

## Research Article

# Inside the teachers' toolbox: How experienced primary school teachers are equipped to teach vocabulary and word knowledge

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This article explores primary school teachers' views and practices in literacy instruction to support students' word knowledge development. This study provides insights into how primary school teachers with a deep interest in literacy understand and apply the literacy strategies they employ in their classrooms, and how previous professional development has influenced and contributes to their practice. Drawing from semi-structured interviews with six expert teachers, as well as classroom observations, the results highlight rich metalinguistic learning journeys. Themes generated from the data include: use of a range of tools and strategies to support students' linguistic understanding brought about by impactful professional development experiences; use of a range of assessment techniques to drive instruction; and a supportive mentoring culture for teachers' development of word knowledge. The findings suggest that experienced teachers recognise that English language learning can be a complex process, especially when it comes to the written form. Therefore, it was evident that the interrelationship of phonology, orthography, morphology and etymology played a crucial role in teaching for understanding of the language and its structure. This article highlights the importance of four linguistic elements and their role on learning English in the primary classroom, particularly in the context of spelling, writing and reading development.

Keywords: Etymology; Morphology; Orthography; Phonology; Word knowledge; Word study

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## 1. Introduction

Australian primary school in-service and pre-service teachers have been found to have inadequate knowledge of metalinguistics and low confidence in their ability to teach reading to diverse student populations (Mahar & Richdale, 2008). Importantly, increased literacy pedagogical content knowledge is linked to teachers' self-efficacy regarding their teaching (Nicholson & McIntosh, 2020). Likewise, pre-service teachers who receive targeted mentoring and support in their literacy teaching skills and practices report having more confidence that they are effective in their literacy classrooms (Raymond-West & Rangel, 2020). While previous research has identified important gaps in teacher preparation, specifically that most teachers have received little knowledge about the language structures that are used in reading, speaking, and writing (Ordetx, 2021), there is

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relatively less research focused on how experienced, confident and competent literacy teachers go about their work, the depth and breadth of their practices, and the meaningful professional development and learning experiences which they draw from.

### **1.1. Why is Teaching Vocabulary and Word Knowledge Important in the Primary Years?**

The development of vocabulary and word knowledge is critical for students' literacy skills, as they form the basis for effective communication both orally and in written form. These essential skills are learned through early interactions (Garden, 2022), even before formal education, and are closely linked to academic success. Vocabulary and word knowledge not only predict reading comprehension success by Year 5, but also become the main predictor by Year 8, highlighting their role in bridging gaps between high and low achievers (Howley-Rouse, 2023). A direct approach to vocabulary instruction has been proven to improve reading comprehension by equipping students with the necessary language skills to understand various texts. Primarily, this involves explicitly teaching word knowledge and students' successfully applying this word knowledge as a strategy to decipher unfamiliar vocabulary when reading. The distinction between word reading and comprehension is supported by numerous studies (Carroll & Breadmore, 2021). This study defines word knowledge as the key components of phonology, orthography, morphology and etymology, which explain why words are structured and built the way they are.

## **2. Theoretical Framework: The Interrelationship of Phonology, Morphology, Etymology, and Orthography in vocabulary and word knowledge teaching and learning**

The difficulty of English spelling is often noted due to its perceived lack of consistency in the relationship between letters and sounds. While theories on how young children learn to read are typically based on the alphabetic principle - the understanding that there is a systematic connection between letters and sounds (Carroll & Breadmore, 2021) - it is acknowledged that this principle alone is often insufficient for accurate spelling, leading to difficulties in writing proficiency. This is because English is classified as a morphophonemic orthography, meaning its spelling system is based on the interplay of phonology, morphology, and etymology (Nunes & Bryant, 2006; Venezky, 1970, 1999). This connection is fundamental for understanding the logic of English spelling and, as a result, imperative to effectively learn to spell and read. The concept of morphophonemic orthography suggests that the pronunciation and spelling of words are affected by their morphological and etymological relationships. In other words, English spelling becomes more predictable and transparent when students understand how affixes (e.g. prefixes and suffixes) can alter the pronunciation and spelling of words (Ehri, 1987; Venezky, 1970, 1999), supporting the idea that knowledge of word structure is important (Carroll & Breadmore, 2021). This is further reinforced by a significant amount of research in recent decades emphasising the significance of understanding morphemes in literacy (Carroll & Breadmore, 2021), and recent developments in reading theory that demonstrate how knowledge of morphology impacts reading and writing proficiency (Levesque et al., 2020).

This study uses "Linguistic Lenses" as a theoretical framework for investigation, as it has been found that the interrelationship of phonology, orthography, morphology and etymology (see Figure 1) plays a key role in understanding English words and their structure. These lenses aid the teaching and learning of word knowledge, facilitating a structural analysis of vocabulary words. An overview of the key components of each "Linguistic Lens" are detailed below.

### **2.1. Phonology: The Study of Sound**

Phonology, which is the study of language sound patterns and systems, is important for teaching vocabulary. This understanding enables students to grasp the pronunciation of words and the connections between sounds and spellings. The Phonology Lens dissects this language into more specific concepts (Brady, 2020), namely Phonological Sensitivity and Phoneme Awareness (as per the International Dyslexia Association), while Phonological Awareness is a broader term

Figure 1

*Interrelationship of Phonology, Orthography, Morphology and Etymology*



encompassing larger sound structures in spoken words and individual phonemes. The development of Phonological Sensitivity (Stanovich, 2017), which involves the ability to identify and manipulate the larger sound structures of language, is essential for successful reading and spelling. To foster this skill, this approach includes recognising syllables, identifying rhyming words, and understanding onset and rime (Brady, 2020).

Phoneme Awareness, on the other hand, pertains to the capacity to detect, consider, and manipulate the individual sounds in spoken words (Ehri et al., 2001). This entails providing opportunities for segmenting and blending sounds, recognising first, medial, and final sounds, and manipulating phonemes (Brady, 2020). It requires conscious awareness, allowing students to pay attention to and think about each phoneme they hear or say in words.

Since there are approximately 44 phonemes in the English language (Adoniou, 2017; Moats, 2010), with consonants and vowels being the fundamental building blocks of speech sounds, this approach considers them as segments of speech, rather than the letters used to represent them. This is because they are categories of speech sounds, with consonants referring to sounds made when the airflow is obstructed by the lips, teeth, and tongue, while vowels are open and unobstructed speech sounds (Moats, 2020).

To assist in mastering English phonetics, the International Phonetic Alphabet (IPA) serves as a powerful tool. This is because, unlike many languages, English has an inconsistent relationship between spelling and pronunciation (Bowers & Bowers, 2018), which adds to the complexity for not just non-native speakers, but all students. English spelling is not an absolute guide to pronunciation, but rather a representation of spoken words. That being said, the International Phonetic Alphabet (IPA) can bridge this gap by providing a consistent link between sounds and symbols (Moats, 2020). By introducing IPA symbols alongside vocabulary words, teachers can illuminate phoneme to grapheme correspondences enabling their students to confidently tackle unfamiliar words.

## **2.2. Orthography: Correct Letters, Spelling Patterns and Choices**

Orthography is the established system of writing in a language, which involves the regulations and patterns for spelling (Adoniou, 2017), punctuation, and capitalisation. A solid grasp of orthography is vital for effective reading and writing, as it allows students to accurately recognise and produce words in written form.

Learning to spell words correctly is a fundamental aspect of orthography. By studying the spelling patterns of words, students can recognise predictable conventions and patterns of letters and letter combinations (Adoniou, 2017), ensuring that their written language is clear and easily understood by others. This includes understanding the relationship between morphology and spelling (Bowers, 2012), as well as the role of phonology in determining word spellings.

