

**READING ACROSS TEXTS: PERCEPTIONS AND PERFORMANCE OF  
EARLY ADOLESCENT READERS**

by

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## Abstract

Learning Media have introduced an anthology series that draws on writing previously published in the *School Journals* with the addition, lately, of commissioned work. The series is designed to meet the new curriculum objectives for English, social studies and science with less practised readers. A title in the series will typically contain narratives as well as personal accounts by experts, loosely related to a theme in the social studies or science curriculum.

A survey of how the titles were being used indicated that teachers were treating the contents of the anthologies as single texts and that the advantages of reading across texts related to a theme were not being realised. A study was therefore conducted with an intermediate school class in order to establish an activity cycle that would exploit the potential of anthologies as a resource for reading-to-write from multiple sources.

The experience gained from the study suggests that the cycle should contain instruction on transforming sources and this skill needs to be practised within the framework of a discourse synthesis task. In the study, the task appeared to be the driving force that determined what was read, what information was selected, the student's stance towards the information, and what guided the monitoring process. Reading proficiency did not appear to make a substantial difference to the way the task was interpreted nor in the way the task was accomplished tactically, suggesting that discourse synthesis is an issue of experience with the component skills.

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## Chapter 1

### INTRODUCTION

The intention of the study was to apply recent work in the field of literacy research to the gaps between current methodology in the teaching of literacy in primary schools and the vision of literacy promoted by the document *English in the New Zealand Curriculum*. (Ministry of Education 1994a). To this end a project was designed to investigate the design and results of a classroom literacy engagement where the traditional goals of comprehension were expanded to realise the more complex goals of interpretation and application.

#### **1.1 The function of literacy**

The aims for language programmes in New Zealand Schools are provided by the document *English in the New Zealand Curriculum* (ibid.1994a) and by the image of literacy expressed in its statements and themes. The document suggests that functional literacy should be related to personal, social, and political empowerment, enabling people to engage in textual contexts to enhance a sense of self, to develop and communicate beliefs and ideas, and to act in society as informed and critical thinkers.

How then do school language programmes reflect the document's vision of literacy?

#### **1.2 School language programmes**

For the most part, Primary School language programmes do a thorough job of teaching the comprehension skills of decoding, remembering and reproducing texts (Wagemaker 1992). Proficiency in these skills

is measured in terms of the meaning comprehended by learners in direct relation to the text being read with any gaps in coherence being filled by personal knowledge. During such activities, meaning is usually situated in the text, is framed by the associated task, and is prompted by the teacher's opinion. However, literal comprehension is often pursued at the expense of the skills of interpretation which underpin the constructivist portrait of literacy which the *Curriculum Statement* embraces. Such skills include the critical comparison, selection and evaluation of ideas, as well as their synthesis, and application to other situations. In this way, new meaning is constructed out of the experience of reading the text.

There seem to be two reasons for the general lack of complex tasks in Primary School language programmes. The first reason rests on assumptions that primary school children are developmentally too young to embrace complex thinking skills, and that practising decoding and recall skills on increasingly difficult material will somehow lay the foundations for more complex literacy tasks encountered later at secondary school. The second reason is that the underlying skills needed to display knowledge of a text are more readily measured than those involved in a display of opinion and conjecture about the content of the text. With the current emphasis on feedback as a way to change reading behaviour, it is more difficult to comment on a constructivist interpretation of text than on ascribed meaning. Under such circumstances, learners who do not excel at traditional comprehension skills may experience school literacy learning without encountering much in the way of tasks that require complex thinking. Later on, as they apply literacy to learning, they may be left to grapple with interpretation tasks, having had little experience of the necessary tactics to do so.

### **1.3 Texts in isolation**

The use of a single text is in keeping with a reproduction-of-information approach to reading comprehension and expository writing. To display knowledge of a text, learners are required only to understand it as an isolated authority. The problem with the single text approach is that it encourages learners and educators to think of texts as autonomous entities separated from previous textual experiences. The habit of reproducing ideas from isolated texts is ubiquitous throughout the subject curriculum and is often exacerbated by the use of a subject textbook. Even when students are required to research information in the broader textual world outside the classroom, their efforts often evidence the use of a single text or the reproduction of isolated or unlinked information from one or two sources.

### **1.4 Acquiring and interpreting meaning**

To help close the gap between traditional methods of teaching literacy and the constructive ideology that appears to underpin the new language curriculum, learners need to experience tasks that promote the reasoned interpretation of what they have read in the course of a more general inquiry. Success at inquiry tasks would seem to depend on learners' ability to fit information comprehended in one context into a fresh context created by a problem that has aroused the curiosity of the student. Clearly the meaning of a single text can contribute only part of the knowledge needed to complete an inquiry task, especially one which invokes learners' historical, social, and cultural experiences, and the exchange of individual perspectives, as part of the job of interpretation. In such tasks, meaning ceases to be confined to the text, the task, or to the teacher. Instead, it becomes



the province of the learners as they make connections between a new problem, a new text, other texts, the assigned tasks, context at hand, and contexts previously experienced. How then might a primary school teacher negotiate the busy intersection of ideas in terms of providing the contexts and tasks that might invoke connections, and how might they identify and evaluate the skills involved?

### **1.5 Other options**

The present study turns to three areas of research to help explore how learners operate in the context of an inquiry problem and how tasks and materials might facilitate success. The first is the study of *intertextuality* wherein readers and writers are seen to understand all texts in the light of their previous literary and social experiences. By completing an inquiry task, students are practising intertextual behaviour as they comprehend, connect and compare ideas, make evaluations, and draw new conclusions. In an intertextual sense, they interpret information according to how it may be linked to the subject of the inquiry. Second, the complex cognitive processes that are promoted by linking information to a new context appear to be assisted by the writing process. The study of how composition helps to shape information to the requirements of a task is the study of *discourse synthesis*. The third area of research focuses on the organization and accessibility of collections of reading material that will facilitate the linking of information from several texts for a written response to an inquiry task. The need for access to multiple texts on particular themes has been recognised by Learning Media through the publication of the *Choices* anthology series (Ministry of Education 1994b). A typical title in the series contains six texts exploring a particular theme through narrative accounts and

informational texts. Whether or not students are in fact reading across the texts in the anthologies has become a question of research interest.

### **1.6 Purpose of the study**

The study was set up to explore the perceptions and performance of early adolescent readers when faced with the need to synthesise a collection of texts from two titles in the *Choices* anthology series (Ministry of Education 1994b). In particular, the following purposes were pursued in the study:

1. To describe the discourse synthesis opportunities inherent in the *Choices* series
2. To examine how intermediate school-age children engaged in discourse synthesis tasks associated with the use of the *Choices* series
3. To compare the written outcomes based on the study of a set of texts vis a vis the written outcomes associated with the intensive study of one text.

By seeking to engage intermediate school children in a complex reading-writing task, the study explored the elements that might contribute to an appropriate circumstantial model for reading-to-write from collected texts.

## Chapter 2

### INTERTEXTUALITY IN SCHOOL LITERACY

#### 2.1 Introduction

New models of literacy and learning have placed inquiry at the centre of the model, and have positioned reading and writing as tools of inquiry, along with speaking, listening, the expressive arts, and mathematical reasoning (Bruce and Wasser 1996). Using the constructivist approach to literacy, the inquiry model assumes that knowledge is built up through meaningful activity which may include, but is not confined to, traditional literacy activities. It accepts, for example, that students build mental models of texts which incorporate relevant ideas from their own experiences. However, interactions with single texts may not adequately prepare students to move from meaning-making to meaning-application during inquiry. Presumably other kinds of knowledge must come into play when the understanding of a text is only part of solving a problem. Presumably, other connections must be understood when reading is viewed as a tool of inquiry.

#### 2.2 Intertextuality

A number of researchers have recently turned to the study of the intertextual nature of understanding as a way to explore the kinds of connections made by learners as they move from comprehending texts as static identities to interpreting texts in terms of new situations.

*Intertextuality* is a concept taken from literary criticism where it was used by Kristeva (1986) to explicate the 'translinguistic' approach to text analysis proposed by the Soviet

sociolinguist Bakhtin, who drew attention to the productive ways that texts respond to and are shaped by other texts, within and across cultures. Bakhtin's views (Bakhtin 1986) are reflected in the current use of intertextuality to flesh out ideas about what can go into making meaning when children are comprehending texts. The definition of literacy characterised by Scholes (1985:31) as the study of 'the whole intertextual system that connects one text to another', has led researchers to explore how readers and writers make and use their social, cultural and contextual understandings to make meaning from texts. As the concept of intertextuality helps to expand the definition of prior knowledge, it also helps to expand the definition of comprehension in the direction of interpretation. For example, during the comprehension of a text, prior knowledge is drawn upon according to its relevance to the textual world created by the text. A higher level of learning occurs when the interpretation of the text is called upon, along with other relevant knowledge to make sense of a fresh contextual world offered by a problem.

Recently there have been moves to re-emphasize the role of sociocultural knowledge in the acquisition of conceptual knowledge. When referring to the failure of some literacy teaching to acknowledge the influence of context on concepts, Short (1992:314) has remarked: 'Although the search for connections across texts and life is a natural part of learning, students' school experiences have led many to expect fragmentation in their learning'. Defining intertextuality as a 'metaphor for learning', Short (ibid:313) employed the concept to explore the processes used by learners as they made connections and searched for patterns. Hartman (1992:295) has shared Short's view, describing intertextuality as a 'strategic device'

for use in attempts to re-register the concept of connectedness in language learning as children attend to text-connected tasks.

To understand how the concept of intertextuality may affect school literacy programmes, it is helpful to explore the way in which its application affects definitions of texts, reader/writer relationships, and contexts, as components of literacy engagement.

### **2.2.1 The text**

The concept of text is central to the idea of intertextuality. Although a text is usually thought of as being a written communication, the term can also include all linguistic and non linguistic signs that communicate meaning (Peirce 1931; Saussure 1966). This means that in art, music, drama, or daily life, a gesture, or a structure or an utterance can all be thought of as texts (Siegel 1984, cited in Short 1992:315; Rowe 1987).

A text need not be pinned down to time and space. It can be an experience or an idea that is either remembered or put together by the mind (Witte 1992) and as such may vary in size and level from a single word to an entire theme (Lemke 1985; Rowe 1987). As the idea of a text breaks the boundaries of code, place and size, the expanded definition of text becomes synonymous with thought. Hartman's (1992:298) intertextual description of a text is 'an intermediate, provisional unfinished work, open to new amplification and interpretation, engendered by its existence in a complex set of shifting relations'.

Such a definition of texts calls into question the practice of using texts in isolation for reading and writing instruction and for lessons on the gathering of information in the subject curriculum. In the inquiry model of literacy, for instance, an initial question would

be put at the heart of learning. Students would then engage in various modes of investigation, including but not confined to extensive interaction with texts of various kinds. When texts were consulted, they would be read in terms of the initial question and in terms of each other.

