RE-THINKING ENGLISH IN THE NEW ZEALAND CURRICULUM

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ABSTRACT

> *" All right", said the Cat; and this time it vanished quite slowly, beginning with the end of the tail, and ending with the grin, which remained some time after the rest had gone.*

> *"Well! I've often seen a cat without a grin, " thought Alice; "but a grin without a cat! It's the most curious thing I ever saw in all my life!"*
> <div align="right">*Lewis Carroll*</div>

The English in the New Zealand Curriculum *(1994) document has attracted its fair share of critics (Duthie, 1994; Locke, 1996). But with the notable exception of Locke (see Houtere, 1998) critics have failed to articulate alternatives. Some of their criticisms have centred on curriculum structure, and especially the imposition of eight levels of achievement objectives, and on terminology used to describe the objectives. While accepting these criticisms, the English curriculum is more fundamentally flawed because it is underpinned by schema theory, and because it fails to explicitly link information processing and thinking strategies to text types. This paper backgrounds some previous criticisms of the curriculum before exploring these two curious concerns and proposing an alternative framework.*

STRUCTURE AND TERMINOLOGY

Each of the oral, written, and visual language strands of the English curriculum list eight levels of achievement objectives. This structure contrasts with the previous use of developmental stages.

Locke (1996) claims that the use of eight levels is arbitrary and notes two consequences of their adoption. One is the potential for "dumbing down" if, for example, primary school teachers work from levels 1 - 3 only. Another is an impasse in assessment; should we teach to the objectives, or should we teach to the needs and interests of learners and their communities?

Bendall (1994) notes that the absurdity of the eight levels was most graphically shown when the English curriculum writing team could not include the writing process among the process threads for written language "because no one could find a way to alter its essentials over several levels, and we were not allowed to repeat the descriptor" (p. 49). The same criticism can be made in respect to the reading process and any information processing / thinking strategy.

The use of an eight level structure reflects an ideological shift in New Zealand education to make teachers more accountable. According to O'Neil (1996) Treasury has driven this shift because of their:

> ... determination to wrest curriculum development away from teachers/providers capture and orientate to the market economy by emphasising skills at the expense of knowledge (p. 6).

It is unsurprising then that the imposition of an eight level structure is widely felt as inadequate and absurd (Bendall, 1994).

Another criticism centres on the English curriculum's use of confusing terminology. These include the linguistically questionable use of "expressive", "poetic" and "transactional" to describe types of writing (Halliday & Hasan, 1985), and the use of "function" and "process" to describe achievement objectives that appear to serve similar purposes.

Specifically the use of "poetic" and "transactional" give the inaccurate impression that texts are uni-functional (Locke, 1996). Further, one must question the utility of objectives that are very similar from year to year (Elley, 1996). The function and process objectives both seem to be about doing something, giving the impression that they are both describing processes. For example, writing functions include making choices, editing, reworking, and shaping. Similarly, processes include gathering, selecting and recording information. Indeed, the best thing about the objectives may be their vagueness.

This paper adds another critical voice by exploring two further fundamental flaws. One flaw is the curriculum's implicit adoption of schema theory to underpin the achievement objectives. The second flaw is the failure to explicitly link information processing / thinking strategies with different text types.

IF LANGUAGE WERE EXCLUSIVELY VERBAL ...

A fundamental flaw of the English curriculum is its implicit adoption of schema theory (Anderson, 1978) to underpin the achievement objectives. This is clearest in the close reading objectives of the written language strand which state that students should use "semantic, syntactic, visual, and grapho-phonic cues to gain meaning" (p. 34). Schema theory also underpins the interpretation of running records crucial to the implementation of the written language strand, and justifies the approaches described in *Reading in Junior Classes* (Department of Education, 1991), and *The Learner as a Reader* (Ministry of Education, 1996), published to support the English curriculum.

Recently, several writers have claimed that research used to justify schema theory is flawed, and that dual coding theory (Paivio, 1986) (see Figure 1) has more explanatory value (Sadoski, Paivio, & Goetz, 1991; Sadoski & Paivio, 1994). They claim that schema theories are flawed because they are based on conflicting results, inconsistent definition and a tendency to regard abstract mental concepts as physical constructs.

