Reading models: putting the jigsaw together

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Reading can be likened to a jigsaw puzzle. The picture on the front of the box is the text, and all the pieces are the parts of words inside the text. We put the picture together bit by bit, puzzle piece by puzzle piece, using the shape and colour of each piece to form meaningful parts of the picture: a tree, a balloon, a person. We learn how to group pieces according to shape and colour, but it is the picture that drives us to persist, and the picture that gives sense to our activity.

Thanks to cognitive psychologists and neuroscientists, we know so much about how the brain engages with and makes meaning from print. They have been able to observe how different parts of the brain fire up as readers read. They tell us that the reading process begins with visual recognition of words and letters and moves in dual pathways to pronunciation and meaning which feed into each other (Willingham, 2017).

Thanks to linguists, we know about how meaning is constructed. They tell us that that meaning is conveyed, depending on its cultural purposes, through different types of texts. We know about the grammatical and structural differences between oral and written language, and the challenges that arise for many students in comprehending written texts (for example, Halliday, 1987).

There is no doubt about it: the process of learning to read is complex. So how do we, as teachers, help our students to develop in learning to read, so that they can read for different purposes, for example, for entertainment, for learning and in order to be a participating citizen? How can our teaching most effectively support all the learners in our classrooms?

As knowledge about reading has grown over the years, theorists have developed a broad array of reading models to represent the reading process. These models can be viewed as attempts to summarise the knowledge and skills required to be a successful reader, as a tool for organising our class literacy program, or as an analytic tool for working out what is happening when we're concerned about a student's reading performance. The models describe reading with different numbers of components; with differing amounts of detail; and, in the way they are arranged, they send messages about different priorities for teaching reading. In recent times, 'reading' models have been broadened to describe literacy more generally; that is, reading and writing.

Each of these models suggests a different 'schema', that is how the knowledge and skills required for reading (or literacy) interact. These frameworks therefore lead us to organise and prioritise the components of our literacy program in different ways. Selecting a model matters, because it effects how teaching and learning is planned, organised, and sequenced in the primary classroom. It impacts on the cognitive and social demands of learning to read and write, and has to serve our needs as teachers, as well as the needs of every child in our class.

This PETAA Paper is written for education students and early career teachers. It has one simple purpose: to look at some of the most familiar models of reading, view them from the perspective of the broader context of language development, see how they fit with each other, and work out their strengths and limitations. In other words, we are ourselves developing a schema that helps us to make sense of these sometimes-confusing models, and know what gaps still need to be filled.

The paper reflects the content of Chapter 2 of PETAA's recent publication *The Alphabetic Principle and Beyond* (Cox et al 2019) which is priority reading for a deep understanding about phonics and spelling.

The five reading or literacy models listed here have been selected because they are familiar in the Australian education context. They are:

Gough's simple view of reading (Gough, Juel, & Griffith, 1992; Hoover & Gough, 1990)

The Big 6 of reading instruction (Konza, 2010; 2014)

The Scarborough (or 'rope') model (Scarborough, 2001)

The three cueing systems (Clay, 1979; Goodman, 1970, Smith, 1979)

The four resources of the literacy learner (Freebody, 2019; Freebody & Luke, 1990, 1999).

The description of each model will include: How it came to be; What it does; Affordances and constraints (how it might help, and the limitations of the model)

Reading and writing of written texts are only one way that we communicate through language. Before we address each model in turn, it is important to understand how they fit within the broader concept of language, using the functional model of language which is the foundation of the Australian Curriculum: English (ACARA, 2016).

THE PLACE OF READING AND WRITING IN LANGUAGE DEVELOPMENT

The Australian Curriculum: English distinguishes between modes of communication according to whether they are the receptive or incoming modes (reading, listening, and viewing) or the productive or outgoing modes (writing, speaking, and creating visual texts). Whether our role in any oral, written or visual communication is receptive or productive, the purpose is to make meaning: to make sense of other people's messages, and to communicate in a way that makes sense for other people. Receptive meaning-making is commonly known as *comprehension*. Productive meaning making is sometimes called *expression*.

Both reading and writing are, of course, our way of engaging with communication in the form of written texts. Written texts enable humans to communicate beyond their immediate context across time and space and gives us time to think about processes and events, enabling analysis and reflection (Olson, 1994). Yet written texts are just one part of the wider system of language that makes us human. This system of language is extensively described in a model sometimes affectionately called the 'onion-ring' model from English born, Australian linguist M A K Halliday, shown in Figure 1 below.
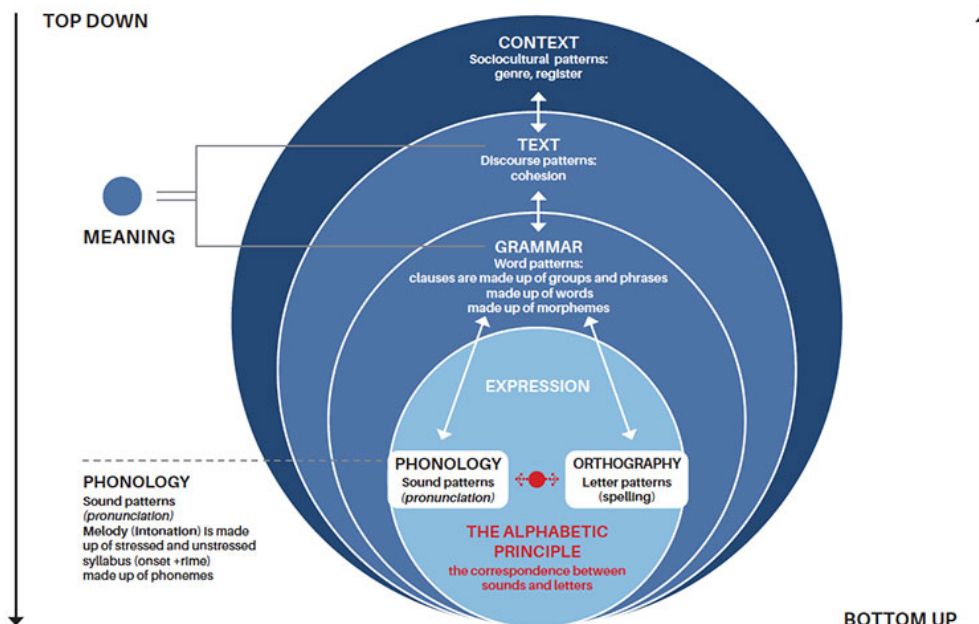