### **2.2.2 The reader-writer**

In an intertextual sense, the reader-writer can be thought of as moving between a variety of texts, using the thoughts generated by them to weave an evolving mental web described by Pearson and Tierney (1984) as an 'inner text'. In Vygotsky's (1978) view, the processes used for making links between thoughts or textual fragments are themselves infused with the reader-writer's internalised responses to the social, cultural, historical, and political codes and practices of the contexts in which he or she is experiencing discourse. The internalised response is discussed as the discourse 'stance' (see for example Hartman 1991; Beach and Anson 1992), and helps shape the inner text by signalling possible connections according to the learner's significant codes.

The reader-writer may take up any stance appropriate to the audience, purpose and context of a particular literacy event (Widdowson 1984; Wallace 1992), but there is evidence that the internalised responses that shape stance can also act to fix it in inappropriate ways for learning from and producing texts. In a study by Kress (1989), school children did not use the option of an assertive stance toward the texts they were reading because their experience and understanding of the codes of the school context inclined them not to do so. Similarly, writers often display a text-dependent stance by producing texts which recount or summarise resources without

evidence of transforming them for any purpose (Spivey and King 1989).

As learners enter school, they bring with them the natural ability to manoeuvre among a variety of texts in order to make sense of their world . As they internalise experiences with isolated written texts for the purposes of school language instruction, learners come to accept the single authority of the text in isolation. Their personal resource of text experience is subsumed under the special code of the school context in which the authority of an isolated text is supported by tasks that require a single text-based interpretation.

As readers and writers transact with texts, they become more proficient at applying their knowledge of literary and social conventions to new texts (Beach 1985; Beach and Brown 1987). At school, this usually means that the extent of an individual learner's reading depends on their degree of success within the established single text paradigm (Taylor, Frye, and Maruyama 1990). This is a perplexing situation given, as we shall see in later chapters, that success as a reader or writer depends on increased experience with texts and on a growing pool of prior knowledge. On one hand, the single-text paradigm tends to exclude much of the learner's own knowledge store. On the other hand, according to the school code, wide reading experience results from initial success with single texts, yet paradoxically these can only be fully explored in the light of wide reading experience.

### **2.2.3 The context**

The context of texts collected inside a particular environment is referred to by Hartman (1992:301) as the 'endogenous context'. For example, when readers make direct links between two or three

samples of text that are in front of them, they are operating in the endogenous or text-based context. Outside this, there lies a further contextual field in which all language events exist. Described by Hartman (1992:302) as the 'exogenous context', this is where the knowledge store of the learner exists. It is also where historically and ideologically evolved ideas and culturally and socially determined rules influence the interplay of the texts (Foucault 1972). For example, a study by Bloom and Egan-Robertson (1993) has shown the impact of links made from the exogenous context during the social interactions between young children talking about texts they had read and written. Transcripts of the children's discussions showed that social, cultural, historical and political cues existing in the 'exogenous' context affected which texts were connected, and how and by whom and where they were thought to be connected. In addition, it is in this environment that the learner internalises the 'contextualization cues' (Gumperz 1982) that signal appropriate social interaction and meaning-making strategies for future events perceived as being similar. This means that the kind of meaning-making strategies signalled by reading and writing lessons that repeatedly privilege the authority of a text in isolation, may be marked by learners as being appropriate for all school reading and writing events.

### **2.3 Summary**

As a metaphor, *intertextuality* allows us to imagine the type and scope of the information used by a learner to address the purpose of reading a collection of texts. In the present project, intertextual descriptions of the texts, learners and contexts underlie the development of a reading and writing task that requires complex



mental activity. By steering learners towards the application of ideas to a rhetorical situation which may not be resolved by the reproduction of text, the study seeks to promote the use of intertextual links between texts and contexts at hand, and other texts and contexts evoked by the study of a problem.

## CHAPTER 3

### ANTHOLOGIES AS INTERTEXTUAL SOURCES

#### 3.1 Introduction

When literacy is regarded as a tool of inquiry, the resourcing of reading programmes draws on collections of texts. In making a suitable collection for a particular inquiry problem, teachers will need to consider the potential links between the texts, the need for the students to experience the use of different genre, and the extent to which the rhetorical purpose of the texts are made apparent by the expertise of the authors.

#### 3.2 Criteria for texts.

As an attribute of a written text, intertextuality has been examined from a linguistic perspective in which words, phrases and paragraphs are defined against each other inside the text (Haliday & Hasan 1976). Intertextual links within a single text are seen as drawing together the threads of the author's and the reader's experience to allow an 'interior' dialogue between them. The factors contributing to the success or failure of the dialogue become the basis of suggested criteria for texts used to teach language.

The criteria set out below use the categories for text selection outlined by Pianta (1994:28-30), with relevant additions from other sources.

1. *Language accessibility.* The language in the texts should be at or slightly above the language proficiency level of the students. New vocabulary should be introduced in a supportive context, such as

through the re-expression of themes appropriate and relevant to the reader. In this way the reader may infer the meaning of new items with reasonable safety (Kramsch 1993: 93). Where texts are subject to simplification, attention should be given to the appropriateness of the methods used to modify them ( see for example, Ross, Long, and Yano 1991).

2. *Relevance*. Texts should have immediate appeal to the age and interests of the readers, and relevance to their language, reading and information goals. Texts should be a 'good read' and students should be able to visualise what is described in the words, respond emotionally and experientially to the characters and situations, and identify experiences as similar to their own. They should also be able to make critical and moral judgements to varying degrees of sophistication, and detect how the author's intentions affect the text and the reader's response (Hill 1986: 17).

3. *Adherence to standard literary conventions*. Texts should show a clear recognisable structure and give straightforward examples of genres that can be used as models for writing. Students should be able to analyse and discuss texts independently of teachers. The way various parts of the text are related should be transparent. Students should be able to recognise signals contained in the lexical and grammatical patterns of the text, while meaning should not be obscured at the sentence level by complex structure. Texts should consolidate the students' background in the normative uses of a language so they can recognise the effects of any deviations when they come across them (ibid: 19-23).

4. *Timeliness*. Texts should be considered timely in that they encourage readers to broaden their base for interpretation and reflection on current issues. Texts should involve readers in situations where people with different backgrounds, ages, attitudes, and values deal with familiar issues (Kramsch 1993). They should offer opportunities for students to dramatise, summarise, map, debate, discuss, draw, and diagram information and ideas.

5. *Stature as a literary work*. The quality of the writing should evoke emotions, create images, provoke discussion and/ or create long lasting impressions in the mind of the reader. The fictional quality of texts may offer the advantage of asking readers to use their interpretative procedures to find evidence of a new reality. This creation of meaning is achieved by a combination of the text and what it evokes in the reader (Widdowson 1983). There should be sufficient layers of meaning in texts so that students can add to or reinterpret them.

Texts offering these features make it easier for readers to engage in an interior dialogue which evenly advantages the voice of the author and that of the reader.

### **3.3 Interplay between texts**

Texts are also in an 'exterior' dialogue with other texts. Cairney (1990; 1992), Lehr (1991), and Short (1992) all found that by tracing the connections students made when reading across sets of conceptually related texts, the artificial borders between the texts became blurred by the presence of an intertextual dialogue. The texts merged in time and space to form a 'metatext' (Landow 1992) of potential meanings only realised in proximity to other texts. Links

between texts were identified by readers in ways that reflected their experience of language and of the social practices of their communities. When discussing how texts may be linked to make sense of each other, Lemke (1992:259-260) has identified three principles of intertextual relationship: *thematic*, where texts are linked by the same topical content; *orientational*, where texts may be linked by the same point of view; and *organizational*, where texts are linked by having the same overall genre structure. Using these principles, texts may be linked to elaborate an opinion or a solution to a problem.

### **3.4 Criteria for multiple texts**

In noting the advantages of reading across texts, Hartman and Hartman (1993) first point out that learners will simply read more texts in the course of their language and other studies. Second, they suggest that although preschool children manoeuvre easily among texts of all types, they later 'unlearn' these skills at school. Hartman and Hartman go on to say: 'By revaluing the full range of text-types and genres, we capitalise on students' abilities to make sense of themselves and their world' (ibid:203). Since the bases for intertextual links are found in the social practices of a community, a learner's ability to make those links will be enhanced by texts that acknowledge a broad spectrum of sociocultural and political perspectives, values, points of view, gender issues, experiences and goals.

To promote the reading of multiple texts for language and cross curricular instruction, groups of texts are needed which have the following features: they are readily and freely available to schools; they acknowledge the range of experience in our society; they are linked in recognizable yet flexible ways; they contain language

that is accessible to a wide range of language proficiency levels; they deal with timely issues from a variety of perspectives; and they are well written in terms of normative literary conventions, descriptive and emotive power, and explanation of ideas.

### **3.5 Anthologies**

A traditional way to present a group of texts is as an anthology which is a collection of texts usually put together by editors who have some guiding principle in mind. The principles behind the selection and positioning of the texts in an anthology are collectively known as the 'canon'. As a resource for reading across passages, the anthology has two advantages. First, in an intertextual sense, an anthology provides a communal home for texts that might otherwise be used individually. Second, it offers an accessible example of how texts may interact with each other.

#### **3.5.1 The canons of anthologies**

Anthologies of great literary works published for the purpose of teaching American literature, have been the subject of discussion among literary scholars and teachers who have been involved in trying to expand the canon and the curriculum for American literature. Frustration with anthologies that house only the 'great' American writers has led to a call for more eclectic canons. Texts collected to acknowledge the multiplicity of social practices relevant to the community of readers have a special value in that they invoke what the learner already knows about society, making intertextual linking easier.

The canon of an anthology may be examined for balance of representation according to the needs of students, the intentions of

the curriculum, and the ideology of society. Pace (1992) listed the authors included in the most commonly used literature anthologies. She then considered how this canon represented race, gender and culture. She found that a canon does not necessarily represent diversity by representing authors of each race or gender because the authors may not be writing about subjects in a diverse way. Pace concluded that to avoid a single stance, a canon should include authentic texts by different authors offering a range of perspectives across time, culture and gender.

By its canon, an anthology can give an idea of what can be read on a topic while at the same time allowing another view of the texts it contains. Reading in this context can give students a better understanding of a theme as they see how ideas can be expressed differently when treated by different authors for different rhetorical purposes (Banta 1993).

A well-wrought anthology resulting from an astute canon which is sensitive to its audience has the following advantages: the chance to read across passages that expand, contradict and enrich each other (Lauter 1993); the chiaroscuro (light and shade) necessary to the treatment of gender, class, ethnicity, and age, in the text selection (Banta 1993:332); the reconstruction and deconstruction of themes according to texts from different authors, times, ideologies, culture and genre (ibid:332); and a sense of wholeness where the texts come together to make some point.

In an effort to locate groups of texts that might fit the criteria discussed above, the study turned to the New Zealand *School Journals*.

### 3.6 The *School Journal*

The *School Journal* was first published by The Department of Education in 1907 and has been a mainstay resource for reading instruction in New Zealand schools. The *Journals* were first produced in response to a need for reading material based on a sociocultural reality shared by young New Zealanders. Nowadays, the best available local writing is employed to provide imaginative and sensitive interpretations of the readers' own backgrounds, and is supported by high quality illustrations. Attention is also given to gender and ethnic representation.

