
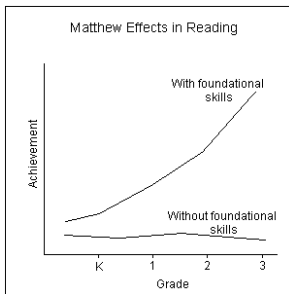- **Requires**
  - ✓ Background knowledge
  - ✓ Ability to take stance of listener/learner
  - ✓ Ability to organise material logically – e.g., intro, body, summary
  - ✓ Overall coherence and quality of argument are important to listener

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The "Matthew Effect" in *learning* to read

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The "Peter Effect" in *teaching* reading

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Teacher knowledge of language constructs

Fielding-Barnsley (2010)

Tetley & Jones (2014)

Moats (2014)

Stark et al. (2015)

❖ But note – some findings indicate suboptimal knowledge of SLPs too……
(Spencer et al. 2008, *LSHSS*)

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Teacher knowledge matters because

Teachers teach children to read, not programs

(Dr. Louisa Moats)

BUT – programs do have their place

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Things worth knowing more about in the early teaching of reading

❑ **Phonological awareness / phonemes / phonemic awareness /**
❑ **Graphemes**
❑ **Morphemes / Morphology**
❑ **Orthography / Orthographic mapping**
❑ **Etymology**
❑ **Letters Vs sounds**
❑ **Consonants, vowels (short, long), syllables (stressed and unstressed)**
❑ **Voiced Vs voiceless sounds**
❑ **Schwa vowel**
❑ **Digraphs, trigraphs**
❑ **Split digraphs**
❑ **Diphthongs**
❑ **Homophones and homographs**
❑ **Role of sight / high frequency / irregular words and how to teach them**

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Those tricky "Ph" terms: 1

➢ **Phonological awareness**

- Differentiating speech from non-speech sounds
- Rhyme
- Syllabification
- Alliteration

   o **Phonemic awareness**
- A subs-set of phonological awareness
- Phonemes = single speech sounds; represented in text by graphemes (one or more letters)
- Blending, segmenting, deleting, adding sounds

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Those tricky "Ph" terms: 2

➤ **Phonics** is the relationship between sounds and letters AND an approach to initial instruction. It **MUST involve visual cues** (unlike phonological and phonemic awareness, which can rely on sound alone).

➤ **Phonetics** is a branch of linguistics (like syntax and semantics). Concerned with unambiguous representation of speech sounds through an international symbol system

– Phillys James -> fIl∂s dɜeImz (phonetic transcription)

– Phillys James - > Filus JAmz (Invented spelling)

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Morphology: Sub-lexical knowledge

Sublexical analysis is important because English is a **morpho-phonemic** language (not strictly alphabetic)

➤ **Roots** (bases) and **affixes** (prefixes and suffixes)

Can be further dived to inflectional and derivational

o Bound: pre-, dis-, un-, -able, -ly – ing

o Unbound (free) – simple words and compound words fish; fishcake; shape (➔shap<u>es</u>; shap<u>ed</u>; shap<u>ely</u>; shap<u>ing</u>; <u>re</u>shape; <u>mis</u>shape)

▪ Relevant to understanding shifts in word <u>meaning</u>

▪ Relevant to <u>etymology</u> – study of word origins (and meaning)

▪ Relevant to learning <u>spelling</u> rules / patterns

"I watcht the footy" - *what is this child's writing telling us?*

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Morphology example

<u>shape = base word</u> (smallest unit of meaning)

shape**s** – inflectional "s" could be either plural or verb form

shap**ing**

shap**ed**

reshape

misshape – NB – knowledge of morphology guards against child reading this as miss-hape – also helps with <u>spelling</u> the word

reshap**ing**

reshap**ed**

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The common affixes in English

Prefixes	Suffixes
un-	-ed
re-	-ing
dis-	-s (plural or verb form)
mis-	-able
ex-	-er
pre-	-est
de-	-ise
sub-	-ful
inter	-ly
dys-	-ment
for-	-fy

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Etymology

• A branch of **linguistics**

• The study of **word origins / derivations**

• In English, involves and understanding that we have incorporated many **Greek, Latin, French, Nordic, and German** words (and words from other languages as well).

• Closely tied to the **study of world history**

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Understanding etymology supports the teaching of morphology and spelling.

What do these roots <u>mean</u>?   What words do they <u>create</u>?

• **Aero**
• **Biblio**
• **Chron**
• **Demo**
• **Gen**
• **Hydra**
• **Logo**
• **Morph**
• **Phil**
• **Photo**

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Why increase the focus on morphology and etymology?

✓ The structure of **English is morpho-phonemic** (not strictly alphabetic)

✓ Morphology provides a **bridge between sound structure and meaning**

✓ Morphology ties to **etymology** – the study of word origins

✓ Beneficial to the learning of **spelling** rules

✓ Beneficial to both **typically-developing and struggling readers**

✓ Enriches students' **knowledge** about the English language

"Good readers attend to the internal details of words, both spoken and written. They use strategies to distinguish and remember the meanings of words that sound alike, including recognising meaningful parts" (Moats, 2010, p. 118)

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What can you do? (1)

• Have language skills on your radar and understand how they relate to literacy skills

• Consider the possibility that language skills (expressive and/or receptive) are compromised

• Remember that behaviour is a form of communication, especially for struggling students

• Recognise that minimalist responses may be the best the young person can do

• Simplify your own language:
  • Avoid idioms, metaphors, sarcasm, double entendre
  • Avoid multi-stage instructions

▪ Minimise distractions for important interactions

▪ Allow extra time for processing and responding

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What can you do? (2)

▪ **Improve your own knowledge of language and literacy "under the bonnet"**
  — Knowledge of the **orthographic structure** and rules of English
  — Knowledge of **linguistic concepts** such as phonemes, graphemes, morphemes, parts of speech
  — Lift your knowledge of English **etymology and morphology**
  — Learn the rules of English **grammar and punctuation**

▪ Monitor student progress using rigorous tools and take action **early**

▪ Avoid the **soft bigotry of low expectations**
  — Don't mistake **engagement for attainment**

▪ Avoid **pseudoscience** and neurofads

▪ **REMEMBER:** it is everybody's job to support the teaching of reading across the school years

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(Some) Useful resources

Bendigo Early Language and Literacy Community of Practice (BELLCoP) Resources Page https://pamelasnow.blogspot.com/p/blog-page_15.html

FIVE from FIVE http://www.fivefromfive.org.au/

Learning Difficulties Australia https://www.ldaustralia.org/

Spelfabet: http://www.spelfabet.com.au/

The Reading League https://www.thereadingleague.org/

MULTILIT http://www.multilit.com/

Parker Blog and free books on phonics instruction https://www.parkerphonics.com/blog

Little Learners Love Literacy https://littlelearnersloveliteracy.com.au/

Sounds Write http://www.sounds-write.co.uk/page-98-australia.aspx

Nomanis Notes: https://www.nomanis.com.au/nomanis-notes

Filling the Pail Blog (Greg Ashman) - https://gregashman.wordpress.com/

Twitter

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The Snow Report http://pamelasnow.blogspot.com.au/

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