Figure 1: Halliday's model for the relationship between meaning and decoding in language (Feez, 2019)

Meaning begins with the outside circle, the Context of Culture: any community of practice, from a whole society to the world of science, down to the local sports club or a family, has its own meanings to make based on its motivations, beliefs, goals, and established ways of doing things (Wertsch, 1998). For

example, the scientific community seeks to describe, explain, and solve problems in the natural world, out in the field, and through well-established methods of investigating and recording findings. They use language to discuss and critique each other's work, using an established set of principles known as the Nature of Science (for example, AAAS, 2008). The netball club seeks to play a game with a ball while having a ball, using the rule book, based on explicit core values.

The motivations, values and goals established by larger or smaller social groups in Context of Culture lead in turn to the next ring, the Context of Situation: the situations in which members find themselves interacting as a group. Scientists might be in laboratories, in the field or at conferences, and often communicate through formal conference papers and academic journals. Netballers are, well, at the netball court, at practice, and at after parties. Each of these situations require different actions by the participants, different circumstances, and different artefacts. In doing this, each situation creates purposes for communicating through texts; oral, written, or multimodal. The science community communicates often through highly academic, peer reviewed written texts with tables and figures; while the netball coach and team might use talk and the coach's whiteboard during games, plus text messages and informal social media messages in between games. Each written text has its own logical structure, sometimes formal and stable (known as genres), sometimes more flexible, to meet some of the communication purposes of that group.

In the next concentric ring in Halliday's model, we finally get to Language, where we focus on the oral or written language choices inside the text. Inside the text are two types of language choices: vocabulary and grammar. Language choices inside the text convey meanings for different purposes, depending on what needs to be said, the relationship between the communicants, and whether the communication is written or spoken. The written language of a scientist defines terms very specifically and objectively, so that their peers around the world can understand and evaluate the concepts and processes. The oral language of the netball player is far more fleeting, personal, and context specific: 'Give it to me, give it to me!'. We wouldn't hear 'Lob the 226mm diameter compound rubber sphere in a 52 degree/25 metre arc towards my metacarpi'.

The point I am making here is that the meanings conveyed in language, whether spoken or written, every day or specialised, informal or formal, are culturally and situationally generated: they carry the cultural meanings and intentions of that group. Those meanings and intentions are evident in the vocabulary and grammatical choices inside each text.

The work of Halliday and his colleagues helps us to understand the differences between spoken-like and written-like texts, and why this is so challenging for students whose experiences out of school are largely oral (Halliday, 1987; Martin & Veel, 1998). When it comes to making sense of written texts, our role as readers is to comprehend and respond to the writer's intentions. A text carries many layers of meaning, from literal to inferential and beyond. What is commonly referred to as 'Background' or 'prior' knowledge has many layers: in Figure 1 above, it is broken down into knowledge about the context of culture, context of situation, text structures and how they work, and the reason for language choices in the text.

The level of inferential meaning is where many students come unstuck. Cognitive psychologists Sperber and Wilson argue that a shared cultural perspective is fundamental to the ability to infer the meaning from other participant actions, including communicating with each other (Sperber & Wilson, 1986). In the case of the netball team, that might be an eye squint that tells other players the intended direction of the lob. In the case of writing, that includes the unfolding structure of the text, the paragraph, the sentence, the phrase, and the word. Each of these conveys the intentions of the writer. Sperber's observation would explain why students who have been read to since birth, and who are involved in discussions about the why and how of the text and illustrations, are so privileged and adept when it comes to inferential comprehension at school and why others are unintentionally left in the dark (Williams, 2001).

The implication for teaching is that, for students to learn how to make inferential meanings at the level of text, paragraph, sentence, or word, we bring to consciousness and explicitly share with all students our own assumed and unconscious inferences; in other words, why the author has made these choices, and their intent. This process of bringing to consciousness the author's purpose and intent can be summarised as the 'So what?'. To move through the layers from word choice to context of culture, we keep asking ourselves 'So what?' until we run out of answers. For example, even in the early years of schooling, have we thought about why the wolf is a baddy in 'The Three Little Pigs' and why the pigs are goodies? Why are there three of them and not four or two? Why are they talking when animals don't talk?

Is this story true? Why is there a problem in this story? Is there a problem in every story? Why do we have stories like this? Do all cultures have stories like this? The answers to these questions are not always inside the heads of students, waiting for the right probing question from the teacher to spring out. Do we know the answers? The answers are often not inside our heads either without discussion and often some discomfort, yet it is this sort of analytic knowledge which creates rich and rewarding classroom discussions around text meaning.

So meaning making, or comprehension, for many students is a huge area of learning, involving all the levels mentioned so far in Halliday's model (Figure 1), and it is something that we, as teachers, need to think hard about if we are to teach it systematically and purposefully. This responsibility is much more than expecting students to 'think beyond the text' or 'think harder'. Our ability to identify and explain these cultural meanings depends on our own understanding of the motivations, goals and means of each of the learning areas, because they are all different and they impact on the meanings conveyed through writing and other modes. Scott Paris describes the ability to make meaning as 'unconstrained' skills, because they continue to expand without limit as our students' understanding of the world grows (Paris, 2011).