A significant aspect of developing word knowledge is recognising the connections between phonemes (speech sounds) and graphemes (letters), referred to as phoneme-grapheme correspondences (speech to writing/ sounds to letters) or grapheme-phoneme correspondences (reading to saying/ letters to sounds). Through learning the common correspondences between phonemes and graphemes in English, students can more precisely decode and encode words in both reading and writing (Moats, 2020).

### **2.3. Morphology: The Study of Change**

Morphology refers to the formation and structure of words. It centres on identifying morphemes, which are the smallest units of meaning in words. These morphemes can be combined to form new words or modify existing ones. By studying morphology, students can enhance their vocabulary through the use of affixes and gain a better understanding of word patterns and grammar (Bonilla, 2019).

Morphemes are categorised into base morphemes and affixes (Bowers, 2012). Base morphemes are the fundamental components of words, while affixes are added to base morphemes to change their meanings or create new words. By examining words through their morphemes, students can recognise similarities and relationships between words (Carlisle, 2008), enabling them to use their existing knowledge to comprehend new vocabulary.

One practical application of morphology in vocabulary instruction is affixing, which involves adding prefixes (before a base morpheme) or suffixes (after a base morpheme) to create new words (Bowers, 2012). By understanding the meanings of common affixes, students can deduce the meanings of unfamiliar words (Bowers & Kirby, 2009) and expand their vocabulary. For instance, understanding that the prefix "un-" means "not" can assist students in comprehending that "unhappy" means "not happy."

### **2.4. Etymology: The Study of Reason**

Etymology, also known as the study of word origins (Moats, 2020) and history (Crystal, 2013) allows students to gain insights into the meanings of words, connections between related words (Bowers & Bowers, 2017) and provides an understanding of the English language as a borrowed language. This understanding can also assist in recognising similarities between English and other languages (Crystal, 2013), thus aiding in vocabulary acquisition.

Every word has a unique story, tracing back through time and across different languages (Adoniou, 2017). By understanding a word's origin, students can appreciate its connections to other words and better understand its meaning (Adoniou, 2017). For instance, the word "algebra" is derived from the Arabic word "al-jabr," which means "the reunion of broken parts," providing students with a deeper comprehension of the concept.

Cognates are words that share a common origin across different languages. By recognising cognates between English and native languages, students can leverage their existing vocabulary knowledge to easily comprehend new English words. This can be particularly beneficial for learners of English as a second language.

## **3. The Present Study**

Research suggests that a more comprehensive approach to spelling and reading development (Ehri, 1987; Treiman, 2018) should take into account the interrelationship of phonology, orthography, morphology and etymology as well as the interplay of these linguistic elements (Bahr et al., 2012). Moreover, a study conducted by Bowers and Bowers (2017) argued that instruction should be designed to make sense of English orthography by teaching children that spellings are

organised around the interrelation of morphology, etymology, and phonology. Therefore, this study adds to the literature by showcasing how teaching vocabulary and word study through the perspective of four “Linguistic Lenses” can improve literacy instruction. The following research questions guided this study: (a) What do experienced literacy teachers understand effective word knowledge instruction to look like to enable students to draw on multiple linguistic strategies? And (b) How have professional development opportunities enabled teachers’ metalinguistic knowledge?

## **4. Methods**

### **4.1 Participants**

This qualitative study had specific criteria for selecting participants, with a total of six female primary school teachers from two independent schools in South Australia being recruited. The schools were single sex, with one being all-boys and the other all-girls. Each teacher had more than twenty years of experience teaching in the primary school setting. The inclusion criteria required that the participants had received continuous professional development and training in phonology, orthography, morphology and etymology and actively applied these approaches to teaching vocabulary and word knowledge. Additionally, all the participants held roles as literacy leaders in their schools and shared their practice with other educators (see Table 1). As a result, the Participant Consent Form included questions about professional development and literacy leadership. Prior to commencing the research, written consent was obtained from the principals and teachers of the participating schools.

### **4.2. Research Design**

During the research, teachers were interviewed in a semi-structured manner to investigate their literacy teaching practices, programs and interventions implemented during their career. The interviews, conducted in the participants' schools, adopted a narrative style questioning approach (Hollway & Jefferson, 2013) to allow for the sharing of personal stories (Adoniou, 2013) and to better understand their experiences and perspectives. This was a significant aspect of the study as it focused on the teachers' authentic selves and their practices within their specific educational environments. To ensure the validity of the data, classroom observations were also conducted, as recommended by both The Australian Teacher Performance and Development Framework (AITSL, 2017) and the Australian Charter for the Professional Learning of Teachers and School Leaders (AITSL, 2014). These observations served as an important tool for cross-checking the data obtained from the interviews (Adoniou, 2013), ensuring that the study was not solely reliant on self-reported information (Adoniou, 2013). This aligns with Grisham's (2000) findings that self-reporting through interviews may have limitations, as teachers' accounts of their literacy teaching may differ from researcher's observations.

### **4.3. Data Collection Procedure**

A Metalinguistic Observation Protocol (MOP) (see Appendix 1) was adapted from Daffern’s (2015) *‘Becoming a Linguistic Analysis: A spelling activity for students in the middle years’*. This protocol was designed to ascertain the metalanguage used in classrooms by the teacher and to see whether they used the lenses of phonology, morphology, etymology and orthography to promote critical class discussion (Daffern, 2015). The aim of the Metalinguistic Observation Protocol was to assist in unpacking the teachers’ direct, explicit instruction with the researcher looking for evidence of the teacher using “Linguistic Lenses” in an interrelated manner. The metalanguage was organised according to which Lens the terms correlated most significantly with and there was no predetermined order to which of the lenses were used. A MOP was completed for each observed lesson, then combined for each participant.

Table 1  
Participant Information

Participant	<i>I have been teaching for the following length of time:</i>	<i>I have worked with the following year groups:</i>	<i>Professional Development which has assisted my understanding of Phonology, Orthography and Morphology, Etymology</i>	<i>Familiar with the theoretical framework "Linguistic Lenses"</i>
Participant 1	40 years	Prep, Year 1, 2, 3, 4, 5	<ul style="list-style-type: none"> <li>• Structured Word Inquiry (Bowers, 2008)</li> <li>• Word Cracking (Hansberry, n.d.)</li> <li>• THRASS (Advanced Training) (The THRASS Institute, 2024)</li> <li>• Kristine Topfer (Topfer, 2017)</li> </ul>	Yes, in school mentoring and coaching
Participant 2	30 years	Reception, Year 1, Year 2, Year 4 & Year 5	<ul style="list-style-type: none"> <li>• THRASS (Advanced Training) (The THRASS Institute, 2024)</li> </ul>	Yes, attended conference
Participant 3	26 years	Preschool (4-year olds), Reception, Year 1, Year 2, Year 5	<ul style="list-style-type: none"> <li>• THRASS (Advanced Training) (The THRASS Institute, 2024)</li> </ul>	Yes, in school mentoring and coaching
Participant 4	Over 20 years	Prep (4-year olds), Reception, Year 1, Year 2, Year 3, Year 4 and Year 5	<ul style="list-style-type: none"> <li>• Structured Word Inquiry (Bowers, 2008)</li> <li>• THRASS (Advanced Training) (The THRASS Institute, 2024)</li> <li>• Structured Word Inquiry (Bowers, 2008)</li> <li>• Word Cracking (Hansberry, n.d.)</li> <li>• Practical Ways to Teach Morphology (Burman, 2019)</li> </ul>	Yes, in school mentoring and coaching
Participant 5	25 Years	Reception, Year 1, Year 3, Year 4, Year 5	<ul style="list-style-type: none"> <li>• THRASS (Advanced Training) (The THRASS Institute, 2024)</li> <li>• Structured Word Inquiry (Bowers, 2008)</li> </ul>	Yes, in school mentoring and coaching
Participant 6	28 Years	Reception, Year 1, Year 2, Year 3, Year 4,	<ul style="list-style-type: none"> <li>• Word Cracking (Hansberry, n.d.)</li> <li>• THRASS (Advanced Training) (The THRASS Institute, 2024)</li> </ul>	Yes, attended conference

Fieldnotes and photographs also assisted in offering detailed 'thick' descriptions of the people, places, actions and reactions being studied (Reeves et al., 2013). These support documents and work samples provided tangible evidence of the instructional strategies and tools being used, which supported and mirrored the observational notes.