The multiple purposes of the *Journal* as a magazine has allowed its producers to focus on including quality material of a variety of genres and styles. It aims to cater for a New Zealand audience of wide cultural diversity (Ministry of Education 1994c). The following points are made to prospective contributors by the editors of the *School Journals*:

#### Notes for contributors

The function of the *Journal* is not so much instructional as educational in the broadest sense; it seeks to help children understand themselves, their families, and the wider social and natural environment in which they live.

The *Journal* reaches children from all types of home, from all parts of New Zealand, and from many racial and cultural backgrounds. Our readership also has widely differing abilities and interests. We seek material that will reflect this diversity.

Unlike much of the reading matter published for children, which is often designed to be read aloud by an adult, items for the *Journal* should be able to be read and understood by its intended readership without assistance.

Material for the *Journal* should deal in situations within the range of children's understanding, but equally our readers should not be patronised or thought incapable of the full range of human emotion.

The *Journal* is kept as a resource for up to 15 years, so we seek to provide items of lasting, rather than topical interest. We look for the widest possible range of stories -stories that will entertain children, excite them, move them, make them laugh, make them think. We also try to publish some which have scope for readers to take different points of view, or help them to understand personal or social problems. Stories should have themes that will interest most children, and in which they can recognise elements of their own experience.

Articles are chosen for particular rather than general treatments of subjects by writers who are experts or have a particular interest in the subject.

(Ministry of Education 1994d.)

Figure 1: Information for writers who are considering submitting work to the New Zealand *School Journals*



### **3.6.1 The *Choices* series**

Recently an alternative style of journal has been offered by the Ministry of Education under the title of the *Choices* series (Ministry of Education 1994b). The *Choices* are a series of anthologies developed by Learning Media to provide unpractised readers (including ESL students) in early secondary school classes with access to information which they may find difficult to process from available textbooks. The series departs from the traditional magazine idea of the *School Journal* in that it assembles texts under titles that are thematically related to the objectives of the curriculum. The anthologies are also aimed at readers looking for recreational reading material. The pedagogical objective is to provide collections of material at the eight to ten year reading level that are of high interest to early secondary school students. First published in 1993, the series now consists of ten titles. The first eight titles were collections of writing previously published in the *Journals*. Two of the titles published in 1995 contain new material not printed in the *Journals* but included in the *Choices* anthologies for its relevance to teenage audiences.

Although the *Choices* series represent a departure from the traditional *Journal*, the difference is only slight. The stated pedagogical objectives of the *Choices* tread a fine line between deliberately focusing on the objectives of the curriculum framework and providing the same kind of recreational reading resource in magazine form that *School Journals* have always offered.

### **3.7 Summary**

As a collection of texts, the *Choices* series of anthologies results from an astute canon which draws its ideology from a long history of

non-profit publishing for Primary School children. The intertextual potential of the texts, their likely interface with the experiences of the students, and the possibility of inquiry guiding the reading, are features of the series that offer a rich resource for learning. Yet, Zaharias' (1989) argument that the intertextual potential emerging from the canon of an anthology is often ignored by the types of tasks that accompany it may be true of the current treatment of the *Choices* anthologies.

## CHAPTER 4

### DISCOURSE SYNTHESIS

#### 4.1 Introduction

Discourse synthesis tasks have particular design prescriptions. The synthesis should be promoted by some purposeful inquiry which lies beyond the comprehension of one text. The task itself should specify a rhetorical context that differs from that used by the writers of source texts. Opportunities are needed for students to abduct and develop ideas for the new rhetorical context during discussions which would include the identification of the proposed audience, purpose and circumstances. By choosing to use discourse synthesis tasks, teachers are in a position to explore a new path to reading and writing development in the middle years. Difficulties will be encountered, but many of these can be traced back to issues of task impression and discourse stance.

#### 4.2 Rhetorical contexts

All text meaning is situated in a rhetorical context that lays down the reason for the information in the text, the audience to whom it is directed, and the context in which the reason and the audience exist. For example, as an intermediate school student completes a social studies project, the information the student uses must be interpreted according to the purpose of the study, the particular audience, and the circumstances in which the communication is intended to be used. The act of building a context where meaning can be re-interpreted is described by Greene and Ackerman (1995), as '...a rhetorical activity

that entails not only assuming a perspective but situating it in the context of others' (ibid:390).

During discourse synthesis, learners operate in two types of rhetorical contexts. As readers they discern the rhetorical context which situates the text they are reading, and, at the same time, their attention as writers is focused on a somewhat different rhetorical plan for their own composition. If the rhetorical context of a source text does not easily include the goals of a particular task, a learner must consider building a new context that addresses the problem, the purpose for writing, and the intended audience. The process of proceeding from one rhetorical context to another gives rise to different perceptions of the importance of particular information. According to Coe (1994:162), the construction of a unique rhetorical context for writing occurs as the result of addressing three main questions:

1. What am I (are we) trying to accomplish? (Purpose)
2. With whom? (Audience)
3. Under what circumstances (Occasion).

When synthesizing sources according to a unique rhetorical context, students use intertextual linking tactics as a tool for situating information in both the contexts of material being read, and the contexts for material being written.

#### **4.3 How readers and writers link texts**

Constructivist theory sees the reader as a composer working on a continuum of rhetorical contexts. For this reason, reading and writing have been connected in constructivist accounts of literacy. Essentially, the composing process is best explained by applying a view of cognition proposed by Spiro and his colleagues (e.g. Spiro,

Vispoel, Schmitz, Sumarapungavan, and Boerger 1987) where fragments of meaning are utilised by the mind to form a referencing system. Reader-writers mobilise the system by making intertextual links between the fragments to fit a particular rhetorical context, and in doing so, they also revise past textual experience on the basis of their interaction with the current text. The reflective action of reviewing past and present insights generated by experience of texts is referred to by Hoesterey (1987) as 'the intertextual loop' whereby prior textual experiences are thought to assist a learner to transfer information from one rhetorical context to another.

#### **4.3.1 Models of memory and the transfer of learning**

A key feature in the more active pursuit of knowledge through reading and writing is the ability to generate themes from fragments of text held in memory. Whereas previous theories of memory saw episodic and semantic memories as representing two separate systems, newer 'connectionist' models (McClelland and Rumelhart 1985:160) have described memory as being organised on a continuum according to the degree of episodic specificity, and the degree of semantic generalisation. Foertsch (1995) describes overarching semantic or context-independent memories as based on generalisations across particular episodic, context-dependent memories, able to be retrieved by a wide variety of contextual cues (ibid:369). In terms of text processing, the ability to develop generalizations has been identified in a study by Vauras, Kinnunen, and Kuusela (1994) as an operation which occurs simultaneously at the micro (sentence) level, the local (paragraph) level, and the global (thematic) level. Data from their study confirmed that less successful text processing occurred when

students did not develop an overarching theme for the text under consideration.

Overarching themes form the basis for the transfer of information learned through problem solving in one context to problem solving in a new context (Carter 1990; Smargorinsky and Smith 1992). This means that transfer of learning from one situation to another is based on generalizations initially drawn from context-dependent episodes. With enough experience of real-life episodes, generalizations develop that can potentially apply to other authentic contexts. In other words, students with broad, real-life language experiences may produce generalizations more easily, and, in turn, these may be more readily triggered by and transferred to different situations. Research in fact suggests that transfer of information is related to experience (Novick 1988) and age (Gentner and Toupin 1986). Furthermore, learning depends on an ability to generalize, which in turn relies on the extent to which the material being read or written can be related to stored experience.

Although researchers with a constructivist orientation (eg. Bransford and Johnson 1972; Rummelhart 1977; Spiro 1980) have acknowledged that conceptual prior knowledge is influenced by a spectrum of situational, attitudinal, contextual, and task factors, the influence of cognitive research on constructivist theories has meant that the scope of prior knowledge as a factor in meaning construction has been often limited to the conceptual knowledge relevant to a single text. However, paradoxically, cognitive researchers (e.g. Chan, Burtis, Scardamalia, and Bereiter 1992; Kintsch 1994), also acknowledge that the key to transfer of learning is extensive personal knowledge, and an extensive contact with texts.

#### **4.4 Mental models of texts**

From a cognitive point of view, the level at which the text is processed is shown by the complexity of the model of the text composed in the reader's mind. By examining children's integration of new knowledge from listening to texts, Chan, Burtis, Scardamalia, and Bereiter (1992) abstracted five levels of cognitive activity as students recounted the information in the text. The study confirmed that higher levels of cognitive activity were represented by the construction of an increasingly complex mental model of the text. In effect, comprehension was expanded from knowledge telling to text interpretation through the process of extrapolating text propositions. A path analysis of the data highlighted the role of prior knowledge as a primary influence in the process. The links between levels of text processing and the complexity of mental models for learning are also explored in Kintsch's (1994) study where he distinguishes between memory of a text and learning from a text. Kintsch explains that surface cognition involves simple information reception which leads to the construction of a mental 'textbase' model used for the reproduction of text information. Kintsch suggests that to learn from a text, the information must be processed into long term memory. Here it is transformed into new ideas and becomes available in the shape of a 'situation model' from where it can be used to solve new problems (ibid p.294).

Both the studies by Chan, Burtis, Scardamalia, and Bereiter (1992) and Kintsch (1994) have demonstrated that relevant prior knowledge was the deciding factor in the complexity of mental models of meaning. However, while Kintsch's situation models may be seen to signal a change in rhetorical purpose, he does not explore links to sociocultural knowledge as a way to expand the pool of prior

knowledge needed to accomplish the process. In this respect, Kintsch's reliance on the conceptual rather than the social aspects of knowledge exemplifies how a reduced concept of prior knowledge has limited constructivist accounts of reading and writing. (For a discussion see Saks 1995.) In order to advance the idea of synthesizing sources for learning, constructivist researchers have had to promote new ideas about the scope of relevant prior knowledge.

#### **4.5 Intertextuality**

In order to help solve issues associated with the definition of prior knowledge, some researchers have turned to intertextual descriptions of knowledge. By using several texts as part of a reading engagement, researchers such as Hartman (1991) and Chi (1995) have sought to explore how personal knowledge can help form a more complex mental model of information. For example, Hartman (1991) found that the act of linking passages was, for some readers, an opportunity to utilize knowledge from outside the texts. Using several passages as input, Chi's (1995) study revealed the intertextual linking patterns of proficient EFL students reading across two passages. Although the students were not engaged in any particular inquiry task, the presence of two texts appeared to have opened up enough linking opportunities between the texts and the students' own experience to effect a reshaping of the individual text contexts in the direction of a situation-type model with potential for use in a new rhetorical context. Chi particularly notes the dynamic effect of intertextual linking wherein foreign and native cultures were mingled to enrich students' mental models of texts (ibid:644). Work by Short (1992) and Cairney (1992) has demonstrated that consistent experience of intertextual contexts where learners



histories and cultures interact can enhance student abilities and inclinations to make intertextual links. Both researchers have addressed the construction of meaning in learner-driven contexts where students gave equal value to the diverse contributions made during collaborative discussions. As students shared their reasons for making intertextual links, critical thinking took place and the abduction from the ideas of others was practised.