Finally, in Halliday's model, we arrive at the smallest circle where words are expressed out of mouths (phonology), or on the page (graphology). This is the point where all that meaning finally reaches the reader or listener. The placing of this circle inside the others emphasises its embedded nature: bringing all this meaning into a reality that can be heard or seen.

That is not to say that this final, relatively small circle is insignificant or trivial. While it is a lot easier in phonetic languages for young readers to decode, English orthography is complicated. It is known as a 'deep' orthography, with many different spelling patterns, depending on history, grammar and meaning (Castles, Rastle, & Nation, 2018). Such a complex orthography puts a high cognitive demand on the young reader, as they learn to decode, or rather to 'decipher' (Gough *et al*., 1992). These deciphering strategies, aimed at recognising the patterns of English orthography are a finite group of skills, and described by Paris as 'constrained' skills. There are only 26 letters in the English alphabet which are arranged in certain ways and attached to certain sounds. Once students have mastered those arrangements, they don't need to think too much about them most of the time.

It goes without saying that students must become automatic decoders in order to independently access written text, and that means eventually recognising most words so quickly that they don't have to break them down bit by bit into syllables and phonemes (Pressley, 2006). Reaching automaticity for many students takes time and many repetitions but is essential in freeing up brain space for meaning making (M L Farrell, 2012). While Halliday's model of language shows that meaning making is ongoing and expanding, there is no doubt that decoding can be challenging, particularly in the early years. Thus, we give due and carefully planned time to working on this orthographic and phonological system of representing meanings. This work includes explicit teaching, as well as making the time for students to practise decoding / encoding (for instance, reading and spelling) until they are largely automatic.

Now that the big picture of language has been laid out, we now move to look at the five reading or literacy models that are most likely to be encountered in Australian schools today.

Conclusion

Our aim, as teachers, is to help our students to be successful meaning-makers, both receptive and productive, in each learning area that we teach. Reading written texts is integral to that aim, and therefore we work hard to support students in being automatic decoders and encoders. The models of reading guide us in planning for intentional, targeted literacy activities to support these two aims. However, let's not infer from the models that each component requires a proportional amount of time, or that they should be taught as separate topics.

To return to our beginning — reading can be likened to a jigsaw puzzle. The picture on the front of the box is the text, and all the pieces are the parts of words inside the text. We put the picture together bit by bit, puzzle piece by puzzle piece, using the shape and colour of each piece to form meaningful parts of the picture: a tree, a balloon, a person. We learn how to group pieces according to shape and colour, but it is the picture that drives us to persist, and the picture that gives sense to our activity.

1. Simple model of reading

The 'Simple Model of Reading' was suggested by Gough and colleagues in the 1980's (Gough *et al.*, 1992; Gough & Tunmer, 1986; Hoover & Gough, 1990). The framework consists of two components: the first component is decoding, and the second is linguistic comprehension.
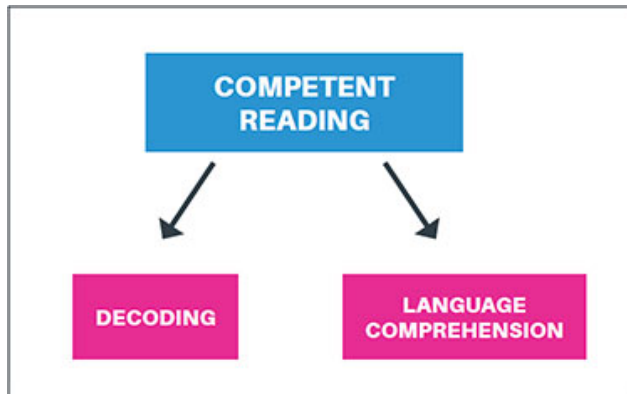

Figure 2: Gough's simple model

Gough produced a simple formula for skilled reading:
Skilled reading = decoding ability X language comprehension (R=DXC)

Each of the following combinations would result in poor reading:

Poor reading = Poor decoding X good comprehension

Poor reading = Poor decoding X poor comprehension

Poor reading = Good decoding X poor comprehension

In other words, each of these two components, decoding and language comprehension, has to be strong and interact with the other for successful reading to take place. Gough emphasised that his model is not equivalent to the 'bottom up' model, where decoding instruction precedes and is separate from comprehension instruction (Hoover & Gough, 1990, page 130). Rather, they interact with, and support each other.

Affordances of the Simple model of reading

The 'Simple Model of Reading' was suggested by Gough and colleagues in the 1980's (Gough *et al*, 1992; Gough & Tunmer, 1986; Hoover & Gough, 1990). The framework consists of two components: the first component is decoding, and the second is linguistic comprehension. The simple model of reading views the reading process as a network with just two main components. Thus we know that, in planning our literacy program, we attend systematically to both decoding/encoding and meaning-making (meaning, comprehension and expression).

Gough's model emphasises that both components work together, helping us to think more deeply about why students might be failing to read. The 'Year 4 slump' is a well-recognised phenomenon (Chall, J, 1991). easiest explanation for the slump is that students can't decode well enough, so we add more phonics. However, Gough points out that failure to read might also be an issue of comprehension, particularly as the vocabulary and conceptual understanding in the learning areas grows more complex. It

could be that, rather than working hard on decoding, we need to pay closer attention to how we explicitly teach meaning, including morphemic knowledge about words.

*Constraints of the simple model of reading*

Gough's model certainly simplifies and separates out the two components of reading but has limitations. It doesn't provide the detail of the more fine-grained sub-components of decoding such as phonemic knowledge and phonics. We get that from other sources. Nor does it provide detail on the work that is needed to teach comprehension. Gough simplifies comprehension as 'linguistic comprehension, reading and 'auding' (the process of listening to and comprehending spoken language) (Hoover & Gough, 1990, page 128).