Each of the six teachers had participated in thorough professional development. Five of them had even conducted professional development sessions within their school, while four had taken the lead in organising literacy workshops to upskill parents. Additionally, three of these teachers had contributed to articles, presented at conferences, or shared their expertise within professional networks. One teacher also mentioned that she has experience giving lectures and facilitating workshops.

A Metalinguistic Knowledge Assessment was designed and utilised to evaluate teachers' understanding of linguistic terminology, categorised into the four distinct Linguistic Lenses: Phonology, Orthography, Morphology, and Etymology. This Knowledge Assessment was necessary as Daffern and Mackenzie (2020) suggest that when teachers utilise precise metalanguage to demonstrate spelling strategies, students are also able to grasp and utilise this specific terminology. The Assessment consisted of closed-ended questions and a variety of multiple-choice response options. All teachers performed exceptionally well on this assessment, which was taken as evidence of high metalinguistic proficiency.

#### **4.4. Data Analysis**

A thematic analysis was conducted on the data gathered from interviews and observations. According to Braun and Clarke (2006), a theme is a representation of important aspects of the data in relation to the research question and reflects a certain level of patterned responses or meaning within the dataset. The data was initially familiarised through focused and repeated reading and reflection. NVivo was then utilised for coding, and themes were developed accordingly. Both authors reviewed the coding and themes together to come to a consensus.

### **5. Findings**

As there is a lack of research on how to support in-service teachers in developing their linguistic knowledge and skills, this study provides a unique perspective whereby the participants are expert and experienced teachers who have knowledge and practice in both teaching through commercial programmes and teaching using a repertoire of metalinguistic strategies.

From analysis of interview data and observation, themes and examples were generated (see Figure 2):

- Theme 1: Effective instructional strategies and tools for integration
- Theme 2: Impactful assessment techniques
- Theme 3: Development of a supportive culture

#### **5.1. Theme 1: Effective Instructional Strategies and Tools for Integration**

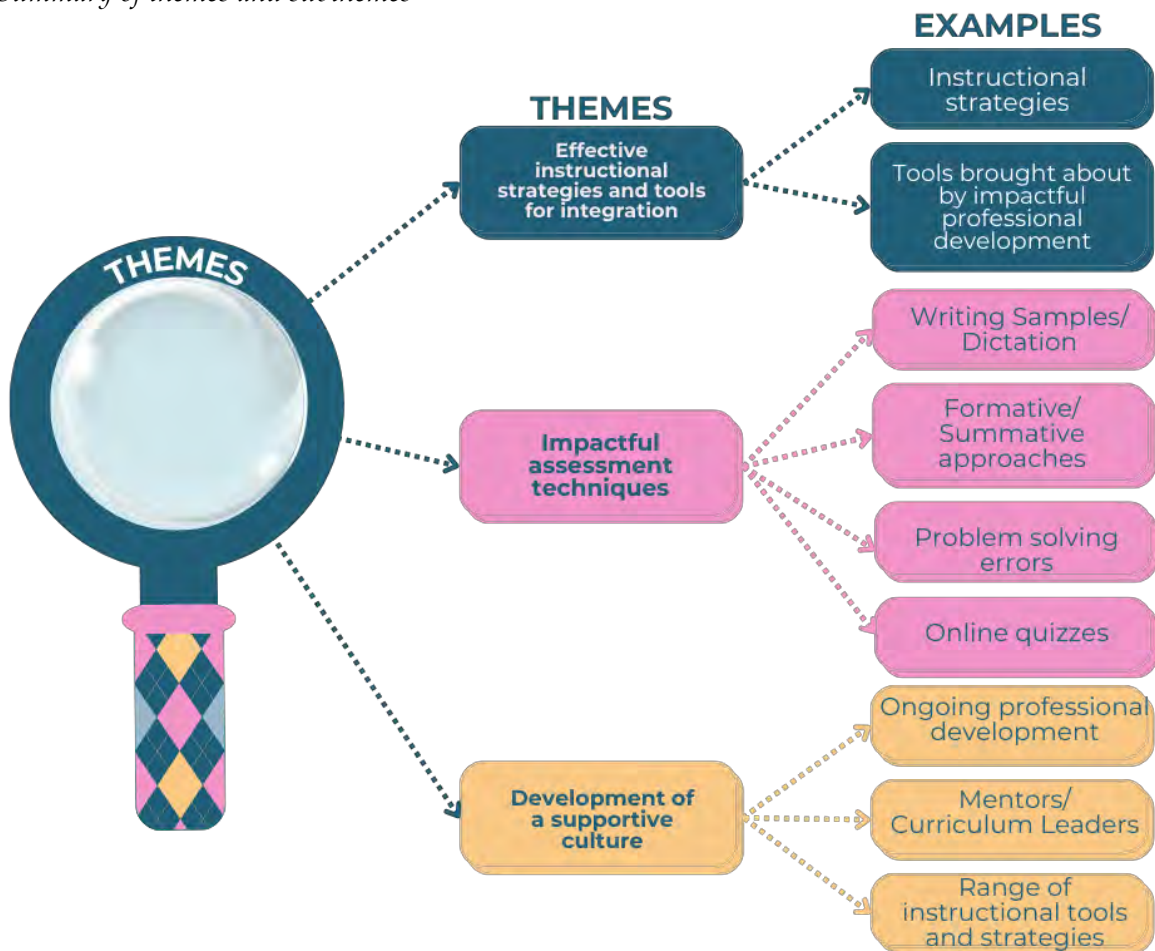
Teachers spoke of the importance of drawing from a range of tools and strategies to support students to integrate the interrelationship of phonology, orthography, morphology and etymology when reading and spelling words.

##### *5.1.1. Strategies*

The classroom observations highlighted common instructional strategies aiming to assist students in integrating the four elements of linguistic knowledge to improve comprehension and spelling. Specifically,

- Fostering phoneme awareness, phonological sensitivity and phonetics: Instruction included activities that helped students identify, segment, and blend phonemes as well as recognise and manipulate larger units of sound, such as syllables and onsets and rimes (see Figures 7, 8, 9 & 10).

Figure 2  
Summary of themes and subthemes



- Promoting orthographic knowledge, orthographic patterns and grapheme-phoneme correspondences: Instruction included the explicit teaching of the metalanguage for graphemes (graphs, digraphs, trigraphs) and common spelling patterns, such as consonant blends, position of grapheme to phoneme correspondences in words as well as strategies for decoding and encoding words based on these patterns (see Figures 7, 8, & 9).

- Teaching morphological awareness through word morphology, word/semantic relationships and word class, grammatical form and function: Instruction included the explicit teaching of morphemes, such as base words, prefixes and suffixes as well as their meanings and functions in words (see Figures 4, 7, 8, 9 & 12).

- Emphasising etymological knowledge: Instruction included exposure to word histories, word origins and word roots and analysing the ways in which spellings and words have evolved over time (see Figures 3, 4, 5, 6, 7, 8 & 9).

Additionally, strategies for integrating phonology, orthography, morphology and etymology were observed across a range of curriculum areas. Whenever new vocabulary was encountered, teachers supported vocabulary analysis and understanding through structured analysis, thus improving reading development and comprehension. Figures 3 and 4 show the content specific mathematics vocabulary <vertices> and <polygon> studied during mathematics lessons in the Year 1 classroom.