At the same time, researchers have been describing the extensive nature of the prior knowledge that is used to satisfy particular rhetorical contexts associated with writing tasks. For example, using interviews and observations, Kamberelis and McGinley (1992) have traced out the source, type and function of each proposition in an analysis of narrative texts written by fourth graders. They showed that the texts were rich in connections to other texts, utterances, images and motifs, drawn from each child's mosaic of intertextual resources. Writing has also been seen as a shaping influence as authors synthesize their intertextual responses to literature, speech, movement, and illustrations (see for examples, Marshall 1987; Rowe 1987; Dyson 1989, 1993; Kamberelis and Scott 1992; Short 1992; Witte 1992; Seigel 1994). In an echo of Spiro's (1980) view of cognition, the reader as a writer is seen by Hartman (1992) as drawing from and integrating fragments of text to make meaning, and re-composing the collective intertextual nature of the meaning by reconstructing the fragments into a new text. Within the process of reconstruction lies the relationship between writing and learning where the act of composing is seen as a chance for students to learn by further organizing and making meaning from what they have read and experienced (Durst and Newell 1989).

In the above studies, intertextuality has been used to expand the definition of knowledge used in the construction of new rhetorical contexts. However, problems concerning the abundance or paucity of prior knowledge have not entirely accounted for students' varying potential to advance knowledge from one rhetorical context to another. Even when abundant prior knowledge could be brought into play, students did not always mobilize information according to new contexts because they had adopted a particular discourse stance which confined their operations to the context of a single text.

#### **4.6 Discourse stance**

The reader-writer's stance may be defined as the internalised response to the codes and practices of the language environment, including the outcomes of the events in that environment. Researchers (for example, Rosenblatt 1978; Vipond and Hunt 1984; Vipond, Hunt, Jewett, and Reither 1990) have made distinctions between text-driven stances which dominate when the goal is to learn from the text, and aesthetic stances where readers expect to create a new reality out of the text and their responses to it. However, while stance may be driven by the type and difficulty of the text, it also appears to be affected by the impressions that students form of their own proficiency, and by the impressions they have of task demands. For example, comparing the stances taken towards a reading event by first year university students, fourth year university students, and by faculty members, Vipond, Hunt, Jewett and Reither (1990) found that, while particular kinds of texts tended to promote certain types of reading stances, the subjects' ingrained social attitudes to themselves as readers coupled with the demands of the reading situation were equally contributing factors to the stances taken

towards texts. They also suggested that the information-driven stance was most prevalent in student responses to instructional reading (ibid:132-133).

An intertextual perspective on discourse stance was adopted by Hartman (1991). Recording the thoughts of eight able students as they read across related passages, he identified three different profiles associated with links between ideas, events and people. The profiles emerged from the data as:

- a. An *intratextual* profile where links were made at the sentence and paragraph level of the text at hand
- b. An *intertextual* profile where the readers voiced links between the text being read and other texts as part of their on-going understanding of the rhetorical situation
- c. An *extratextual* profile when readers voiced their understanding of the text only in terms of their own knowledge and experience, saying nothing about links to other texts.

The data was then analysed for the connection between the linking profiles of the students and their discourse stance. The stances emerged as: *logocentric* or passage-bound stances where the reader accepted a dependent role in order to learn from the text. This approach privileged the voice of the author with comprehension being seen as a matter of 'digging around' for the author's intended meaning. The *resistant* stance occurred when a reader's personal thought agenda dominated the discourse act. The meaning potential of the texts was ignored except where it accidentally brushed against the reader's personal criterion. An *intertextual* stance occurred when a flexible attitude was adopted towards the sources available to the reader. The rhetorical purpose of the task determined what was embraced as relevant.

#### **4.6.1 Flexible stances**

Whereas an intratextual stance may be seen as the result of a learner operating within the rhetorical context set by the authors of the source texts, the intertextual discourse stance is characterised by a preparedness to utilise information from the texts and prior knowledge to build a more complex mental model. Readers adopting an intertextual stance appear to make links within texts, between texts, and outside the texts to the socially constructed knowledge.

Hartman (1991) has concluded that discourse stance is directly implicated in how readers link text. For example, a text-based approach to comprehension is cited by Hartman as the reason why some able readers do not develop more complex models for the texts they read. He says: 'What has counted as *good* comprehension is a slavish fidelity to recounting the story line or the main ideas of the passage' (ibid:373). In contrast, other proficient readers compose information according to new rhetorical contexts in an autonomous way, leading to flexible links between text sources and personal knowledge.

#### **4.7 A critical approach**

Students who have not gained extensive experience of tasks that require complex thinking may be helped in the following ways. First, by analysing examples of the rhetorical contexts set by other authors, students uncover the principles involved in attending to questions of purpose, audience and occasion. Second, students need the opportunity to add to their personal learning through engaging in writing tasks that call for the interpretation of a variety of sources in a new rhetorical context.

The approach in which students uncover the rhetorical principles used by other writers is exemplified in work by Wallace (1992) who drew on data collected from adult students in a general English course. Her students used a series of questions about purpose, audience and occasion to examine and reconstruct the ideological and propositional content within the texts. By exposing and evaluating the effects of certain discourse practices associated with audience and purpose, the students enhanced their knowledge of writing skills. Having uncovered the rhetorical principles underlying the texts of other authors, students, in order to learn, should then engage in tasks that require learning from a synthesis of sources. Studies in the area have examined the value of different types of writing tasks with respect to learning outcomes. For example, in one of the early studies of the influence of writing on students' reasoning, Newell (1984) found that students with limited knowledge of a topic acquired more knowledge of key concepts and used more overall reasoning operations by writing essays, than similar students who answered questions or took notes. Similarly, when Newell and Winograd (1995) studied the effects of tasks on learning from text among eleventh grade social studies students, they noted the considerable advantage of writing as a tool for learning. They also made the distinction between study questions as a restrictive form of writing and analytic essays as a more extended writing activity (ibid:157). The results of Marshall's (1987) study have led him to speculate that restrictive writing tasks may discourage students from linking parts of the text to an overall meaning for the text. Other studies by Applebee, Langer, and Mullis (1987) and Penrose (1992) have confirmed the view that writing becomes connected to learning, only when writing tasks

require elaboration of the text in the direction of a new rhetorical context.

#### **4.8 Discourse synthesis**

In an attempt to move away from the construction of separate contexts for reading and writing, Tierney, Souter, O'Flahavan, and McGinley (1989) studied the advantages of combining reading and writing in one task vis a vis reading and writing as separate activities. Their findings suggest that the rhetorical context emerging from reading and writing as a combined activity was shaped by a more critical, evaluative stance to the material both read and written.

The ways in which reading and writing were used to shape a rhetorical context for learning have been reported by McGinley and Tierney (1989). They found that reading and writing in combination could foster the kind of critical thinking needed to evaluate and select material for a new rhetorical context by enabling learners to reflect on their own thinking. However, the study also showed that the stances and task impressions adopted by students marked the way they chose to orchestrate their reading and writing. Previously, Spivey (1984) had used the term 'discourse synthesis' to describe the process of integrating ideas and information from several sources to create new texts. In this hybrid act of literacy, meaning is constructed from texts being read in order to fashion meaning for the texts being written. In their 1989 study, conducted with proficient and less proficient college readers composing from several sources, Spivey and King identified three strategies that students used to transform texts during a discourse synthesis task, namely organizing, selecting, and connecting content. She found differences in the

content students chose to include, in how they organized content, and in how they connected and integrated the ideas. The strategies are elaborated below using material from her 1984 study and a subsequent review in 1990.

*Organization of content:* A reader's mental representation of meaning is assumed to have an organizational shape or global coherence, according to the reader's perception of meaning through transacting with the text. When the reader-as-a-writer composes a new text from the reading material, organization will develop according to the writer's intentions for the new text. For example, the reader/writer has the option of using the organization of the original text, as is often the case in summaries. Alternatively, in the synthesis of different texts, the source texts are dismantled and reconfigured by reordering and recombining information according to a new overarching pattern.

*Selection of content:* As reader/writers construct meaning from texts, they select a subset of what the text offers using a relevance principle. In writing, the relevance principle is related to the organization plan for the composition. Writers select material that supports the overall organization they envisage for the new text. When reading several texts, they will also select content on the basis of connections across source texts that they perceive as relevant to the theme. Content may also be selected to support or identify with a point of view.

*Connection of content:* This is a strategy whereby the source text is further transformed by interweaving content from the writer's own knowledge store with content selected from the source texts. On



tasks that do not require compression of sources in the way that summaries do there are clear examples of the interplay between the two different knowledge sources. The connections are used to provide links between clusters of source-based content, either to fill in for a lack of balance in source information, or to generate an entirely new idea.

#### **4.8.1 Difficulties with discourse synthesis**

Research suggests that younger children have difficulty with the strategies required for discourse synthesis. Studies by Englert, Raphael, Fear, and Anderson (1988) and Englert, Stewart, and Hiebert (1988) have shown that elementary children have less knowledge of text organization than students at later stages of their education. Englert, Raphael and Anderson (1992) contend that elementary students are less knowledgeable and skilled at generating new texts by using different text structures. Studies have also shown that elementary children have difficulty identifying the main ideas in texts (e.g. Brown and Day 1983; Winograd 1984) and have less knowledge of cohesive devices (e.g. Garner and Gillingham 1987).

However, the ability to synthesize is not necessarily related to age, since, for example, the less successful college readers in the study by Spivey (1984) and the less practised readers across the grade levels in Spivey and King's study (1989) still had difficulty with such tasks. Commenting on the extent of children's experience with the act of discourse synthesis and the naivety of asking a question such as 'Can younger students synthesise discourse from multiple sources?', Raphael and Boyd (1991:5) argue that as natural processes, the strategies underlying discourse synthesis are practised throughout life, beginning with earliest writing where



young learners select content, often make some organizational changes to convey the new meaning, and connect information to make it coherent. Some research suggests, however, that younger children may not be making the best progress in these strategies because of contextual factors. For example, Armbruster (1984) claims that some current textbooks show poor models of synthesis. There may also be a lack of opportunity to write expository texts in many classrooms (Applebee, Langer, and Mullis 1987; Newell and Winograd 1995), while widespread differences in student ability to respond to narrative and expository texts frequently remains unaddressed by teachers (Dutcher 1990, cited in Raphael and Boyd 1991:6). Other researchers point to factors such as pedagogical modifications which are based on perceptions about the future of students (Newell and Winograd 1995:141), as well as the conscious shaping of student interpretations of texts by teachers (MacLure and French 1981, cited in Marshal 1987:36). That student beliefs about themselves as readers and writers may be shaped by their instructional experiences is illustrated in a study by Wollman-Bonilla (1994). Student perceptions of the purpose of literature discussion groups were examined in a sixth grade classroom revealing that the less practised readers viewed the group as a setting where the teacher, as the expert, would decode the text and decide what it meant. The group was also seen by the students as a setting for teacher evaluation of ability and progress through student participation that entailed giving unelaborated answers solicited by the teacher.

It therefore appears that, although learning by way of discourse synthesis is assisted by the flexible intertextual linking of conceptual and sociocultural information and by tasks that combine reading and writing, the potential to compose in unique rhetorical

contexts may be inhibited by task impressions built up over a long period of time.