However, it is clear from Halliday's work that comprehension in listening is not the same as reading comprehension. As explained above, the structure, vocabulary and grammatical choices in oral and written texts are not the same. Written texts across the learning areas are much more complex and less familiar to many students than everyday oral language, creating comprehension challenges that teachers have to assist with.

The danger of dividing reading into these two components may give the message that our classroom reading program requires a 50/50 split between decoding and comprehension. Even in the early years, when we are working hard to get students to automaticity in decoding, Steven Stahl, a member of the National Reading Panel, recommends no more than 25%, and possibly less, of instruction time be spent on phonics. In pointing out the need to work with all the other learnings about print and stories, he made the analogy that phonics taught in isolation is like teaching a child to pitch a baseball without ever having seen a game (Stahl, 1992, page 620).

2. The 'Big 6' of reading instruction

The United States National Reading Panel report of 2000 has become a benchmark for its recommendations on reading instruction. It conducted a meta-analysis of prior research within strict parameters and identified five significant factors for reading success: phonemic awareness, phonics, fluency, vocabulary, and comprehension (NRP, 2000). Oral language was more recently identified as an additional focus as part of the Australian Principals as Literacy Leaders (PALL) program (APPA, 2014), so the 'Big 6', shown in Figure 3 below, is more easily recognised than the 'Big 5' in Australia.
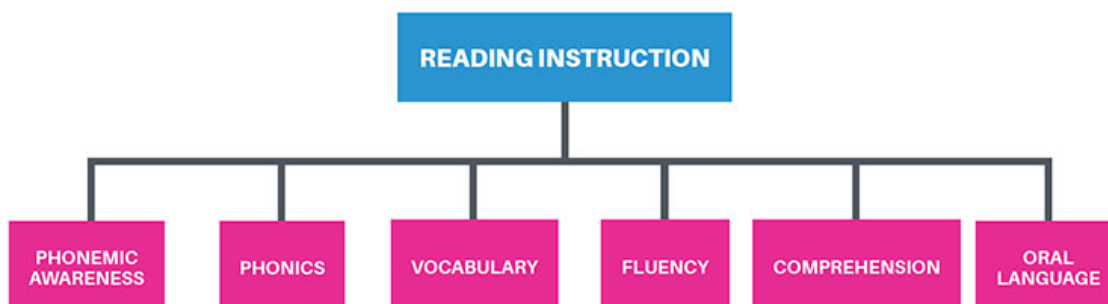
Phonemic awareness

Phonemic awareness, or 'the ability to hear and manipulate the sounds within words' (NRP, 2000) is a subset of the broader concept of phonological awareness, that is syllabification, rhyming, and segmenting of onset and rime within a syllable (Schuele & Boudreau, 2008). All aspects of phonological knowledge are useful in learning to read and write, and as teachers we make sure that each of our students becomes competent in these skills.

Phonics

Phonics is the relationship between units of sound and the printed word, and control of phonics is essential for successful reading. There are different types of phonics instruction: analytic and synthetic. Analytic phonics begins at word level, breaks the word up into syllables, then onset and rime, and finally teases out the phonemes as represented by a letter or letter cluster. Synthetic phonics moves in the other direction: from initial sounds represented by single letters, to digraphs, word patterns and eventually words. In references to phonics instruction, there is often slippage between 'systematic' and 'synthetic' phonics instruction. However, the NRP does not recommend synthetic over analytic phonics. They explain that both can be taught in an ad hoc way, or systematically, and it is systematic phonics instruction that correlates with successful reading (NRP, 2000, p. 12). Systematic phonics is defined by the NRP as teaching with a clear plan, as opposed to sporadic, point of need instruction.

Vocabulary

When NRP identifies the value of Vocabulary, it is referring to the teaching and expansion of word meanings. This is not the same as sight word recognition. In the NRP report, the concept of vocabulary includes knowledge of prefixes and suffixes, which elsewhere is included as part of spelling.

Fluency

Fluency in reading aloud is also found to improve reading. Fluency includes accuracy, speed and prosody (intonation, stress and rhythm). It helps to improve automatic decoding, and also supports comprehension, at least with beginning readers (Paris, Carpenter, Paris, & Hamilton, 2005).

Comprehension

Comprehension is explained in Halliday's model of language (Figure 1) as receptive meaning-making. However, the NRP review focused on Comprehension strategies, that is ways of approaching reading to help guide thinking, because these were the most common comprehension teaching practices available for them to review. For example, the pedagogic routine called 'reciprocal reading' lists four such strategies: prediction, questioning, clarification, and summarisation (Palincsar & Brown, 1984). There are many other resources that provide variations on that list with the same purpose (eg, Cameron, 2011).

Oral language

Finally, separating oral language from the other components of reading helps teachers to understand the value of facilitating extended coherent student talk in the classroom, rather than simple 'vocabulary' (Konza, 2014). For students to recognise meanings encoded in written language, it helps for them to have interacted with the vocabulary orally.