Figure 3  
Maths Vocabulary 1

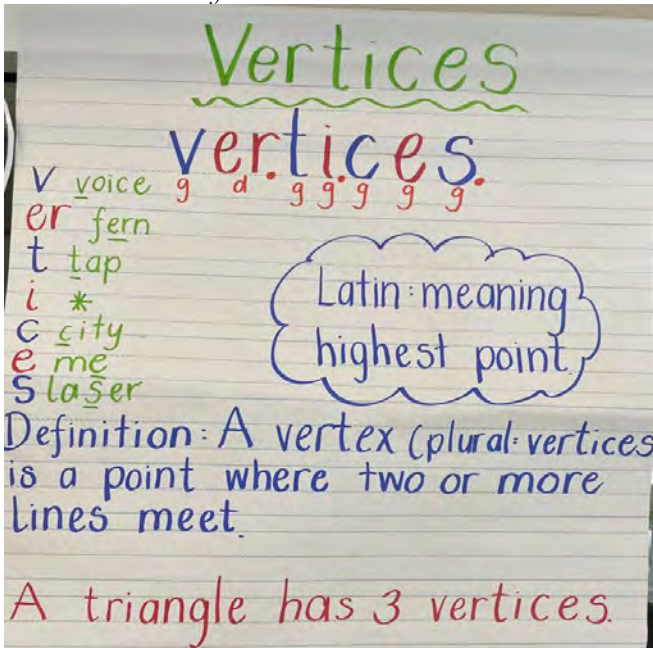
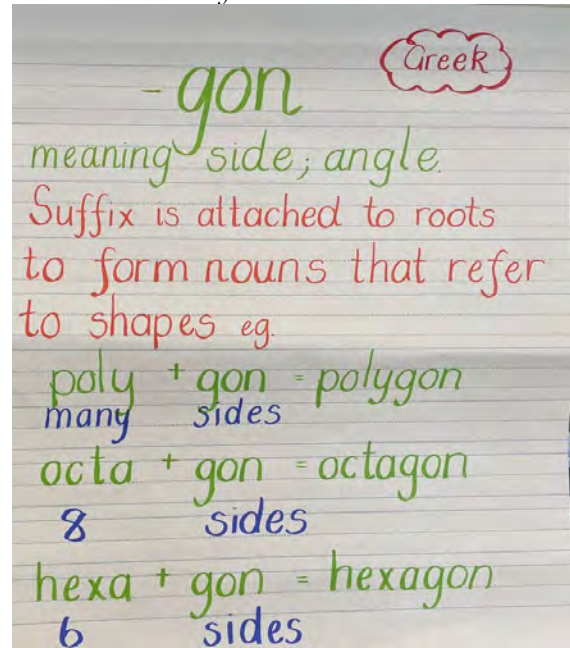


Figure 4  
Maths Vocabulary 2



The key strategies observed emphasised that all teachers have the responsibility to support literacy in their subject area. Strategies included:

- Promoting fluency: Strategies for building phonological and orthographic processing speed, such as repeated reading and guided oral reading were observed. This encouraged students to read text accurately, quickly and with proper expression.
- Supporting vocabulary development: Explicit instruction in morphology (see Figure 6 and Figure 8) and etymology (see Figure 4 and 5) supported comprehension and encouraged students to expand their vocabulary knowledge by focusing on word parts, word origins and word relationships. This helped students make sense of unfamiliar words and enhance their reading comprehension.

Figure 5  
Word root analysis during word study of <constellation> using [www.etymonline.com](http://www.etymonline.com)

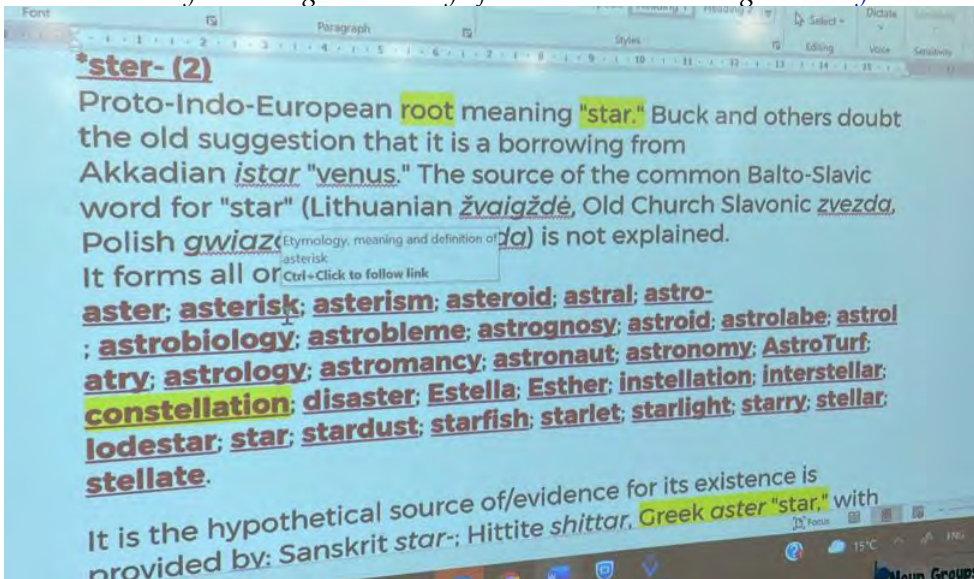
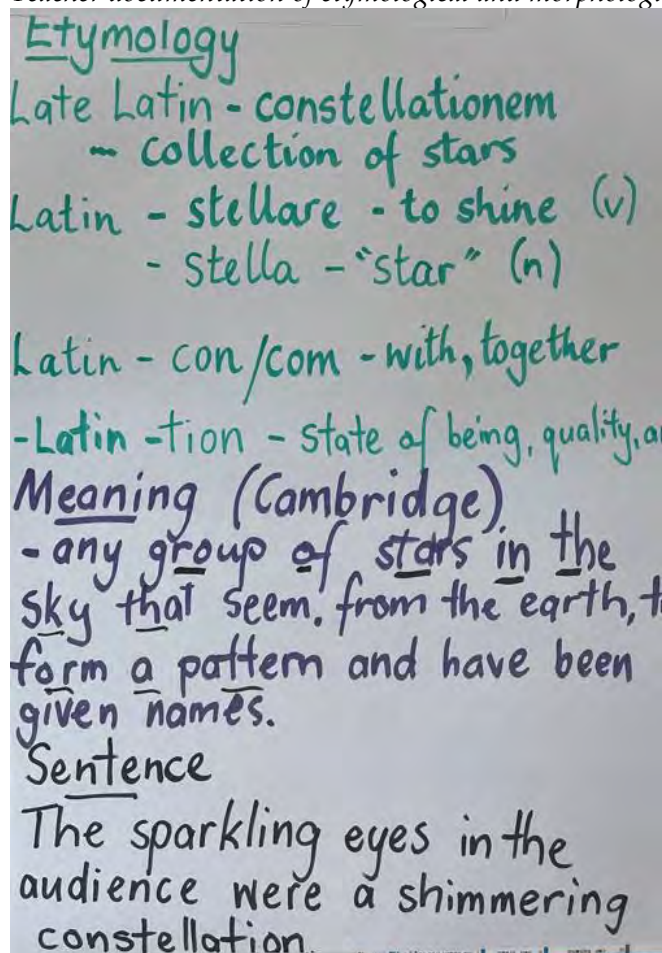


Figure 6

Teacher documentation of etymological and morphological analysis of <constellation>