#### **4.9 Task impressions**

As students experience literacy learning, they internalize cues according to their prior experience for use in determining and redefining learning situations in which they are currently engaged (Vygotsky 1978; Wertsch 1984). In a study to examine fourth and fifth grade students' synthesis of expository texts, Raphael and Boyd (1991), set out to identify both the nature and the source of the students' task impressions during the act of discourse synthesis. Data analysis revealed strategies that inhibited successful discourse synthesis, many of which were linked to task impressions that did not establish a reason or aim for writing the synthesis. Similar conclusions were reached by O'Brien (1995) who examined the processes underlying the composition of an examination essay versus a coursework essay. Using *rhetorical structure analysis* to discover differences in the coherence of the two different types of writing, O'Brien found that, in the knowledge-telling mode adopted for the examination essay, her case study student had relied on the rhetorical contexts of texts in memory to produce a coherent structure. On the other hand, for a coursework essay, where no clear audience or purpose were assigned, the student's attempts at transforming knowledge lacked text structure. Pointing out the difficulty of inventing a rhetorical context, especially when previous educational experiences have encouraged the student to retell knowledge, O'Brien suggests that writing tasks that require the transformation of knowledge should indicate rhetorical purpose and audience.

In terms of discourse synthesis, a problem exists for learners who do not feel at liberty to invent a new rhetorical context, due to experience of school tasks that either do not value their prior knowledge or do not provide a reason for departing from the structure of the source texts.

#### **4.10 Summary**

It would appear that the ability to read across texts and to write from sources requires careful scaffolding during the Primary School years with particular attention being paid to student impressions of reading and writing tasks. The tactics associated with discourse synthesis may need to be promoted within tasks that draw naturally on intertextual experiences in order to satisfy a new rhetorical context. Although research reviewed here has provided clear directions about the use of reading and writing as tools for inquiry, it also signals a need for greater focus on the development of tasks which directly encourage the reshaping of the rhetorical context through considering a unique audience, purpose and occasion.

## CHAPTER 5

### RESEARCH METHODOLOGY

#### 5.1 Introduction

The project was designed to examine how children in a composite class at an intermediate school coordinated and communicated links between texts. The project also assessed discourse synthesis tasks against tasks that use one text as a source for writing. Verbal reports were collected from four case study students.

#### 5.2 Pilot study

The research design began with a pilot study aimed at evaluating factors that might affect the design of the research task. Drawing on work with literature circles by Short (1992:314), a data gathering instrument was developed in the form of a taped oral report prompted by questions intended to encourage intertextual links through discussion. The prompts were designed to provide opportunities for students to make individual responses to texts, summarize information and ideas, display knowledge of the topic, and write a written report. The task was piloted among ten volunteers in a classroom other than the one selected for the main study. The participants were divided into two matched groups of five students each. The task and the discussion prompts are set out in Figure 2:

| The research task  | The discussion prompts   |
|--|--|
| <p>You have three days to complete the job sheet. Your taping session will be at 1.30 pm on Thursday. Your written report should be presented by Friday.</p>   | <ol style="list-style-type: none"> <li>1. Why did you choose the text(s) ?</li> <li>2. What is the overall idea of the text(s)?</li> <li>3. What have you learned from the text(s)?</li> </ol> |
| <p>Jobs:</p> <ol style="list-style-type: none"> <li>1. Read the Anthology.</li> <li>2. Choose three texts (if in group two, choose one text).</li> <li>3. Using the text/s, prepare a two minute talk and present it to your group.</li> <li>4. Be prepared to discuss three questions with your group.</li> <li>5. Produce a written summary of your talk.</li> </ol> |  |

*Figure 2: The pilot study tasks and discussion prompts*

Observations during the taping sessions showed that the students were self-consciously focused on the presentation of a speech. They avoided collaborative talk and the exchange of information as part of the activity. For example, Bill, a student working from three texts made the following response to the oral part of the task.

Bill: I chose *Space Junk*, *Protecting Our Kaimoana* and *Feeding The Kakapo*. Well *Space Junk* is about the pollution that is orbiting the Earth at high speeds. *Kaimoana* is all about fishing regulations and taking undersized fi- shellfish from the sea. *Feeding the Kakapo* is a lady staying out and watching the Kakapos she feeds.

Q 1: Why did you choose these texts?

Bill: I just chose them for - I liked the look of them..

Q 2: What is the main idea behind the texts?

Bill: It's about the rules and regulations of diving for shellfish.

Q 3: What have you learned from the texts?

Bill: That shellfish - paua have to be 125 millimetres before you take them and it takes ten years for a paua to grow up to um 125 millimetres long and you can only take ten.

The prompt questions failed to produce group discussion. When the students had chosen narrative texts, they claimed they had learned nothing. The two minute talks became performance-based speeches, made for no apparent reason. To investigate further, the researcher asked the participants an additional question designed to reveal a purpose for the task, and the speakers perception of the audience. The question and two examples of typical responses follow:

Teacher: Who was your audience and what is the purpose of your talk and your report?

Bill: Maybe they would learn something new. I suppose it could be useful, I don't know. You know for a - maybe they could take the information and - you know use it to make something....I don't know. I suppose the audience was you or maybe my group. Yes, I think it was just to do a talk so you could see or Miss P. could see if we could do it.

Erin: You could read it for a project on China and I think - oh I don't know - well it was taped for a talk on a tape to see what we could remember about the books or the different stories and that - well I don't think there was any point to it - just to tell our group a speech thing.. and for - well I thought the audience was you really.

The students appeared to regard the group, the tape recorder, and the teacher as alternative audiences. Because no clear audience or purpose was defined by the task, students had no way of developing an idea about what to include in the summary. As a result, the reports were reduced to a display of what they could remember about the texts. The students' written reports paralleled their oral outcomes by showing simple reproductions of texts and listing of information.

When faced with a task which failed to indicate an audience and purpose, students fell back on their long experience of tasks that required a reproduction of text-based knowledge, assuming the teacher to be the audience, and assuming a display of knowledge to be the purpose. Although they were thematically arranged in an anthology, the texts themselves seemed to offer the children few leads for building a rhetorical context.

The results of the pilot study clarified a number of issues that would need to be addressed in a discourse synthesis study:

1. *Past experience:* An effort would need to be made to understand the extent to which the task was interpreted as similar or different to tasks previously experienced by the students. For example, if the task was novel, the students might employ strategies that were reliable for a different type of task, but inappropriate for the one under consideration. The outcome of such a study would simply

expose the gap in the students' experience of discourse synthesis tasks.

2. *The potential of the texts:* Since discourse synthesis is a task that requires comprehension of texts as part of a more complex cycle of skills, the texts would need to be evaluated for their readability as well as their potential to provide elements for synthesis.

3. *Stance:* Elements in the task design would need to position the students as experts and invoke their personal knowledge as an integral element in the completion of the task.

4. *Audience and purpose:* Entrenched ideas about the audience for writing and the purpose for school tasks would need to be over-ridden. The task would need to indicate an audience, and a purpose related to using the information in a new context.

### **5.3 The main study**

Based on the lessons learned from the pilot study, a new approach was taken to the design and presentation of the discourse synthesis task for the main research.

#### **5.3.1 Participants**

The participants in the main study were thirty-four students in a composite form one and form two class at an inner city intermediate school. Their ages ranged between ten and thirteen, and their reading ages ranged between 9.5 and 16+ on the *Progress And Achievement Test* for reading comprehension (New Zealand Council For Educational Research 1991). There were 14 girls and 20 boys with twelve of these students speaking a language other than English at home (see



Appendix A). The researcher acted as a day-relief teacher in the classroom in the months prior to the research so as to become known to the students.

## **5.4 Developing the research setting**

The following procedure for planning the research setting emerged from the experiences of the pilot study. It should be noted that the following description of the procedure is by no means sequential, but rather a record of the various elements as they occurred in an interrelated and recursive manner.

### **5.4.1 Selecting the anthology titles**

As a result of collaboration with the classroom teacher and the children, the task took the form of a social studies assignment. Since the students had been discussing *NASA* information capsules in connection with an information technology unit, an imaginary scenario was developed about a distant planet trying to get information about Earth. Working with concepts from the achievement objectives in the third and fourth strands of the document *Social Studies in the New Zealand Curriculum* (Ministry of Education 1995), the teacher and the researcher made a list of information and ideas that might be useful to the survival of a planet similar to Earth. Titles from the *Choices* series were then surveyed with the aim of selecting two anthologies for the study that dealt with the target concepts. The titles selected were *Teasing The Lion* and *The Eye of Tangaroa*.

A description of the contents of *Teasing the Lion* and *The Eye of Tangaroa* can be seen in Appendix B. The links between the anthologies and the achievement objectives in the Social Studies curriculum are set out in Table 1.

*Table 1: Links between the anthologies and achievement objectives in the fourth strand of the Social Studies Curriculum*

| Anthology             | <i>Teasing The Lion</i>   | <i>The Eye of Tangaroa</i>   |
|-----------------------|---|--|
| Theme                 | Important events in people's lives  | Conservation and pollution   |
| Achievement objective | <p><u>Culture and heritage:</u><br/>How and why interactions between cultures within New Zealand may effect the cultural practices of the people involved</p> <p><u>Social organization and process:</u><br/>Ways people reshape social organizations in response to challenge or crisis</p> <p><u>Time and continuity:</u><br/>Ways in which peoples activities in the past have had connections with and significance for communities that followed</p> | <p><u>Place, time, and environment:</u><br/>How and why interactions between people and environments change over time</p> <p><u>Resources and economic activities:</u><br/>The implications of the various decisions people make about their resources</p> |

#### **5.4.2 Profiling the vocabulary burden**

It is generally agreed that for successful comprehension learners need to know at least 95 percent of the vocabulary in a text (Liu and Nation 1985). A vocabulary knowledge covering 95 percent or more of a text allows the reader to focus on the themes and ideas in the text as well as use contextual clues to guess unknown words. For these reasons, the anthologies were examined for vocabulary burden.

### 5.4.3 Lexical Profiles

Hwang and Nation (1989a) propose a lexical frequency profile which compares the words in an English language text with three base lists consisting of the first 1,000 most frequent words in general English, the second 1,000 most frequent words, and an additional 1,000 commonly encountered in academic texts. The computer programme also prints out the words not found in the base lists. These words comprise proper nouns and low frequency items.

The lexical profiles of the anthologies chosen for the present study are reported in Table 2, using 'running words' as the unit of analysis.

*Table 2: Lexical profiles of the anthologies chosen for the study*

| Title                      | Base list one | Base list two | Base list three | Not in the lists | Total      |
|----------------------------|---------------|---------------|-----------------|------------------|------------|
| <i>Teasing The Lion</i>    | 2713 (78)     | 272 (8)       | 32 (10)         | 475 (14)         | 3492 (100) |
| <i>The Eye of Tangaroa</i> | 3073 (82)     | 178 (5)       | 47 (1)          | 468 (12)         | 3766 (100) |

Note: The numerical values are frequencies (and percentages).