How do the Big 6 match up with Gough's Simple Model? In Figure 4 below, the Big 6 are overlaid onto the model shown in Figure 4 below.
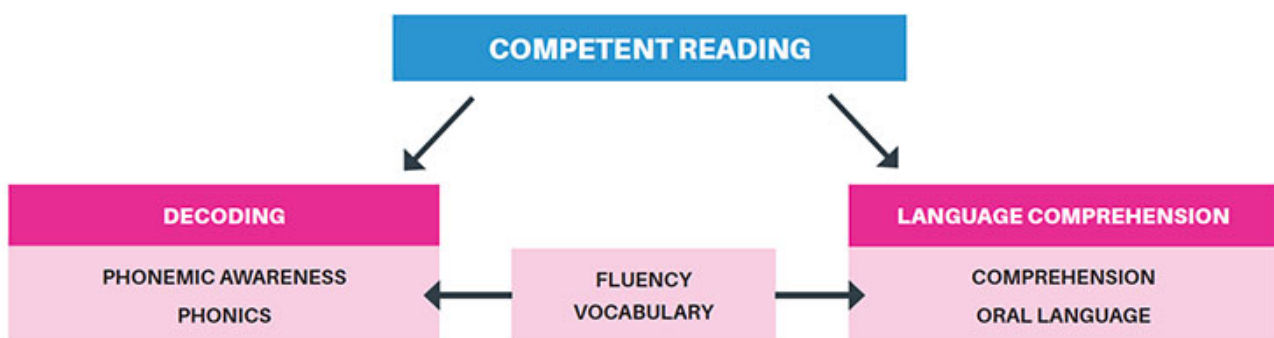

Figure 4: Gough's simple model overlaid with the Big 6

Two 'Big 6' components fit easily into the Decoding strand: Phonological awareness and Phonics. Two fit under the Comprehension heading: Comprehension and Oral language. Fluency fits in the middle, spanning both sides, because firstly it helps students to develop automaticity in decoding, and secondly, in the early years, it also helps with comprehension (although that effect may wain as students get older (Paris et al, 2005; Pressley, 2006, page 209)). Vocabulary is obviously part of Language Comprehension,

but at the same time, the morphemic knowledge (that is knowledge of the meaning of prefixes and suffixes) included in learning vocabulary means that it contributes to Decoding.

The NRP review followed on from many years of a 'whole language' approach to the teaching of reading (for example, Goodman, 1970). Whereas whole language proponents suggested that most children would pick up decoding skills without the need for explicit teaching or regular practice, the NRP advocated for systematic instruction in these five (or six) components.

The strength of the Big 6 is that the demands of reading and the content of instruction are backed up by the National Reading Panel. We have an 'evidence-based' list of components, and we can address them in our literacy program, both in planning for explicit teaching, and in planning for consolidation. School leaders are able to see at a glance in a program whether these components are being covered in the literacy block.

Constraints of the Big 6

Two issues arise in the implementation of the Big 6 in primary classrooms. The first is the 'silo-ing' or separation of each of these components. When the NRP listed these components, they did not intend that each would be taught in isolation, nor did they imply a developmental sequencing from phonemic awareness to comprehension (NRP, 2000, page 4). A literacy program needs cohesion and integration, especially important for the EAL/D student, or the low socioeconomic student who is unfamiliar with written texts, so that they can see how all the bits of the jigsaw puzzle fit together to make a whole: a purposeful text.

The second issue is that the model, broken into six equal pieces, might suggest to some that each of these components equals about 1/6 of a literacy program. Some teachers argue that decoding is the priority and that 'comprehension will come later'. This is known as the 'bottom up' approach. As evident in Halliday's model above (Figure 1), meaning-making is what reading is for, and the work of building meaning is huge. Meaning is carried not just in vocabulary but in the text purpose, the text structure, the illustrations that accompany the text, the paragraph order and structure, the sentence structure, the phrases, and groups of words inside the sentence. We just cannot leave this work until later while we teach the alphabet, but must find ways to build meaning while we systematically teach students to decode.

It appears at first glance in this model that the only spelling strategy to be taught is phonics. Recent work highlights the complex nature of English orthography, and the need for students to draw on many spelling strategies if they are going to master this orthography (Adoniou, 2016). These include not only phonics but orthographic or visual knowledge, morphemic knowledge (addressed in the NRP report as Vocabulary), and etymology. An ability to use all these strategies where appropriate will help students immensely in becoming automatic, meaningful decoders. While comprehension 'strategies' help students to apply fresh eyes on the reading process and systematise their thinking, comprehension strategies are an aid, not a substitute for cultural (meaning, background or prior-) knowledge (D T Willingham, 2009). It is evident that teaching these strategies supports improvement, but there is still debate on how much time should be given to teaching comprehension strategies (eg Willingham, D & Lovette, G, 2014).

3. Scarborough model

The 'Scarborough' model likens skilled reading to a length of strong rope, made up of two strands twisted together. One strand is Language comprehension, the other is Word recognition (decoding). So far, these are similar to Gough's simple two-component model. Like Gough, Scarborough recognises that both automatic decoding, and comprehension are needed for skilled reading. Scarborough's model provides more detail, in the form of sub-components to each strand, as shown in Figure 5 below.
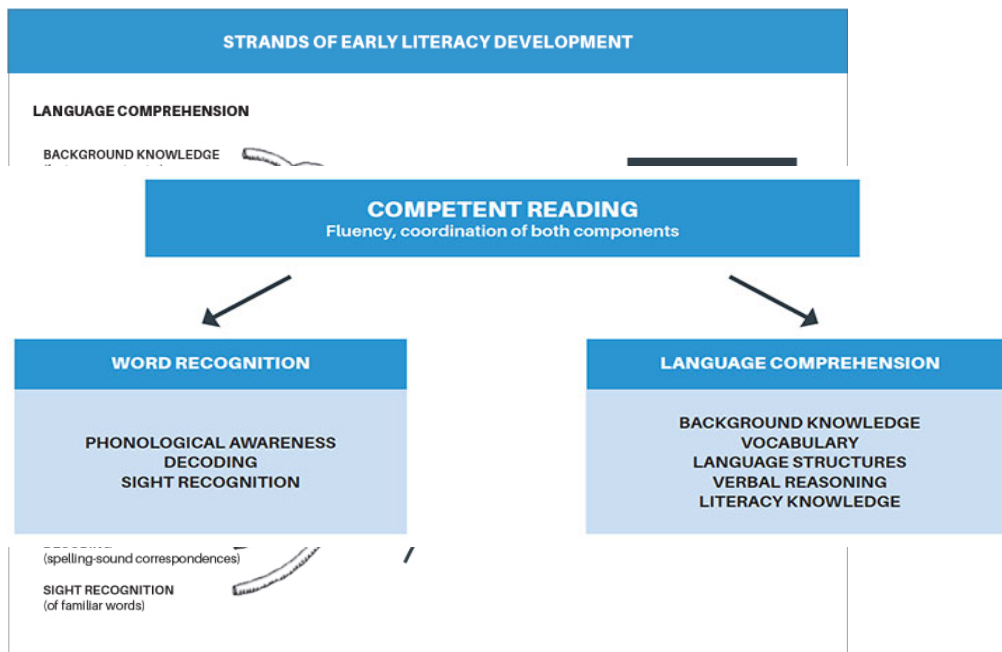
Figure 5: Strands of early literacy development. Source: Scarborough 2001, reprinted with permission