For example, results obtained from sentence verification tasks employing reaction time paradigms (Quillian, 1969) have lead to the claim that information is hierarchically represented schemata. Sadoski and Paivio, (1994) question the

hierarchical network relationship and cognitive economy claimed to be inherent in these structures, and note that results obtained in sentence recognition studies indicate the use of additional information in the form of images.

Other schema models including the Feature Comparison model (Smith, Shoben, & Rips, 1974) have problems stating what constitutes "defining features". Again, the claim by proponents of spreading activation models (Smith, Adams & Schorr, 1978) that the more associated nodes there are the less activation each receives, can be challenged by asking why more meaningful information is better recalled. Again, script models (Schank & Abelson, 1977), which claim that we tend to recall best variations from a script are difficult to reconcile with claims that schema representations drive the comprehension and recall of information.

Dual coding theory more adequately addresses these concerns and would provide a powerful underpinning to the English curriculum. Dual coding theory (see Figure 1) developed out of research investigating the relationship between visual imagery (pictures in the head) and verbal language. It describes how thinking occurs in two separate mental subsystems, one specialised for the generation and analysis of non-verbal information (the imagery system), the other for verbal information (the verbal system). Although these separate systems are interconnected they can either function independently and associatively, or in concert through referential connections.

Thus, the systems can function independently when images evoke other images and words evoke other words, and they can work in concert when a word evokes an image, or an image evokes a word (Andreani, 1988).

Support for dual coding theory has been obtained from studies which indicate: (i) there is little between-code (visual-visual) interference and more within-code interference (Brooks, 1968; Logie, 1986); (ii) that visual imagery involves parallel processing (Nielson & Smith, 1973), and (iii) that different areas of the brain are activated by visual imagery and verbal tasks. Several studies indicate that we learn better using both codes than either code alone (Paivio, 1985; Sadoski, Goetz, & Fritz, 1993), and that imagery potential (concreteness) is a more reliable predictor of learning than association-potential (fish and chips). Together this research points to a separate memory for images, a memory that can not be explained in terms of schema-based semantic memory models.

According to Paivio (1986) verbal and non-verbal systems represent and process information in different ways. It is important to know this because it tells us the two systems can do different things. For example, information in the verbal system is represented in sequential form; one word follows another. In contrast, the non-verbal system is holistic; mental images are stored as integrated units that mimic what we see. For example, typically an image of a whole car is available for inspection, but we can also "see" the smaller parts.