For example, the six texts included in *The Eye of Tangaroa* represent 3073 running words, 82% of which were drawn from the 1000 most frequently encountered words in general English. Approximately five percent of the words in the texts were drawn from the second thousand words, and just over one percent from the additional list of words frequently used in academic English. The remaining words (12% of the tokens) were low frequency words related to the topic of the texts, or were the names of people and places.

It is evident from Table 2 that readers would need a vocabulary knowledge of at least base lists one and two, as well as the ability to handle proper nouns and key vocabulary related to the theme of the texts. The pool of participants were therefore screened to check that it contained only readers who were able to meet the decoding requirements of the texts.

#### **5.4.4 Introducing students to discourse synthesis**

The classroom teacher was asked about the children's experience with transforming texts and with reading more than one text at a time. He said that neither was common practice, although the children were usually asked to put things in their own words when they worked from sources, instead of copying. It was not common practice to discuss the links between texts, nor was the idea of transforming them discussed as a step forward from reproducing them.

It was therefore decided to introduce the students to the strategies for discourse synthesis before they were asked to use them in the data collection stage of the main study. The training was accomplished by using an approach based on recommendations by Gavalek (1990) for strategy training in general. The Gavelek model advocates an activity cycle that allows students to pass through four different experiences: (a) experiences associated with the demonstration of strategies; (b) opportunities to appropriate the strategies during activities that involve discussion and feedback; (c) tasks which involved students in strategy use during an individualized activity; (d) opportunities to engage in the publication of the results.

In the context of the present study, the first and second parts of the activity cycle were developed to give students the opportunity to compare the reproduction and transformation of a source text.

Students identified similarities and differences between both types of written outcomes, and suggested a possible audience and purpose for each written account (the materials used are set out in Appendix C). Group discussions were also held to determine the themes of the anthologies used in the main study. The four lessons that made up the first and second parts of the activity cycle are summarized in Appendix D. The themes located in the anthologies as a result of student discussions are set out in Appendix E.

#### **5.4.5 Developing the scenario for the research task booklet**

The third and fourth parts of the activity cycle were designed to give students the opportunity to practise the strategies they had located and discussed in parts one and two of the cycle, and to provide the data for the study. The discourse synthesis task was designed by the researcher and the teacher with advice from the children whose opinions had been sought as to the features of the task that might best fit their needs. The purpose of the task was made specific and urgent, and the audience was clearly identified. The students were positioned as experts on both the information in the source texts and the knowledge they could contribute to the problem from their own experiences. The scenario tried to provide the students with 'something to get us thinking' and 'something out of the ordinary'.

The task booklet gave the background to a scenario in which the students are asked to help solve a problem. The inhabitants of a planet in a neighbouring solar system had encountered environmental and cultural problems similar to those experienced on Earth. They wished to enlist expert help from Earth people living on their planet in an effort to solve their problems. The students in the research project were asked to assume the role of the experts and respond to

the call for assistance. The full wording of the scenario and the tasks are reproduced in Appendix F.

### 5.5 Research design

The experiment was planned with two groups of students who experienced both the experimental and comparison treatments. The study was then replicated using a second anthology and a counterbalancing plan of assigned work. In all, each student wrote four reports. Two reports were written for each anthology, one of which was based on a selection of three source texts (the experimental condition), while the other report was based on one source text (the comparison condition). Table 3 summarizes the essential features of the experimental plan.

*Table 3: Experimental plan*

|           | <i>Teasing The Lion</i>         |  | <i>The Eye of Tangaroa</i>      |  |
|-----------|---------------------------------|--|---------------------------------|--|
|           | Occasion 1                      | Occasion 2                                 | Occasion 1                      | Occasion 2                                 |
| Group one | Selected three of the six texts | Selected one of the remaining three texts  | Selected one of the six texts   | Selected three of the remaining five texts |
| Group two | Selected one of the six texts   | Selected three of the remaining five texts | Selected three of the six texts | Selected one of the remaining three texts  |

The independent variables used for the study included the number of texts acting as resources for writing, the order in which the subjects encountered the treatment, and the anthology from which the text(s) were drawn.

There were two groupings of dependent variables:

- a. Operations used by students to compose the report, as indicated by the number, the nature, and the source of the textual links
- b. Ratings of the quality of advice contained in the reports.

The data tables therefore contained repeated measures on the same students for each of the study conditions. The thirty-four students in the class were matched in terms of reading proficiency, using school records. The members of each pair were then randomly assigned to one of two groups. Each group completed four tasks by following the activity cycle presented in table 4. In all, one hundred and thirty-six written reports were gathered.

*Table 4: Activity cycle*

| Activity Cycle  | Target Activity                           | Comparison Activity                     |
|---|---|---|
| Steps:  | Each student:                             | Each student:                           |
| 1. Selection of text/s from the <i>Choices</i> series | 1. Chose three stories from the anthology | 1. Chose one story from the anthology   |
| 2. Reading based on solving a problem                 | 2. Read to gather information and ideas   | 2. Read to gather information and ideas |
| 3. Writing to offer advice and examples.              | 3. Wrote a one page advisory report.      | 3. Wrote a one page advisory report.    |

### 5.5.1 Understanding the task

Care was taken to introduce the research task in a way that would help the students to develop both an understanding of the task and a stance toward the material that were appropriate to the strategies

discussed in the first parts of the activity cycle. This was accomplished by activities that would prompt ideas about the rhetorical perspective of the audience and the purpose for the written synthesis. Therefore the task booklet was introduced to the students by asking them to reconstruct the story and the jobs they had to do from copies of the scenario that had been cut up into paragraphs. There were lengthy discussions about how the Murians came to be in their present predicament, their appearance, social habits (for example marriage and burial ceremonies), and the current state of their technology. There was also speculation on how the Earth people had survived, whether they had intermarried with the Murians, and to what degree the presence of Earthlings had influenced the breakdown of cultural traditions and environmental systems on Mur. The students pointed out the analogous features of the task scenario to the problems presently facing societies on Earth. They also discussed the need for the transforming of information from the anthologies to meet the particular needs of the Murians. The reconstruction of the task scenario and the discussions that followed appeared to establish a general understanding of the research task as an opportunity to practise the strategies for discourse synthesis that had been uncovered at the beginning of the project.

In terms of materials, each student received a colour coded booklet containing the Murian scenario and instructions for writing four reports (see Appendix F), and a personal copy of each of the anthologies *Teasing The Lion* and *The Eye of Tangaroa*. The research task was timetabled in the same way as other class projects and a deadline of four weeks was set for completion of the work. Work began in silence which the students explained was part of the seriousness of working on a research task.



### **5.5.2 Case study students**

While written outcomes were collected from each member of the class, interviews were collected from a sub-sample of the class. These students have been given the pseudonyms: May, Peter, Dan and June. Dan and June had achieved PAT reading comprehension scores in the top quartile of the class while Peter and May had scored in the lower quartile. The case study subjects agreed to answer questions about their reading of the anthologies, and to record think-aloud protocols while they composed their reports. They were each given a tape recorder and a private side-room where they could work. Over the course of the experiment the case study students recorded three sets of responses:

- a. Task impressions
- b. On-line reading and writing behaviour
- c. Retrospective accounts of how they went about the tasks.

The questions are set out in Appendix G.

### **5.6 Data Analysis**

The data was analysed in three ways:

- a. The number and source of the links included in the written reports were counted and classified
- b. Patterns of synthesis reflected in the written reports were identified
- c. The relationship between the various conditions under which the reports were written and the quality of the final texts was evaluated.

### 5.6.1 Units of analysis

Students' written reports were transcribed and then, following Mann and Thompson (1988) and O'Brien (1995), segmented into clauses as the closest grammatical unit to the information unit. The following rules were used to assist in the establishment of clause boundaries.

1. Verbs whose structure requires or allows a verbal element as the object were counted with both verbal elements as one unit. For example, the reported clause: 'I hear that you have got problems' was counted with the reporting clause as one unit. In a similar way, extraposed verbs like 'It is' or 'It appears that' were counted as part of the following clause. For example 'It appears that they take the fish out of the ocean' was classified as one unit.

2. When two clauses were linked by *and*, the clause complex was treated as two clauses. However, when two actions were linked by *and* it was counted as one clause. For example, 'Father Christmas comes down the chimney and he gives the children some presents' was counted as two clauses; on the other hand, 'I suggest that the Murians could sing and mime or chant and movement' was counted as a single clause.

### 5.6.2 Source sites

As each report was segmented into clauses, notes were kept on the categories which emerged as the sources of each clause. A scoring form was developed to show the number of clauses and their position in reference to the source sites from which the students appeared to draw. The various source sites included:

- a. **The task:** References to the audience and purpose, as in: 'I am writing some reports for suggested improvements to...'

- b. **The themes:** References to the themes of the anthologies and the themes implied in the task. For example 'Attitudes must change...'
- c. **The texts:** Any direct references to a text, as for example, 'In the story it says..' or 'Put a sewerage treatment plant...' or '...a very impressive Lion dance'
- d. **Personal knowledge store:** These were clauses which referred to additional knowledge. For example, 'In the Cambodian culture...' or 'You put the sewage through a Mangrove swamp...' For the purpose of the data analysis, links to the student's personal knowledge store were labelled as exogenous links (after Hartman 1991:53).

### 5.6.3 Quality assessment

The written reports emerging from the study were rated for evidence of successful transformation according to the purpose imposed by the task. It was decided that, from the Murian viewpoint, a successful report would be a coherent expository text with a clear and relevant organizing theme. This theme would need to be supported by a range of information selected to clarify and exemplify the theme by giving relevant advice, explanations and examples. In designing the criteria for the evaluation of the reports, an attempt was made to translate descriptions of three discourse synthesis operations (see Spivey and King 1989 in section 4.8) in ways which would be generally useful for evaluating transformations of texts. When writers compose from sources the intention to create a new text is evidenced by (a) the clarity with which a new context is set, and a relevant theme is generated, (b) the way in which material is selected, reordered and recombined to suit a theme, and (c) the range of the material,

including the use of additional knowledge to make the new text coherent. The way in which the respective elements were quantified are set out below.

a. *Organizing principle:* The reports were marked out of nine for the relevance of each report to the Murian problems. The extent to which each text was reordered and recombined to relate to a new global organizing theme was assessed by the relevance of its contents to the purpose as indicated by the task (see Spivey 1990:265). To make the report useful to the Murians the writer would need to have composed it on the basis of a theme which was relevant to the Murian problems.

b. *Selection of content:* The reports were marked out of nine for the range of the advice offered. When synthesizing texts for a purpose, writers select material by using a thematic global organizer as a relevance principle (Spivey 1990:274). To meet the needs of the Murian high council, the reader/writer would need to use the anthologies to locate and adapt a range of material that would support, expand, and elaborate the theme of their report.

c. *Connecting content for meaning:* The reports were marked out of nine for the clarity of the advice. By defining an overarching theme which was somehow different from that of the source text, the student would create a certain amount of space which would need to be filled by generating connecting content from prior knowledge (Spivey 1990:280). The attempt to blend personal knowledge with information from the anthologies and the task was expected to render the report clear and coherent.

d. *Audience sensitivity*: The reports were marked out of nine for appropriacy of the tone adopted by the writer with reference to the audience and the purpose for writing. The rhetorical considerations of the audience and purpose were considered fundamental factors affecting the use of strategies for synthesis (see Kinneavy 1977).