The two main strands are made up in turn of a number of smaller strands.

- In Word recognition we find phonological awareness, phonics, and sight recognition of familiar words.
- Language comprehension includes background knowledge, vocabulary, verbal reasoning, and language structures (including syntax which is the grammatical structure of a sentence, and semantics, meaning 'the study of meaning'.)
- Arrows indicate that decoding becomes increasingly automatic, while comprehension becomes increasingly strategic as students learn to expect certain sorts of meaning-making in different text types in different learning areas.

In Scarborough's model, fluency is an outcome, rather than a component to be taught.

Affordances of Scarborough's model

Scarborough's model gives the clear message that neither decoding, nor meaning, are sufficient by themselves. This is the first model in this paper to tease out five aspects of comprehension (rather than comprehension strategies) that we need to teach. It is the first model to have a clear connection with the capacity for meaning-making laid out in Halliday's model of language. The model recognises that meaning is carried in genres, text structures, grammar, and literary devices like metaphor, and that our job is to help students to understand how these aspects make meaning. If the components of Scarborough's model were overlaid onto Gough's simple model, it would look like that shown in Figure 6 below.

Even if the pronunciations of all the letter strings in a passage are correctly decoded, the text will not be well comprehended if the child (1) does not know the words in their spoken form, (2) cannot parse the syntactic and semantic relationships among the words, or (3) lacks critical background knowledge or inferential skills to interpret the text appropriately and "read between the lines." Note that in such instances, "reading comprehension" deficits are essentially oral language limitations (Scarborough, 2001, page

Constraints of the Scarborough model

The first concern with Scarborough's model is the physical distance between the two strands of decoding and comprehension. While not intended in this way, it could be inferred that these components are taught separately, to be woven together at some later time. It will become obvious by now that the

subcomponents of reading have a range of labels attached to represent the same or similar concepts: for example, in the models so far, phonemic awareness is a subset of phonological awareness; syntax is a subset of grammar; language has two components: grammar and vocabulary. These are different ways of forming the jigsaw puzzle pieces. While Scarborough's model adds detail, we have to do work to match these terms to those used in the Australian Curriculum.

4. The Three Cueing Systems

The three cueing systems are attributed to the work on reading miscue analysis by whole language scholar Kenneth Goodman (1970), later supported by Frank Smith (Smith, 1973). (Teachers who have been involved in the Reading Recovery program will recognise these cues, as used by Marie Clay in carrying out running records (Clay, 1979)).
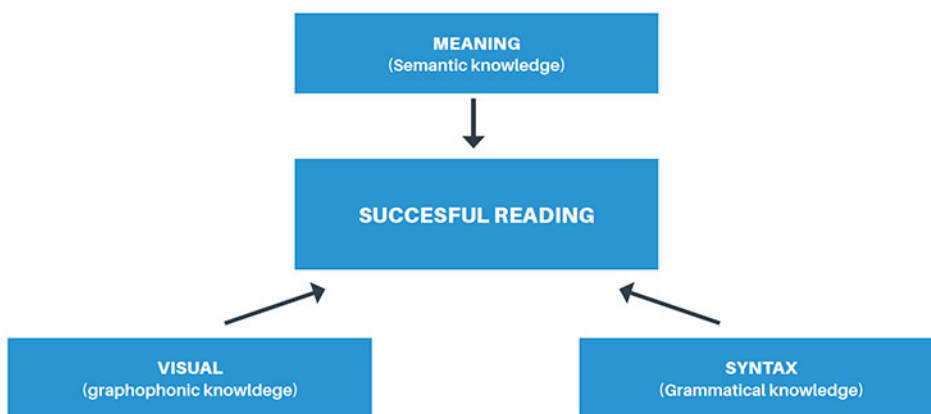

Figure 7: **Three Cueing Systems (Goodman, K)**

Constraints of the Three Cueing Systems

Sadly, for those of us who used Goodman's miscue analysis in the 1980s and 1990s, there is little to be said in favour of the three cueing systems. For a start, separating meaning making (semantics) from syntax is unnecessary. Both vocabulary and grammar carry meaning, and the syntax of a sentence is only one part of the way grammar constructs meaning within a text. They are both part of comprehension. To Smith and Goodman, the 'Visual' cue, or knowledge of alphabetics, was regarded as the strategy of last resort, and diminished the importance of phonological awareness and other decoding skills and knowledge. Subsequently, Goodman and Smith's claim that readers firstly process meaning, that is, contextual clues, before decoding has been disproved: for example, by Stanovich (2000), then by Dehaene (2009).

Neuroscience, investigating the neural pathways in the brain, shows that the visual recognition of print comes first, quickly leading in two directions: to meaning and to speech conversion (ibid page 106; D Willingham, 2017). The more rapid the visual recognition, the more space there is for making meaning (Scarborough, 2001 page 98). The three cues might have been a simple framework for identifying student weaknesses in reading, but they are based on a shaky premise and have been superseded.