- Explicit structural analysis of vocabulary words: This was also observed prior to exposure to new vocabulary (frontloading) or incidentally during novel studies. Participant 5 explained, "At the beginning of the week when we have our novel studies, and we frontload that vocabulary. We frontload because if children don't have a thorough understanding of the meaning of that word, it is very hard for them to make sense of what they are reading, it's very important that we frontload vocabulary to unpack the meaning. But also, analysing the spelling of those words."
- Fostering comprehension strategies: Students were encouraged to integrate their phonological, orthographic, morphological and etymological knowledge with higher-order cognitive skills, such as making inferences, summarising, and analysing unfamiliar vocabulary and text. These higher-order skills were observed through the use of graphic organisers (see Figures 7 & 9), think-alouds, and questioning techniques. The teachers had developed their own graphic organisers (see Figures 7 & 8) which integrated the four lenses of linguistics.
- Multiple exposures of vocabulary words: This provided students with multiple opportunities to encounter, engage with and collaborate on the new knowledge and skills, not simply just take part in repetition or drill work (Department of Education and Training Victoria (DET), 2023). Participant 4 documented the explicit teaching of <commotion> in a Word Web (see Figure 8), then created a graphic organiser explaining the learning (see Figure 9), presenting this at the beginning of the next lesson as revision.

Figure 7

Graphic organiser, Year 3 student, vocabulary study of <languishing> during novel study on Charlotte's Web

### Structured Word Inquiry

<p><b>Word: languishing</b> THRASS it out in blue and red</p> <p><i>languishing</i></p> <p><b>IPA:</b> (have a go then look it up on the Cambridge Online Dictionary) <i>læŋ.gwɪʃ</i></p> <p><b>Base word:</b> <i>languish</i></p>	<p><b>Phonology:</b> <i>diphone</i></p> <table border="1"> <tr> <td>l</td><td>æ</td><td>ŋ</td><td>g</td><td>w</td><td>ɪ</td><td>ʃ</td> </tr> <tr> <td>leg</td><td>ant</td><td>king</td><td>gate</td><td>king</td><td>shark</td><td>king</td> </tr> </table> <p><b>Number of phonemes:</b> <i>9</i></p> <p><b>Syllables:</b> <i>3</i></p> <p><b>Word in context:</b> (write a sentence) <i>Charlotte felt she was languishing because she was feeling tired and weak.</i></p>	l	æ	ŋ	g	w	ɪ	ʃ	leg	ant	king	gate	king	shark	king	<p><b>Word meaning (Cambridge Online Dictionary) and part of speech:</b> <i>Noun, Verb, Adverb, Adjective</i></p> <p><i>to exist in an unpleasant or unwanted situation after for a long time</i></p> <p><i>to be weaker fail to improve</i></p>
l	æ	ŋ	g	w	ɪ	ʃ										
leg	ant	king	gate	king	shark	king										
<p><b>Etymology (word origin):</b> <b>Etymology Online Dictionary</b> <i>early 14c fail in strength exhibit signs of approaching death from languiss Latin languere be weak or faint</i></p>	<p><b>Morphology (word relatives), word building and other words with the same spelling choice</b></p> <p><i>languish (base word)</i> <i>languished</i> <i>languishing</i></p> <p><i>-antonym</i> <i>-flourishing</i></p>															

Figure 8


Explicit Teaching/ Joint Construction of the word <commotion>

cat
hammer
station net  
c
o
m
m
o
t
i
o
n

lion
digraph
nose
digraph
lion

7 phonemes      Part of speech: noun  
 3 syllables  
 Base word: motion  
 IPA: kəməʊʃən  
 Meaning: a sudden short period of noise, confusion, or excited movement  
**Morphology**  
-commotion      emotion  
-commotions      emotions  
-commotioning      emotional  
-commotioned      emotionless  
-commotionless      emotionally  
 Etymology  
 Latin - commotionem  
 Root word - meue (to push away)

Figure 9  
 Second Exposure: Revision of previous lesson <commotion>

Structured Word Inquiry																
<b>Word:</b> THRASS it out in <b>blue</b> and <b>red</b>  <b>IPA:</b> (have a go then look it up on the Cambridge Online Dictionary) kəˈməʊ.ʃən <b>Base word:</b> motion	<b>Phonology:</b> <table border="1"> <tr> <td>cat</td><td>lion</td><td>hammer</td><td>nose</td><td>station</td><td>lion</td><td>net</td> </tr> <tr> <td>c</td><td>o</td><td>mm</td><td>o</td><td>ti</td><td>o</td><td>n</td> </tr> </table> <b>Number of phonemes:</b> 7 <b>Syllables:</b> 3 <b>Word in context:</b> (write a sentence) Wilbur glanced up to see what all the commotion was about.	cat	lion	hammer	nose	station	lion	net	c	o	mm	o	ti	o	n	<b>Word meaning (Cambridge Online Dictionary) and part of speech:</b> <b>Noun, Verb, Adverb, Adjective</b> <b>noun</b> a sudden, short period of noise, confusion, or excited movement
cat	lion	hammer	nose	station	lion	net										
c	o	mm	o	ti	o	n										
<b>Etymology (word origin):</b> <b>Etymology Online Dictionary</b> <b>Latin:</b> <i>commotionem</i> <b>Root word:</b> <i>meve</i> (to push away)	<b>Morphology (word relatives), word building and other words with the same spelling choice</b> <table border="0"> <tr> <td>commotion</td> <td>emotion</td> </tr> <tr> <td>commotions</td> <td>emotions</td> </tr> <tr> <td>commotioning</td> <td>emotional</td> </tr> <tr> <td>commotioned</td> <td>emotionless</td> </tr> <tr> <td>commotionless</td> <td>emotionally</td> </tr> </table>		commotion	emotion	commotions	emotions	commotioning	emotional	commotioned	emotionless	commotionless	emotionally				
commotion	emotion															
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commotioning	emotional															
commotioned	emotionless															
commotionless	emotionally															

### 5.1.2. Tools brought about by impactful professional development experiences

There was a strong correlation between the professional development the teachers received and the tools they used during instruction, with professional development, reading and research spanning the four elements of linguistics. It was found that there were three key professional development workshops which teachers referenced as equipping them with the knowledge and tangible tools to use when they returned to their classrooms.

These were:

#### 1. THRASS-Teaching Handwriting, Reading and Spelling Skills (The THRASS Institute, 2024)

"We have THRASS phonics charts out every morning, whether we're just looking at blends, whether we're looking at syllables, teaching through analogy, things like spelling through analogy, even if it's just 10 minutes, but we begin with the THRASS charts out every day. We are on the floor with the chart, identifying vowels and consonants, every word has a vowel in it, things like that." (Participant 2)

"It is hard to not use 'rules' or what we have used previously in our teaching before, like 'i before e except after c'. Now with the THRASS chart, I can explain all of those things. Now, with my training, I do not use the 'rules', I use the toolbox that I have been given from this new model. I try and get them thinking 'you can spell any word you can if you use the IPA, use your THRASS chart, clap the syllables'." (Participant 5)

Figure 10

THRASS phonics chart used for analogous phonics learning and to record phoneme to grapheme correspondences