A rating on each of the above dimensions was obtained by an independent assessor who worked from copies of the reports which had all codes removed. A second teacher similarly evaluated a sub-sample of twenty-four reports, twelve from each of the two groups with four selected from the top, middle and bottom range of reading ages within those groups. There was an 85% agreement on the resulting ratings. The assessor's instructions are given in Appendix J.

## **5.7 Summary**

The methodologies adopted in many current studies of discourse synthesis fall short in two respects. First, they rarely attempt to address the fundamental question of what is being tested. By requiring students to display skills that have been actively discouraged by traditional classroom practice, the research results may only highlight what has not been taught or encouraged in classrooms. Second, by using tasks for which children have already established a traditional understanding, the results may not reveal what children are capable of doing in terms of learning. Although the research reported in the literature has been able to define children's task impressions and give a useful picture of the effects of traditional methodology on learning strategies, it has not clarified for teachers what pedagogical steps are associated with the development of discourse synthesis skills.

The present study has tried to address these two problems by allowing the research methodology to develop as a logical step in a learning cycle. By identifying the process of transforming texts as being different from traditional text reproduction, and then, by identifying a task as a novel opportunity to practise transformation processes, the methodology sought to test a skill that was known within a task context that was largely unfamiliar.

## Chapter 6

### RESULTS

#### 6.1 Introduction

The main aim of the study was to explore the use made by students of the various sources of information available to them as they completed a discourse synthesis task. A secondary aim was to assess the impact of using three source texts versus one source text on both the length and quality of the reports produced. In this chapter, the presentation of results is organized by the research questions that guided the collection of group data. Case studies of individual students are presented in chapter 7.

#### 6.2 Length of the reports

In examining the effect of using three texts vis a vis one text on the length of the students' reports, the number of clauses produced was used as the measure of interest (see Table 5).

*Table 5: Average length of the reports expressed as means (and standard deviations)*

| Measure               | <i>Teasing The</i> | <i>Lion</i>    | <i>The Eye of</i> | <i>Tangaroa</i> |
|-----------------------|--------------------|----------------|-------------------|-----------------|
|                       | Three texts        | One text       | Three texts       | One text        |
| Length of the reports | 22.0<br>(6.33)     | 20.9<br>(5.44) | 22.1<br>(7.02)    | 20.0<br>(6.80)  |

Contrary to expectations, the length of the reports was not significantly affected by either the amount, or the topic contents, of

the reading material available to the students. Thus, neither the direction to use three source texts nor a change in the pool of texts available to the students had a material effect on the length of the reports taken as a whole.

### 6.3 Use of the source sites

The next phase of the study investigated the source sites of the clauses that made up the reports. The four possible source sites were the task booklet, the themes identified through discussion, the texts selected from the anthologies, and personal knowledge. Table 6 summarizes the use made of the various source sites by students writing under the different experimental conditions (three anthology texts versus one anthology text: *Teasing The Lion* versus *The Eye of Tangaroa*). The full data matrix is presented in Appendix H.

*Table 6: Number of clauses attributed to different source sites (means and standard deviations)*

|                                      | <i>Teasing The Lion</i> |               |               |               | <i>The Eye of Tangaroa</i> |               |                |               |
|--------------------------------------|-------------------------|---------------|---------------|---------------|----------------------------|---------------|----------------|---------------|
|                                      | Task                    | Theme         | Anthology     | Knowledge     | Task                       | Theme         | Anthology      | Knowledge     |
| Reading three Anthology texts (n=34) | 2.7<br>(1.77)           | 4.2<br>(2.73) | 8.6<br>(5.23) | 6.6<br>(4.40) | 2.8<br>(1.89)              | 2.6<br>(2.02) | 10.9<br>(6.15) | 5.8<br>(5.66) |
| Reading one Anthology text (n=34)    | 2.7<br>(2.29)           | 3.7<br>(3.13) | 6.9<br>(6.24) | 7.5<br>(6.23) | 2.5<br>(2.32)              | 2.5<br>(2.77) | 8.7<br>(6.27)  | 6.4<br>(5.67) |

In their reports, students produced references to the information presented in the task booklet and to the themes of the anthologies. The allocation of the clauses to these sources accounted for as high as a third of the students' texts on average. It mattered little



whether they were using one anthology text or three. Nor did it matter which title they were studying.

In general, there was not a major difference in the proportion of student text allocated to anthology sources under the various conditions. On average, the reports based on *Teasing The Lion* dealt evenhandedly with anthology resources and personal knowledge. In contrast, rather more of the students' texts were allocated to anthology resources in the case of *The Eye of Tangaroa*. There was a small difference in the proportion of student text allocated to anthology sources in the three text condition, which was offset by the use of personal knowledge in the single text condition in the case of *Teasing The Lion*. The main difference lay in the fact that three texts were accommodated in this allocation of effort rather than one text.

As a group, students of this age appeared to be allocating attention in a balanced way to the various source sites, namely the requirements of the task, the theme of the anthologies, the textual sources of information available, and personal knowledge. The minimal increase in the use of the anthology source sites in the three text treatment was contrary to expectation; nor did the effect of including more than one text in the input to the task materially affect the role of personal knowledge. The small differences observed in the data may indicate that when using one text students drew on personal knowledge to flesh out their reports, whereas they felt no need to do this when provided with a greater range of material to choose from. What also seemed to determine the use of personal knowledge was their familiarity with the theme of the anthology, and the presence of narratives in the anthology. When using mainly expository texts which dealt with less familiar propositions as in *The Eye of Tangaroa*, clauses attributable to personal knowledge fell away somewhat in the

single text condition. It is thus possible that the intertextual context created by an anthology and an accompanying synthesis task will stimulate linking opportunities that are independent of the number of texts consulted.

#### 6.4 Use of anthology sites

To what extent did students avail themselves of the three anthology source sites when preparing a report under this condition? The following table shows the frequency with which students took advantage of the anthology source sites under the three text condition as compared to the single text condition:

*Table 7: Number of students who used the available anthology source sites*

| Group       | Anthology sources |            |             |               | Total |
|-------------|-------------------|------------|-------------|---------------|-------|
|             | Ø source          | One source | Two sources | Three sources |       |
| Three texts | 1                 | 9          | 13          | 45            | 68    |
| One text    | 6                 | 62         | –           | –             | 68    |

In their reports, two thirds of the students referred to all three anthology texts when provided with the opportunity. Viewed another way, nine students out of ten took at least some advantage of the additional texts available to them. Moreover, the availability of multiple texts appeared to lessen the chances of students choosing to ignore anthology texts as a potential source of information.

## **6.5 Patterns of activity**

Various patterns emerged as a result of students moving between source sites as they wrote their reports. The most common pattern allocated clauses to each source site in a fairly even handed way, but recursively so. For example, a student would move from task, to theme, to the first anthology text, back to the task, and theme, and then onto the second text, and personal knowledge, then back to the second text, and so on. The zig zag nature of the movement between source sites is shown in Figure 3 for one successful report written from three anthology sources. (The full text of the report appears on page 70).

| Code No. 2 |      | Condition No. A |        | Report No. 1 |        | Anthology: Lion |              |
|------------|------|-----------------|--------|--------------|--------|-----------------|--------------|
| Clause no. | Task | Theme           | Text 1 | Text 2       | Text 3 | Exogenous link  | Unclassified |
| 1          | *    |                 |        |              |        |                 |              |
| 2          | *    |                 |        |              |        |                 |              |
| 3          |      | *               |        |              |        |                 |              |
| 4          |      | *               |        |              |        |                 |              |
| 5          |      | *               |        |              |        |                 |              |
| 6          |      |                 | *      |              |        |                 |              |
| 7          |      |                 | *      |              |        |                 |              |
| 8          |      |                 | *      |              |        |                 |              |
| 9          | *    |                 |        |              |        |                 |              |
| 10         |      | *               |        |              |        |                 |              |
| 11         |      |                 |        | *            |        |                 |              |
| 12         |      |                 |        |              |        | *               |              |
| 13         |      |                 |        |              |        | *               |              |
| 14         |      |                 |        | *            |        |                 |              |
| 15         |      |                 |        | *            |        |                 |              |
| 16         |      |                 |        | *            |        |                 |              |
| 17         |      |                 |        | *            |        |                 |              |
| 18         |      |                 |        |              |        | *               |              |
| 19         |      |                 |        |              |        | *               |              |
| 20         | *    |                 |        |              |        |                 |              |
| 21         |      |                 |        | *            |        |                 |              |
| 22         |      |                 | *      |              |        |                 |              |
| 23         |      |                 |        |              | *      |                 |              |
| 24         |      |                 |        |              | *      |                 |              |
| 25         |      |                 |        |              | *      |                 |              |
| 26         |      | *               |        |              |        |                 |              |
| 27         |      | *               |        |              |        |                 |              |
| 28         | *    |                 |        |              |        |                 |              |
| 29         | *    |                 |        |              |        |                 |              |
| 30         | *    |                 |        |              |        |                 |              |
| Total: 30  | 7    | 7               | 3      | 6            | 3      | 4               | 0            |

Figure 3: Recursive movement among source sites by a successful writer (Student 2A)

The movement between the various sites can be attributed to the student's interpretation of the task. As each piece of advice was given in the report diagrammed in Figure 3, the student felt obliged to remind the reader of the purpose for which the advice was given and the context in which it should be acted upon.

### **6.5.1 Variability in patterns**

Two major variations occurred in the pattern of activity shown in Figure 3. Some students visited all source sites, but favoured a particular site over others. Sometimes the favoured site was personal knowledge, at other times it was a particular anthology text, while on some occasions it was the task booklet and the general themes of the anthologies.

A second variation occurred when students used only some of the available source sites. Under the three text condition, some reports referred to only one or two of the anthology texts (see Table 7, p.61). Appendix I summarizes the frequency with which various combinations of source sites were used.

## **6.6 Quality of the reports**

The reports were rated for quality using a nine-point scale. The dimensions chosen for assessment were: relevance of the information to the problems faced by the Mürrians, range of examples, clarity of the advice, and the tone of the report.

Table 8 reports the mean ratings (and standard deviations) for the reports written under the different experimental conditions. The full data table is presented in Appendix K.

*Table 8: Evaluations of reports to the Murian High Council*

|                         | <i>Teasing The Lion</i> |               |               |               | <i>The Eye of Tangaroa</i> |               |               |               |
|-------------------------|-------------------------|---------------|---------------|---------------|----------------------------|---------------|---------------|---------------|
|                         | Relevance               | Range         | Clarity       | Tone          | Relevance                  | Range         | Clarity       | Tone          |
| Three Sources<br>(n=34) | 6.0<br>(1.42)           | 6.1<br>(1.43) | 5.9<br>(1.69) | 5.0<br>(1.46) | 5.3<br>(1.70)              | 5.3<br>(1.59) | 4.8<br>(2.03) | 4.8<br>(1.80) |
| One Source<br>(n=34)    | 4.4<br>(1.81)           | 3.4<br>(1.71) | 4.3<br>(2.02) | 4.2<br>(1.58) | 4.0<br>(1.80)              | 3.2<br>(1.79) | 4.0<br>(1.87) | 4.3<br>(1.90) |

Statistically significant differences between the conditions emerged when the data was analysed using total quality scores as the dependent variable, and an experimental plan in which there were repeated observations on two of the three factors in the design. The principle sources of variation in the data are given in Table 9 together with the associated probabilities that the F ratios were due to chance fluctuations in the data.