5. Freebody and Luke's four resource model

Freebody and Luke's 'Four resources' model was first known as the Four 'roles' model and identified the roles that a literacy learner had to take on to be a competent reader and writer (Freebody & Luke, 1990). By 1999, the roles had changed to 'resources', to emphasise reader agency in selecting from the literate resources that were available for readers and writers to access and use for their own purposes.

The model has been represented and interpreted in many ways, causing the authors to write that **texts and discourses have a way of taking on a life of their own, with local uptakes, interpretations, and convolutions made irrespective of their authors' intentions or the political contexts of their production** (ibid). The model is 'socio-cultural': it recognises and emphasises the social nature of text, and the fact that texts are written and read for social and cultural purposes (see Halliday's model Figure 1 above).
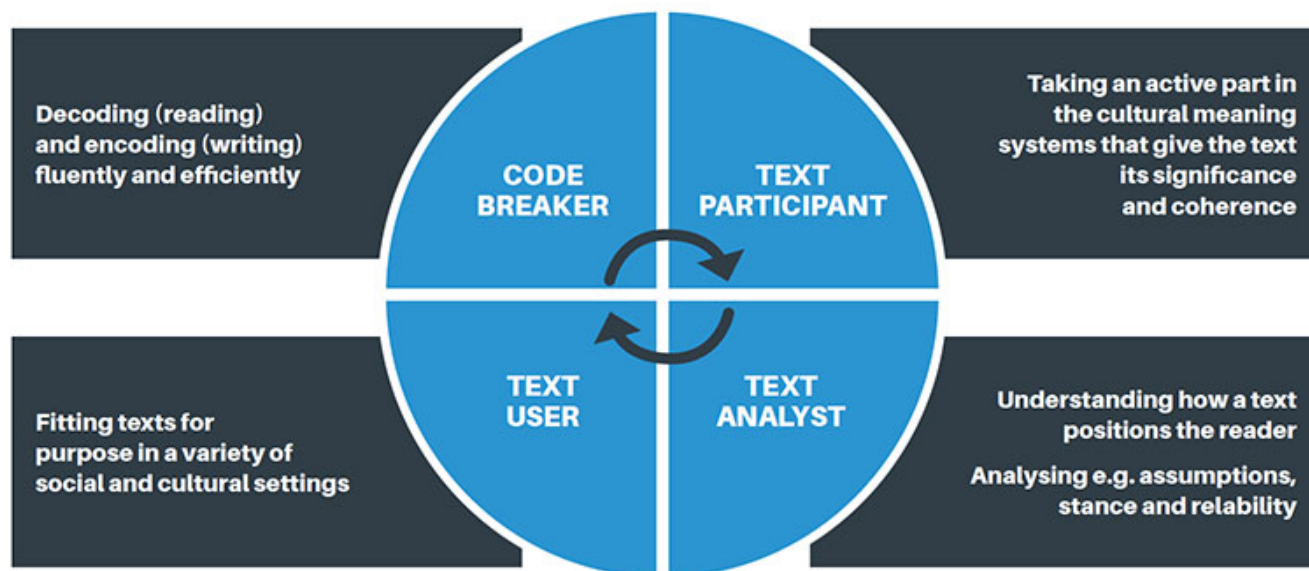

Figure 8: **Freebody and Luke's 'Four resources' model (adapted from Freebody, 2019)**

The model divides literate resources into four groups, generally represented as four equally sized quadrants. The resources are elaborated on below, with examples of how each resource might be used while reading the folk tale the 'Little Red Hen'.

Code breaker

Code breaker refers of course to the ability to decode and encode the English orthographic system fluently and rapidly (for example, being able to read /then/ /I/ /shall/ /do/ /it/ /myself/ fluently enough that meaning isn't lost).

Text participant

Text participant sends the message that the reader and writer need to be active participants in the cultural and social contexts which give these texts purpose and relevance (for example, understanding that this story is told to children for enjoyment, and to teach them to be industrious and not shirk work; to be able to participate with gusto in the cultural message 'Then I shall do it myself'... 'And she did!).

Text user

Text user emphasises the need for control over how texts are managed and adapted for their social purpose, and understanding how the form of the text reflects and supports its function (for example, to understand the unfolding of the problem as the wheat seeds are planted, grown and harvested; to understand that in many cultures, stories have a problem and the problem is always solved; to understand why the story begins with the setting 'Down the road and over the hills...' before we meet the protagonist).
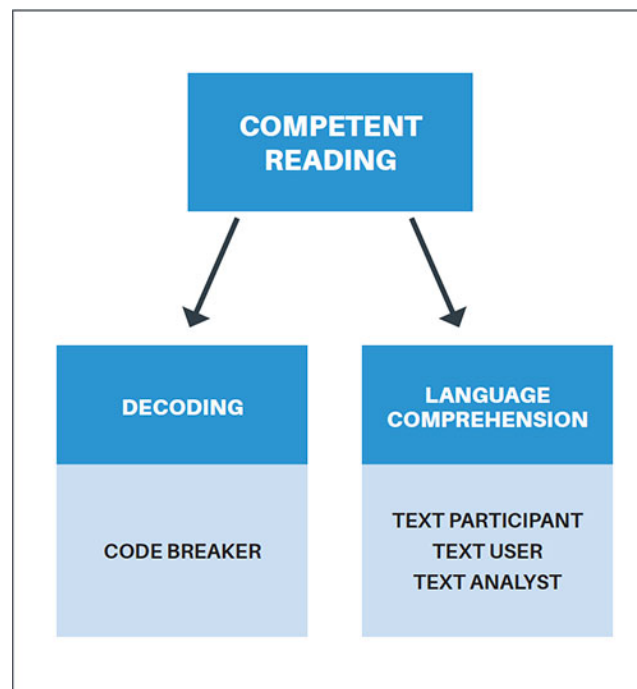
Text analyst

Text analyst emphasises the deepest level of understanding: of looking for implications and intent by asking 'So what'? How am I positioned as the reader? What is the author's stance on gender, race, ideology? What is the author's subtext? (for example, Why is the protagonist little, red, female and a hen? Why are the baddies a dog, a cat and a pig? Why is the pig big and fat? What does that say about size and gender? What do we think about the message that individual hard work pays off? What do we think about the fact that the lazy antagonists get their 'come-uppance'? If we were the authors, what would we do? Are there stories from other cultures that give the same message?).