Verbal Stimuli

Nonverbal Stimuli

Sensory Systems

Representational Connections

Verbal System

Associative Structure

Logogens

Referential
Connections

Imagens

Associative Structure

Nonverbal System
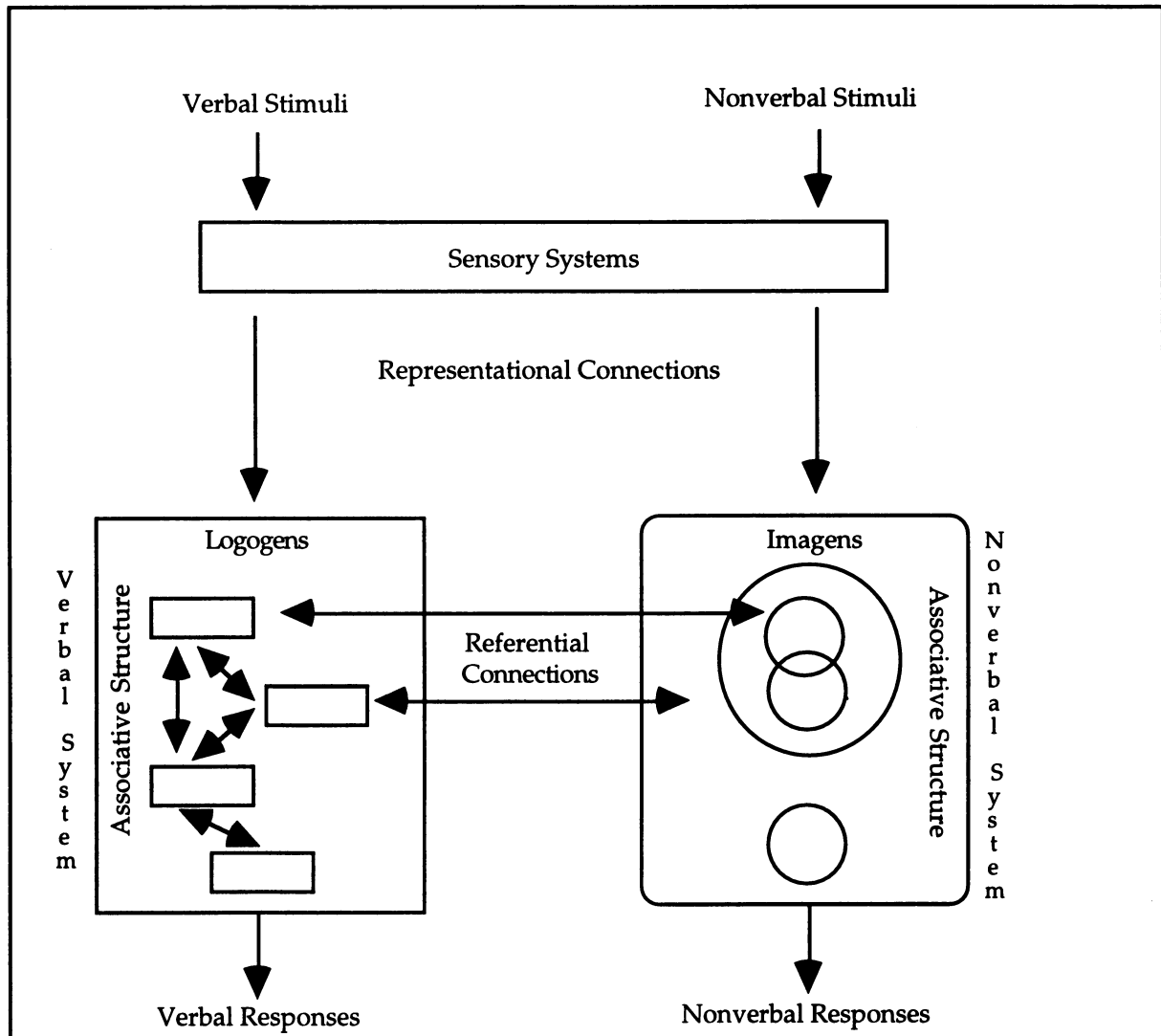
Verbal Responses

Nonverbal Responses

Figure 1: Paivio's dual coding model (from Paivio, 1986, p. 67)

The utility of images as a means of thinking may be because they are represented in networks that contain many more relationships, or associations, than verbal information (Kieras, 1978). This representational structure is suggested by the powerful role of imagery in problem solving, and by the claim that there may be no verbal equivalent for some problem solving operations or emotional responses (Kaufmann, 1984).

The non-verbal system lets us think in different ways because it is capable of generating different kinds of images. For example, we can imagine a sequence of events, like a diver jumping off a springboard, in the form of a dynamic image, or imagine the physical state of an object altering in the form of a transformational image (technically called "morphing"). This later way of processing information is useful if you want to think about ice melting.

Dual coding theory also explains how words become meaningful. Words, *per se* have no meaning and groups of words that provide "context" have no inherent meaning. So where do words represented in memory get their meaning? Dual coding theory suggests that images make words meaningful; that words become meaningful when they are attached as labels to images. Of course this

attachment occurs in a social context. For example, a baby may recognise its mother because it has an image of its mother's face. A baby hears the word "mum" and attaches the word "mum" to the image, thus giving meaning to the word they heard. Indeed, images may be a pre-requisite for meaningful verbal language; literally the pre-conceptualisations of verbal language.

The proposal to underpin the English curriculum with dual coding theory in place of schema theory is further supported by research that suggests younger children have as many image processing strategies as older children - that is, they can generate, maintain, scan and rotate images (Kosslyn, 1994; Whitehead, 1998).

The English curriculum is fundamentally flawed because it is implicitly underpinned by schema theory that fails to reconcile results obtained from research. It is like a grin without a cat. The adoption of dual coding theory would explain more adequately how we process information. It would give body to the grin. It would enable teachers to justify the approaches and materials they use to implement the *English in the New Zealand Curriculum* document.

There are at least three other reasons to underpin the English curriculum with dual coding theory. One is because dual coding theory does not assume abstract self-contained systems such as schemata to govern the representation of information, but rather claims meaning is dependent on direct experience that gives rise to knowledge. As such images are inherently meaningful.