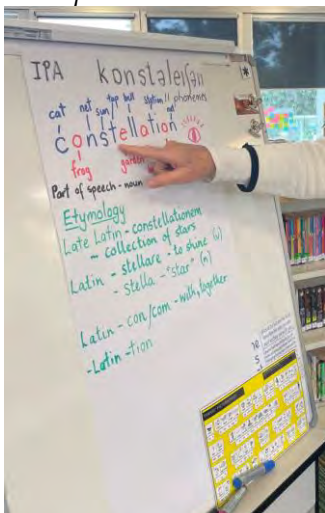


Figure 11

THRASS Phonics Floor Mat used as a reference tool during whole class instruction



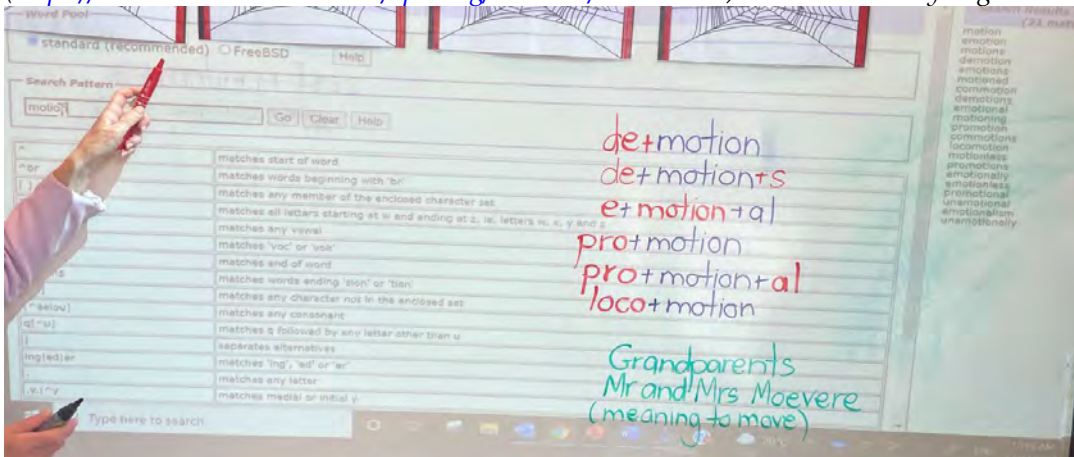
### 2. Structured Word Inquiry with Dr Pete Bowers (Bowers, 2008)

"Trying to explain the rules. For example, a 'rule is a rule' but you have to have a reason why. Sometimes I would not know how to explain it, I would know it was a rule, but I couldn't explain it. So I would say "it is just an exception" and it was difficult to explain. I would expect students to just learn these rules or exceptions by practice, by memory, through testing. There is an element of this we do need to have. English is a complex language and there are so many orthographic patterns students do need to know. But with **word sums**, girls can see the patterns, and see why we 'drop the <e> and add <-ing>'. Through investigations, we do teach this. With consistency in teaching using **Structured Word Inquiry**, the students will see why spellings make sense." (Participant 1)

Figure 12

Word sums and Neil Ramsden's Word Searcher

(<https://www.neilramsden.co.uk/spelling/searcher/index.html>) used when analysing the base word <motion>



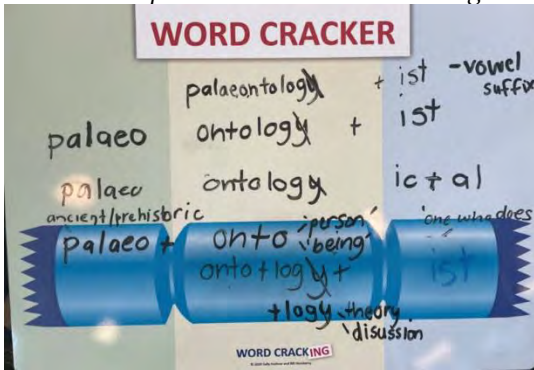
### 3. Word Cracking with Bill Hansberry (Hansberry, n.d.)

"The use of the Word Cracker (see Figure 13) and learning how to add a suffix to a word such as <-s> or <-ed>, changing words into plurals and past tense. I do this on a weekly basis to reinforce these simple suffixes from an early age." (Participant 3)

"The Word Cracker is very powerful tool because the children can actually visually see the base word, the prefixes and the suffix. When we talked about <re> in the word <replay> today, they said, "we know that when we say the prefix <re>, it means 'to do again' or 'to do'." (Participant 4)

Figure 13

Teacher completed Word Cracker during observation lesson



Participant 3 stated that, "I am much more confident now after training in THRASS and with Pete Bowers (SWI) than I ever have been in my 20+ years of teaching." When speaking of effective, integrated, pedagogical instruction, teachers offered a variety of perspectives on tools which supported their structural analysis of vocabulary words.

"Teachers don't need all the answers, but they need the tools to show the students how to find the answer themselves, such as the IPA (see Figure 15), and online dictionaries (see Figure 14). A THRASS (Teaching Handwriting, Reading and Spelling Skills) phonics chart (Talcott, 2020) (see Figures 10 & 11) how to go about a Structured Word Inquiry (see Figure 6, 7, 9 & 12), understanding of how to find the tools to assist with explaining spelling like the Cambridge online dictionary (Figure 15), etymology online (see Figure 14), Neil Ramsden's word matrix maker (see Figure 12 & 16). It's not about having or knowing all the answers but it's about the ability to know where to look."

Figure 14

Using an Etymology Online Dictionary ([www.etymonline.com](http://www.etymonline.com)) to unpack the word <constellation>

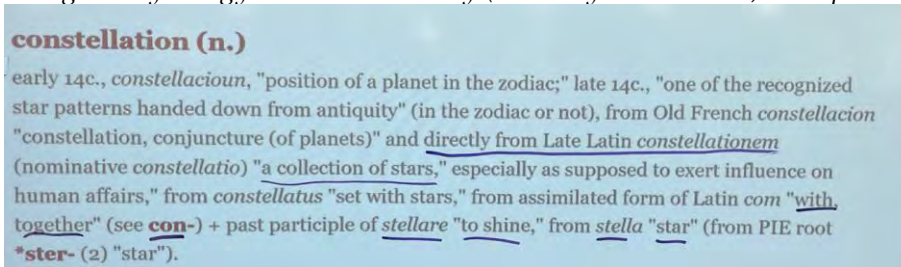


Figure 15

Explaining the difference in pronunciation of the letter <o> in <constellation> between American and Australian accents using the Cambridge Dictionary Online (<https://dictionary.cambridge.org/>) - International Phonetic Alphabet symbols

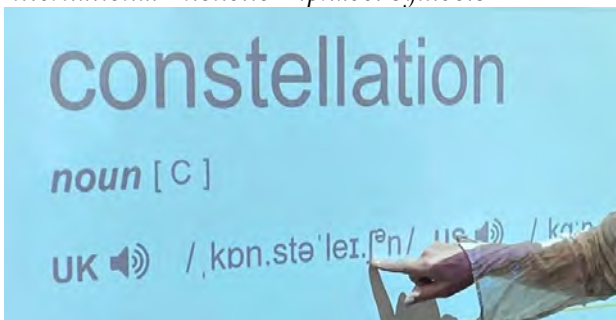
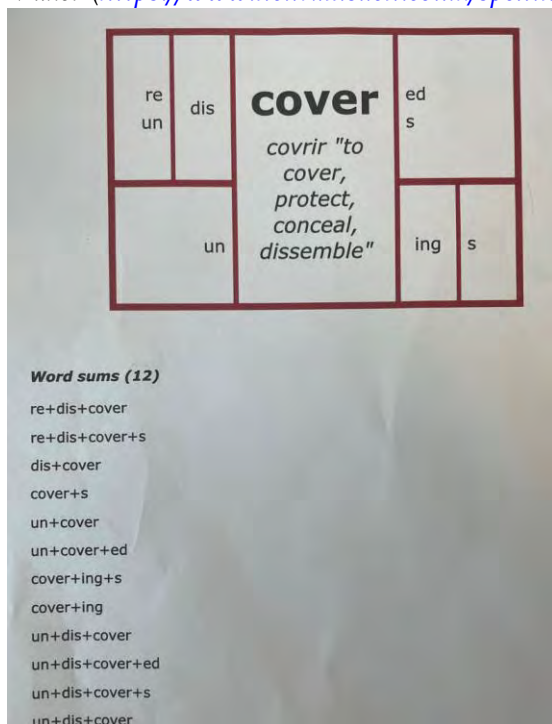


Figure 16

Student work sample of a Structured Word Inquiry of <cover> using Neil Ramsden's Mini Word Matrix Maker (<https://www.neilramsden.co.uk/spelling/searcher/index.html>)



It was evident that every teacher utilised a variety of tools (see examples above) when conducting 'word studies', 'word webs', or 'word investigations' (see Figures 6, 7, 8 & 9 for examples of the documentation), breaking down each linguistic element by choosing the most suitable tool for analysis. Their confidence in determining the best tool for dissecting each linguistic element was attributed to their professional development experiences which gave them the knowledge and metalanguage for specific tool usage. Additionally, ongoing daily practice with students and ongoing in-class support and mentoring from school leadership were also mentioned.