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Affordances of the four resources model

Unlike the models above, the Freebody and Luke Four resources model represents more realistically the comparative weighting of decoding and meaning-making that make up the work of teaching reading and writing. One quadrant refers to decoding, the set of constrained skills, while three of the four quadrants refer to meaning making at different levels of understanding, the unconstrained skills.

If the four resources were laid over Gough's simple model, they would look something like that shown in Figure 9 to the right.

In fact, three of the four resources attend to meaning: they help us to think more and more deeply and critically about the 'So what?'. Why did the author make these choices? Under what circumstances would I make these choices? How am I positioned by these choices? How can I use these literary resources to communicate my own intentions and messages? These questions, and the thinking out loud that goes with them through classroom discussions are so important for bringing to consciousness the implicit and therefore often invisible assumptions that support a literate person's appreciation of text.

Constraints of the four resources model

One caveat I hold is that in fact the label 'Text analyst' could encompass all three of the meaning resources: Text user, Text participant and Text analyst. Each of these roles requires the reader to analyse text. While the 'Text analyst' box asks for a depth of critical reflection that takes us outside of, and beyond other levels of meaning, we are analysing text even when we are simply identifying the topic sentence in a paragraph or thinking about it purpose or finding the verbs. It might be useful to think of Freebody and Luke's label of 'Text analyst' as 'Text challenger'.

Is there a sequence?

Should we teach decoding first then comprehension (bottom up), or should meaning precede decoding (top down)? The answer is clear: we teach both top down and bottom up (Pressley, 2006).

Going back to Halliday's model of language, that central circle, the decoding circle, represents what are called the 'realisation' processes of messages, that is how our ideas and messages are represented and brought into reality so that others can interact with them. Without culturally-valued ideas to express, where is the motivation and purpose for students to learn how to decode and encode?

So the components are not sequenced one after the other in order. We have to develop both. Over time, as well as becoming more automatic in recognition of letter patterns and letter-sound relationships, students also learn to make use of other decoding strategies: the ability to recognise frequent visual patterns of English spelling, the ability to use morphemic knowledge, and knowledge of the history of the English language. Being proficient in calling on these spelling strategies when needed is tremendously useful and efficient (Adoniou, 2014; Bowers & Bowers, 2017; Oakley & Fellowes, 2015).

The ability to make meaning from increasingly complex texts across the learning areas also puts a load on students. Beginning readers in the early years typically start by reading stories: narratives and recounts which reflect familiar childhood experiences and universal emotions (Cremin & Flewitt, 2016; Wignell & Harper, 2009). As students move through the years of schooling, many learning area texts become increasingly impersonal, increasingly technical, and dense. The idea that each component of literacy develops over time is represented in the less familiar, but useful adaptation of Gough's model (Gray, 2007), shown in Figure 10.
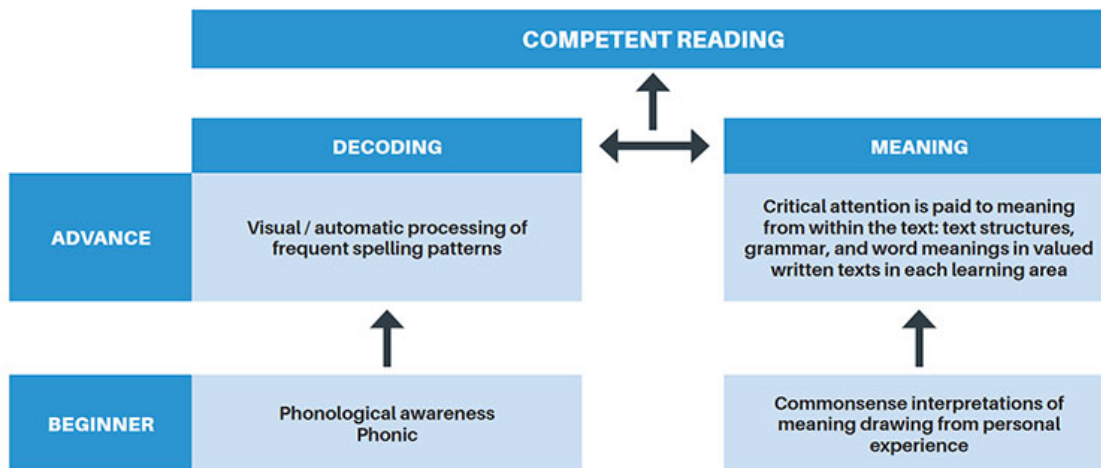
Figure 10: Schema adapted from Gray's model of reading (2007)

In the Decoding strand, the arrow between 'Beginner' and 'Advanced' signals that automatic decoding skills require an expansion to gain control over other spelling strategies. They don't stop with phonics.

In the Meaning strand, the arrow symbolises that students' understandings expand as they engage with the literate resources available in each learning area text. They also learn to look beyond literal meanings to ask the critical 'So what?' about each language choice: Why is this here? What is the intent? How am I and others positioned?

The sideways arrow between the two strands emphasises that it is the integration of decoding knowledge and meaning building that leads to successful and competent reading. There is no direct arrow from one or other component to reading competence. They work together.