A second reason is that dual coding theory explains how we can:

- Write explanations of things we can not see (Whitehead, 1998).
- Image characters and events while reading (Whitehead, 1998).
- Comprehend characterisations affectively (Sadoski, 1988).
- Benefit from the use of analogies, especially in science (Miller, 1986).
- Write and reason (Fox, 1994).
- Tell stories (Roney, 1996).
- Solve problems (Kaufmann, 1984; Pollard, 1996).
- Write creatively (Jampole, 1994).
- Listen, read and write (Gambrell, et al. 1987).
- Comprehend stories (Gambrell, et al. 1993).
- Assist deaf children to read (Schirmer, 1996).
- Improve comprehension (Fredericks, 1986).

A third reason that dual coding theory should be adopted is because it serves to justify the inclusion of the visual language strand in the English curriculum, even though the focus of this strand is on external perception (film, video, dance) rather than the use of visual mental images to solve problems and think critically.

IF THINKING WAS LINKED TO LANGUAGE ...

A second fundamental flaw in the design of the English curriculum is its failure to specify the links between information processing / thinking strategies and types of text. More specifically the curriculum can be criticised because it fails to define what processes and strategies are linked to writing for different purposes.

Other curriculum statements have attempted to state the links between writing and thinking strategies. For example, the *Victorian English Curriculum* (1991) links informative writing to note taking and interviewing strategies, and instrumental writing to the use of flow charts. However, the strategies mentioned in this curriculum are not presented as a coherent programme.

In *Describe, Explain, Argue* (User Friendly Resources, 1997) and *Catch Them Thinking and Writing* (Whitehead, 1998) various written transactional (factual) texts are linked to information processing / thinking strategies that enable students to generate, record and manipulate information before writing (see Figure 2).

Text Types[1]	Purposes	Strategies[2]
Recounts Procedures Descriptions Reports	Describe	Timeline Flow Diagrams F.I.N.D.[3] Brainstorm
Explanations	Explain	Event Nets Analogical Frames
Arguments Discussions	Argue	Discussion Webs Socratic Questions
Narratives	Describe Explain Argue	Character Sociograms

[1] The examples focus on writing but a similar case could be made in respect to oral and visual language.

[2] See Whitehead, 1998.

[3] Find Image Notice Describe.

Figure 2: Written Text Types, Purposes and Strategies

For instance, the brainstorm strategy (see Figure 3) is associated with report writing because it provides a rubric within which writers can generate and organise information into topical groupings. This pre-writing strategy is suited to the topical organisation of reports, which enable them to achieve their purpose of conveying information about a class of objects, events or ideas.

Writers using the three-step brainstorm (see Figure 3) first collect words, then group associated words, and finally compose a label for each group of words. An additional step may be added which requires writers to design research questions based on words, labels and their interests in relation to the topic. Given the topical structure of reports and their use of subheadings, writers can apply the brainstorm labels as draft subheadings and use the topic words as key vocabulary.

Step 1 (Collection)	Step 2 & 3 (Groups & Labels)
Blue	**Hunters of whales**
squid	Japan
Japan	Norway
harpoon	
Sperm	**Types of whale**
krill	Sperm
Norway	Blue
breach	
sing	**Whaling Gear**
whale boat	harpoon
sushi	whaleboat
blubber	
fluke	**Food**
Humpback	krill
Minke	squid
Step 4 (Questions)	
Questions about words.	What is a fluke ?
Questions about labels.	What other countries hunt whales?
My own questions.	Was Moby Dick a real whale?

Figure 3: A Brainstorm about Whales

In addition to the links between information processing / thinking strategies that help students prepare to write for different purposes, the conventions of different types of writing evoke specific types of thinking. *Catch them Thinking and Writing* notes the types of thinking inherent in the factual texts listed in Figure 4.

Factual Texts	Types of Thinking
Recounts	Event sequencing
Procedures	Action sequencing
Descriptions	Attributing and event sequencing
Reports	Classifying
Explanations	Causal inferencing
Arguments	Analysing
Discussions	Evaluating

Figure 4: Factual Texts and Types of Thinking

For example, discussions or two-sided arguments require writers to **evaluate** the merits of opposing arguments. A report requires writers to **classify** objects, events and ideas generically.