"I think about what I am teaching, rather than doing what was being told to teach. A lot of what you have introduced, it has felt like I am learning how to teach again. The changes like THRASS, SWI have improved my practice." (Participant 5)

"We have been given a lot of tools, we have used this analogy before but there is a big toolbox: it is Pete (SWI), is it Word Cracker, is it THRASS, is it Neil and the Matrix, then we have the novel study." (Participant 5)

## 5.2. Theme 2: Impactful Assessment Techniques

Assessment practice in this study was documented as: analysing spelling errors in the context of writing, pre- or post-assessments prior to explicit teaching using mini whiteboards or International Phonetic Alphabet tiles, collecting personalised words during lessons or from a dictation and using Kahoot! as an online platform (<https://kahoot.it/>) to assess student understanding of linguistic metalanguage. Words were explicitly taught before sending home for revision and were collected from texts students were studying or topic/ content words. Teachers also provided structured teaching around problem-solving The National Assessment Program - Literacy and Numeracy (NAPLAN) errors using the four Lenses of linguistics as strategic tools to identify the type of error. For example, drawing on either orthographic or morphological knowledge to help with spelling. In this sense, Participant 2 stated that "Looking at their writing and learning, choosing personalised words. Their writing lets me see what they are picking up, what they are missing." In addition, Participant 4 and Participant 2 respectively expressed that:

"We don't give the children just a list of words, because we know that to stick in their long-term memory, we know it's better not to rely on spelling tests, of course. It doesn't actually teach the children to be an active, careful speller, the knowledge for the tests just stays in their short-term memory and it's not being used. So, it's not meaningful to the child because they're not making a strong connection to that word. We're actually teaching the children, giving them strategies to spell those words, using their knowledge of morphology with base words, with affixes, using their knowledge of Structured Word Inquiries." (Participant 4)

"I think that the spelling must be taught, it must be taught first. And that's vital. It can't just be going home. But it's also educating the parents to say why we are doing this and the benefits, not just giving a list of ten words that we're going to be learning each week. We need to be saying, "these are relevant meaningful words to the children." (Participant 2)

### 5.3. Theme 3: Development of a Supportive Culture

The teachers highlighted the significant effect of working in a school setting that promoted awareness of language use and where leadership had organised training in metalinguistic instruction. Participant 4 asserted that "We've been extremely fortunate to have mentors in the leadership team. It's a very collaborative team effort." Additionally, Participant 3 stated that:

"Compared to a few years ago, I am very confident to teach the metalanguage of linguistics. I am much more confident than I have been because it has been such a great learning journey for me over the last few years working with leadership." (Participant 3)

According to studies conducted by Mesmer and Griffith (2005) and Wood (2005), relying solely on one model or approach can have a negative impact on students' academic performance. Therefore, the teachers involved in this research proposed the implementation of a pedagogical toolbox instead of a prescribed program for all current and preservice teachers. By using a variety of tools and strategies for instruction, teachers' confidence in teaching linguistic metalanguage would increase.

"The problem with the other programs is that they feel very one dimensional. You have to use them because that is what is written in the book, but this way, there are so many stages, there is not just one thing telling us how to spell. It is like your Linguistic Lenses- that is how we do that. For me, this way of teaching is very much driven by my students' interest, knowledge, vocabulary, the words from our novel and rich discussion which ensues." (Participant 5)

"There is not "one size fits all", these (tools) all work together to support differentiation for all students and allow them to access information in a way that makes sense to them." (Participant 5)

## 6. Discussion

### 6.1. Teachers need to Structurally Analyse Words as a Linguistic Endeavour

Current research recognises the English writing system as a morphophonological construct according to Bowers and Bowers (2018), or morphophonemic as per Adoniou (2013), with all participating teachers acknowledging the necessity of analysing English Orthography (spelling system of our language) as a linguistic skill, identifying the importance of students being made aware of the meaning- based nature of English spellings (Reynor, 2015). This is because word knowledge of English spelling is a crucial aspect of language and literacy learning, as it is predictive of reading and writing difficulties as early as Grade 1 (Treiman et al., 2019).

Word knowledge, in the context of this study, is classified as phonological, morphological, etymological and orthographic knowledge, with teachers believing these linguistic elements should be taught from the beginning of children's schooling. Bowers and Bowers (2018) assertion that 'instruction should emphasise morphology and phonology from the start' aligns with these findings. In a similar vein, linguist Venezky (1967) noted, 'the simple fact is that the present orthography is not merely a letter - sound system riddled with imperfections, but instead, a more complex and more regular relationship wherein phoneme and morpheme share leading roles' (p. 77).



In traditional approaches to spelling instruction, the focus tends to be solely on phonics, which emphasises the teaching of grapheme-phoneme correspondences. However, research suggests that a more comprehensive approach to spelling development should consider the interrelationship of phonology, orthography, morphology and etymology as well as the interplay of these linguistic elements (Bahr et al., 2012), which was echoed in this study. Just as an understanding of the interrelationship of phonology, orthography, morphology, and etymology is vital for spelling development, it is also essential for reading comprehension.

Each participant in this study brought to the table over two decades of teaching experience, spanning all age groups and all held qualifications in either Junior Primary or Early Childhood Education, therefore, their experiences with teaching commercial programs could be directly compared to building their professional knowledge and capacity through training in phonology, orthography, morphology and etymology. To be clear, a key aspect of phonology and orthography is grapheme-phoneme correspondences and phoneme-grapheme correspondences.

## **6.2. What could Effective Word Study Instruction Look like in the Primary Classroom?**

### *6.2.1. Teachers need knowledge of linguistic metalanguage*

Effective instruction for word knowledge in the classroom relies on fostering awareness and curiosity about words, as stated by Scott and Nagy (2004). In order to do so, teachers play a critical role in stimulating and promoting students' interest in words. To fully engage students in discussions about word knowledge, teachers must first have a deep knowledge and understanding of linguistic metalanguage, then establish this metalanguage and utilise various literacy strategies (Apel et al., 2013) in their daily practice. It is essential for teachers to teach the linguistic semiotic system (Daffern & Critten, 2019) regularly and explicitly with a teacher's knowledge of the linguistics of English orthography influencing how word knowledge is taught and how spelling and vocabulary can be learned (Treiman, 2018). The participants in this study valued the professional development they had received, and attributed that to their deep understanding of phonology, orthography, morphology and etymology, as well as ongoing mentoring and support from leadership. Prior to this study, there was limited research on how experienced, confident and competent literacy teachers incorporate these linguistic elements into their instruction.