Other publications also note that different texts evoke different types of thinking. For example, the *Victorian English Curriculum* (1991) states that the writing of argumentative texts requires students to think **critically**, and **adopt alternative perspectives**.

Specific types of thinking are also evoked by text constructions at the paragraph level. For example, when writing sentences or paragraphs students may need to think:

- Comparatively - when their purpose is to compare one general object or event with another.
- Causally - when their purpose is to explain cause and effect.
- Problematically - when their purpose is to state a problem and offer solutions.
- Analogically - when their purpose requires the use of analogy.

PLANNING AND ASSESSMENT

The English curriculum fails to specify the information processing / thinking strategies, and text related types of thinking that assist students achieve a range of purposes in their writing. This failure is articulated in *Planning and Assessment in English* (1997) that was published to support the curriculum. For example, the first case study of assessment under Transactional Writing, describes a class trip to the Science Alive! centre. The teacher planned for students to investigate how some simple items of technology worked. Normally, this would result in students writing explanations to explain how some items of technology work. However, on this occasion the students wrote recounts, an outcome inconsistent with the teacher's goal and the location of the visit. The recounts were assessed against transactional writing functions and the teacher concluded that a student needed to incorporate more information in his recount.

Nowhere in this case study does the teacher move beyond assessing the content of the recount. Nowhere does the teacher teach or assess the use of an information processing skill such as the use of a timeline prior to the students writing recounts. Nowhere does the teacher assess the type of thinking required to write a recount. This is unsurprising given that the curriculum's written language processes fail to state either the processes, strategies, or the types of thinking associated with the writing of recounts. Ironically, it is stated that objectives from the process sub strands were not formally assessed - but neither were they identified. And one has to ask in both cases, why not?

The second transactional writing case study describes a class visit to a dental clinic. This lesson also results in students writing recounts. The case study notes that students should take more responsibility for the processes of proof reading and editing, but again there are no process achievement objectives listed against which the assessment of these processes might take place.

The third case study describes students' writing arguments. Although this case study notes that the teacher included the processing information objective of identifying and retrieving information, neither the processes associated with this objective nor any other process objectives were assessed. Instead the case study again models a function-focused form of assessment viz.:

- Don't make the sentences too long; and
- Set out paragraphs correctly.

Ironically, this case study recommends that in future a student needs to use a process such as setting out a chart of information and opinion which may help organise the content of the argument.

RE-THINKING THE ENGLISH CURRICULUM

It is easy to criticise. It is more productive to articulate alternatives. So how might we re-think the English curriculum? There are several options. One involves designing a curriculum that sets general achievement objectives under each strand and indicates that students should, over time, increase their independence (from the teacher and others) in respect to achieving these objectives.

A second and preferred option would be to provide a progressively rigorous set of achievement objectives under each strand that stated a range of purposes for using language; a set of objectives linked to the information processing / thinking strategies suited to achieving those purposes.

This option would give credibility to the existing thinking critically and processing information components of the *English in the New Zealand Curriculum* document. It would require the replacement of language "function" with language "use", while language "process" would be retained to focus on the thinking associated with the use of language that allows us to describe, explain and argue.

CONCLUSION

The designers of the curriculum have become the butt of critics because they looked back when selecting terminology, and because they chose to misrepresent how we learn language by imposing a structure of eight levels of achievement.

This paper has added to criticisms of the curriculum by claiming it is fundamentally flawed by the adoption of schema theory in preference to dual coding theory, and by claiming it fails to specify links between information processing / thinking strategies and text types.

Despite these criticisms teachers are helping students look at what language does in text, and are teaching the kinds of thinking associated with different texts. Their focus on what language does in texts is directing attention to the use of language as a vehicle for thought. And their thoughtful interpretations of the curriculum are empowering students to better use language. The two initiatives are complimentary.

The more teachers use the English curriculum to help students think, the better adapted students become to thinking. The English curriculum is nothing if it is not a vehicle for creating the habit of thinking.

Unfortunately, the English curriculum has been accused of reflecting political ideology more than understandings about how we become literate thinkers. This ideology values assessing product rather than process as examples *from Planning and Assessment in English* demonstrate. It also values making teachers and students more accountable.

This is disappointing because the pleasures that arise from thinking and learning through English make us think and learn all the more.

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