### *6.2.2. Instructional Strategies and Forms of Documentation*

There was a consensus among participants that vocabulary, spelling words and word knowledge should be taught explicitly by the teacher, which is a view echoed in the research with meta-analytic research identifying that significant improvements in spelling can be made by increasing the amount of explicit instruction (Graham & Santangelo, 2014). In this study, students were given time to unpack their phonological, orthographic, morphological, and etymological knowledge and time to build skills in their weak areas and capitalise on their strengths (Adoniou, 2017). Questioning by teachers of students also provided a flexible tool enabling the teachers to give feedback, to check for understanding and to quickly assess student progress during the word study process. This technique allowed the teacher to 'look for evidence of spelling behaviour across the full repertoire of spelling knowledge' (Adoniou, 2017).

All participants drew on multiple-linguistic word-study instruction to complete spelling, or orthographic analysis, across a range of subjects. Their practice was documented and described as a 'word study', 'word web', 'structured word inquiry' or 'spelling investigation' which is supported by Scott-Dune (2013) who identified the exploration of word patterns, a progressive understanding of word structure and opportunities to engage in critical thinking and problem-solving related to words as integral to helping students become proficient spellers.

Their instruction also all occurred in context and in a meaningful way to the students, resonating with the view that 'general word knowledge, exposure to print and morphological awareness play an important role in a student's ability to spell new words' (Daffern & Critten, 2019). Specifically, half of the teachers discussed the importance of linking word study with

quality literature through novel studies. The novel being studied by students provided the springboard for vocabulary instruction, with it evident that the teachers' deep knowledge of the metalanguage of linguistics allowed for explicit and planned vocabulary instruction, as well as incidental vocabulary teaching based on unfamiliar words which arose.

### **6.3. Building a Word Conscious Culture**

#### *6.3.1. Teachers thrive with curriculum leadership*

Research directs educators and school leaders to place a substantial emphasis on word study, vocabulary development and building word knowledge. This study found that the expert teachers worked in a school environment which established a 'word conscious' culture (Curriculum Associates, 2016), one that valued vocabulary, quality literature and the opportunity to differentiate or take a 'tangent' based on the learning momentum in the class. Having received a wide range of professional development over their career, they were able to compare scripted programs with pedagogical tools ascertaining that a word conscious culture is imperative to success in promoting vocabulary growth for every student and with that, reading enjoyment. To foster such a culture, students should be exposed to engaging vocabulary through rich, quality novels, texts and books with active participation in this practice embedded in classrooms daily. This can happen if school leaders prioritise the development of word knowledge to build vocabulary skills as a key aspect of student education both in the classroom and throughout the upper years of primary and middle school.

#### *6.3.2. Teachers want mentoring and support through observations and feedback*

In previous research, teachers reported wanting more opportunities to observe expert teachers implementing instructional strategies during literacy instruction. They also wanted to see how effective teachers model best practices in literacy with their own students. Furthermore, teachers wanted ongoing support across the school year through multiple observations and avenues for the provision of constructive feedback (Kindall et al., 2018).

The findings in this study align with research by Wray and Medwell (2000), who identified key knowledge and understanding of literacy among effective teachers of literacy, finding that effective teachers had undertaken extra professional development opportunities beyond those provided in school, to extend and develop their knowledge and expertise in the teaching of literacy. Although teachers in that study valued what they had learnt, in practice, their capacity to implement new learning was affected by a range of contextual factors including a perceived higher importance for content instruction, time constraints, and policies of forced compliance (Smith & Robinson, 2020). In contrast, the participants in the current study were able to take new learning into the classroom and were actively supported and mentored by school leadership through demonstration lessons, feedback and ongoing professional development which focussed on teacher knowledge to differentiate literacy instruction. Additionally, each member of this study had a specific interest and passion for the English language and the teaching of literacy, inspired by professional development and collaborative professional dialogue around English orthography.

## **7. Conclusion**

The teachers engaged in a discussion about their changing teaching methods and reflected on the professional development opportunities that helped them improve their linguistic skills and teaching approach. They revealed the strong connection between word knowledge and vocabulary development, linking this to success in literacy. Each teacher utilised innovative and inclusive tools and strategies to prioritise word learning and used a comprehensive approach for enhancing vocabulary and word comprehension, one that took into consideration the connections between phonology, orthography, morphology and etymology.

An emphasis on word knowledge has been proven to have a significant impact on both academic achievement and personal development, from a child's early education to the

complexities of advanced vocabulary in middle and high school, which could impact students' enjoyment of reading for life. This study demonstrates how educators can utilise various tools and strategies for effective vocabulary instruction, with these strategies providing a helpful guide for creating a rich lexical environment that fosters deep learning, understanding, enjoyment and confidence.

## 8. Limitations and Future Directions for Research

The project was limited by a small participant group, drawn from the same metropolitan area in Adelaide South Australia. Additionally, studying participants who have received professional learning in linguistics could mean that the results are not as applicable to new teachers, with knowledge taking time to build.

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### Appendix 1. Metalinguistic Observation Protocol (MOP)

Effective teaching should engage students in discussion around the metalanguage to explicitly analyse words, with it important that a teacher models specific processes by thinking aloud and using specific linguistic terminology.

The following table shows the metalanguage Participant 1 used during their observed lessons, as well as the tools and strategies they used when teaching.

#### Participant 1

Phonological Lens	Orthographic Lens	Analysis of Lesson
<ul style="list-style-type: none"> <li>phonemes</li> <li>diphones</li> <li>schwa box</li> <li>IPA</li> <li>Phonology</li> <li>phonemes</li> <li>syllables</li> <li>American vs British pronunciation</li> <li>Phonetically</li> <li>Phonological Lens</li> <li>IPA- International Phonetic Alphabet</li> <li>"phoneme fist"</li> <li>Unvoiced phoneme</li> </ul>	<ul style="list-style-type: none"> <li>Key graphemes</li> <li>Capital letter, full stop, comma, noun groups</li> <li>GCA- grapheme catch all</li> <li>Not a regular spelling choice</li> <li>Spelling choice position in words e.g. &lt;ck&gt;</li> <li>"tricky words"</li> <li>Digraphs</li> <li>Small words within larger word</li> <li>"tricky digraph"</li> <li>Key grapheme</li> <li>Visualisation- eye, camera, memory, mental picture</li> <li>GCA- Grapheme Catch All</li> </ul>	<p><b>They used:</b></p> <p>Phonological, Orthographic, etymological and morphological thinking</p> <p><b>Were the lenses of linguistics interwoven in this lesson?</b> Yes</p>
Morphological Lens	Etymological Lens	What tools and strategies were evident?
<ul style="list-style-type: none"> <li>Noun groups</li> <li>Compound words</li> <li>Pronoun, proper noun, connective, adverb, adjective, articles, prepositions</li> <li>Past tense</li> <li>Compound word</li> <li>Morphology</li> <li>Verb, conjunction, pronoun</li> <li>Parts of Speech</li> <li>Prefix</li> <li>Suffix</li> <li>Base word</li> </ul>	<ul style="list-style-type: none"> <li>Etymology</li> <li>Origin</li> <li>Greek</li> <li>Latin</li> <li>Old French</li> <li>Old English</li> <li>Late Latin</li> <li>Etymological Root</li> </ul>	<ul style="list-style-type: none"> <li>Novel study- The Elephant</li> <li>Structured Word Inquiry</li> <li>THRASS Chart</li> <li>Dictation</li> <li>Simile</li> <li>Compound word- fists</li> <li>Tricky choices- / əl/ principle/ muscle</li> <li>Highlighter for parts of speech</li> <li>"Words only have the right meaning in the context of the sentence, they can mean different things."</li> <li>Dictation</li> <li>Cambridge dictionary</li> <li>Analysing common NAPLAN errors</li> <li>Spelling through analogy</li> <li>Visualisation</li> <li>Ordered the use of the Linguistic Lenses: Phonology, Orthography, Morphology, Etymology</li> <li>THRASS Chart</li> <li>Red and blue pens indicating vowel and consonant phonemes</li> <li>Phoneme fist</li> </ul>