*Table 9: ANOVA on the quality ratings of the written reports*

| Source  | df | Mean Square | F ratio | p value |
|---|----|-------------|---------|---------|
| Number of texts used in preparing the reports                               | 1  | 1101.24     | 117.92  | < .0001 |
| Title of the anthology  | 1  | 114.90      | 16.44   | < .001  |
| Interaction between the number of texts used and the title of the anthology | 1  | 37.06       | 6.81    | < .05   |

Note: The within subject error terms were each based on 32 degrees of freedom.

The difference in quality ratings between the reports written by Group A and Group B were not statistically significant ( $F_{1, 32} = 1.02$ ;  $p > 0.25$ ) thereby justifying the combination of the group data for subsequent tests. In effect, each group experienced a different representative sequence of alternating between using three source texts and one source text in composing four reports, but these arrangements did not appear to affect the way quality assessments were assigned to the reports, nor the way the other experimental variables in the design were influencing the data.

The interaction between the numbers of texts used in preparing the reports and the topic content of the anthologies is graphed in Figure 4.

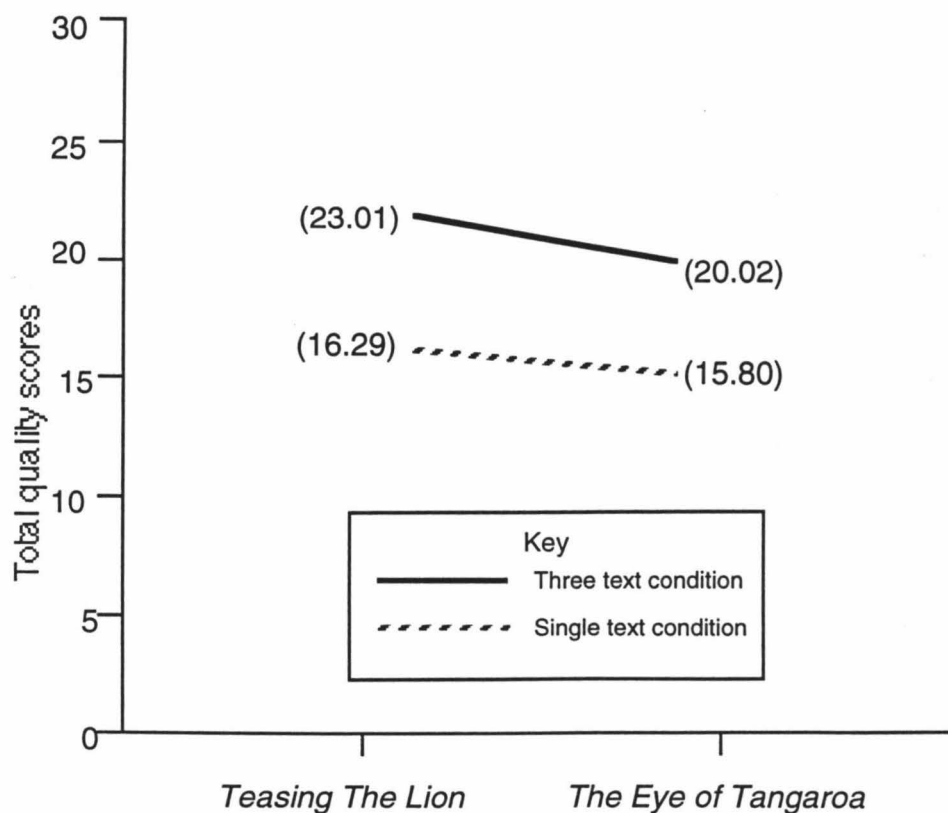


Figure 4: Profile of means corresponding to the text x anthology interaction

The profile of means in Figure 4 indicate a difference in the rate of decline in the quality assessments of the reports based on the different anthology titles. Overall, when students used three texts, they produced on each occasion substantially higher quality reports than when they used a single source, but this condition was also more affected by a change in the title of the anthology. Such a pattern seems reasonable. One could expect that the synthesis of source texts from an anthology would be influenced by the familiarity of the students with the particular theme of the anthology and the type of texts it contained. In this study, students evidently found it somewhat easier to synthesise the texts from *Teasing The Lion* than from the anthology *The Eye of Tangaroa*.<sup>1</sup>

The above analysis used *total quality scores* as the dependent variable. Through visual inspection of the means in Table 8, the impact of using three source texts, in combination with an anthology title, was seen across each of the dimensions of the rating scale, but was most clearly evident on the assessments given to the relevance and range of the material included in the reports. The added complexity of using three texts appeared to promote the development of a more comprehensive theme to organize the substance of the report. In turn, the presence of a more comprehensive theme seemed to encourage clarity and tone as students addressed gaps in coherence between source material and the task.

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<sup>1</sup> Alternatively, the explanation of the interaction may lie in the confounding in the experimental design of the order in which the reports were written and the content of the anthologies. Reports written on *The Eye of Tangaroa* were reports three and four in the series. However, there was no material difference in the length of the reports (see Table 5), and little difference in the quality of the reports prepared under the single text condition (Figure 4).



### 6.6.1 Relationship with reading

The success of the reports generally increased/diminished in relation to the reading abilities of the students. Table 10 reports the connection between PAT reading comprehension scores and the overall quality ratings for the various reports.

*Table 10: Correlations (and coefficients of determination) for reading proficiency and the quality of the reports written under the various experimental conditions*

| Measure             | Three texts      |                     | Single texts     |                     |
|---------------------|------------------|---------------------|------------------|---------------------|
|                     | Teasing The Lion | The Eye of Tangaroa | Teasing The Lion | The Eye of Tangaroa |
| Reading Proficiency | 0.69<br>(0.48)   | 0.55<br>(0.30)      | 0.71<br>(0.50)   | 0.58<br>(0.35)      |

Notes: Correlations of 0.41 or larger are statistically significant at the 0.01 level (using a one-tailed test).

The relationship between reading proficiency and the quality of the reports was marginally stronger for the reports based on *Teasing The Lion* than those based on *The Eye of Tangaroa*. Assuming that it makes sense to express the rated quality of the reports in terms of demonstrated reading proficiency, approximately half of the variation in the quality of the reports based on *Teasing The Lion* can be explained by variation in the students reading proficiency (see the last row of Table 10). In contrast only about one third of the variation of the reports based on *The Eye of Tangaroa* can be explained from that source. Presumably the information needed to elaborate the reports based on the second anthology was more a composing issue than a reading one.

### **6.6.2 Successful reports**

The patterns of activity associated with texts which earned the highest evaluations for transformation of sources tended to be those which included the highest number of clauses and which used all the source sites evenhandedly and recursively. What also emerged as a feature of a successful report was the difficulty with which the clauses could be allocated to one source site as opposed to another. From this point of view, successful synthesis appeared to be associated with a certain ambiguity as to the origin of the clauses perhaps because the writers were engaged in the generative process of invention, where, by adding to or recombining text information they inferred a connecting macroproposition (Spivey 1990). As an example, Figure 5 reproduces the report that was diagrammed in Figure 3. Underneath the report are the ratings given to the text.

Dear Murian High Council,

Your people have been complaining of their culture dying out. As member of the Murian Integrated Culture Klub (MICK) I am personally writing some reports for suggested improvements to the planet. On Earth they occupy their time with many different things. Most of these things are cultural celebrations. Dancing is used a lot in annual celebrations. For Chinese New Year there is a very impressive Lion Dance where the people dance around in synchronisation inside an elaborate costume. Children will eventually ask their parents about the point of the dance therefore passing the culture down a generation. If they had similar dance celebrations on Mur it could ensure the passing down of the culture to the children. A Maori haka is a masculine macho dance. Originally the haka was a war dance. Now it is done for entertainment and educational purposes. There is always a great feeling of proudness and team work when this dance is performed. The eldest man is usually in front. These young men say they feel taller and prouder after a big dance. The haka propels these young men to learn about their culture. They want to learn about it. This is another obvious method to keep a dying culture alive. Hakas can often tell stories as well. Birth brings family members closer. An Indian Chuti is a special naming ceremony. A red spot is painted on the child's forehead for good luck. The ceremony might make the parents think more about their past culture. After revising their identity they will want to start shaping their kids identity. All these ideas seem to be helping preserve cultures on Earth. Maybe it will do the same here on Mur. If we give it a go I think it could work.

Notes: 1. This was the first report produced by student 2A. The writer had read three anthology texts from *Teasing The Lion* (*Teasing The Lion/Men of the school/Chuti*) 2. The report was rated as follows:

Relevance = 8 Range = 9 Clarity = 9 Tone = 8 Total = 34

*Figure 5: A report written using three anthology texts (Student 2A)*

### 6.6.3 Less practised readers

The following texts along with their patterns of links to source sites and their evaluations illustrate the contrasts in written outcomes under the different conditions in the work of a particular student in the lower reading ability group (see Figures 6-9). Although the texts had the same number of clauses, and all the available source sites were used, the outcomes in terms of transformation are different.

When using one anthology text (Figures 6,7), the student used the text *Teasing The Lion* to provide the substance of the advice. On two occasions, personal knowledge was used as a basis for comment on the events in the text. Thus the student wrote within the rhetorical context set by the source text. Essentially only one piece of advice was given, namely to keep cultures alive by teaching traditional dances like the *Lion Dance* mentioned in the text. Although the student drew attention to a theme at the beginning of the report, and the theme and aspects of the task were mentioned in the conclusion to the report, the text information and prior knowledge were more strongly connected to the rhetorical context of *Teasing The Lion* than to that of the task requirements. For example, the description of the dance itself lacked connection to the problem posed by the new rhetorical context suggested by the task.

In the student's second report (Figures 8,9), on this occasion based on three texts, a stepwise movement between the anthology source sites was evident. A base text was chosen (*The Anzac Biscuit*) and a theme was developed and strengthened by adding information, initially from the second text (*A Very Special Day*) and then from the third text (*Chuti*). The student began the report by referring to a theme and concluded the report by revisiting the task and the theme. However, in contrast to the report based on one text, as discussed in

the previous paragraph, the act of reading three texts for this student appeared to help her move to the new rhetorical context suggested by the task. Information from the first text was transformed through attention to the task requirements. She read the anthology, chose three texts, and began to read the *Anzac Biscuit* with the task in mind. After adjusting information in the story and the task to her developing theme, namely maintaining different cultures by the celebration of special cultural times, the student strengthened the theme by linking it to the new rhetorical context with further information selected from the additional texts.

Overall, the less practised readers were less successful at synthesis than the more practised readers. However, they produced on average better reports when drawing on three anthology texts than when drawing from one.

| CODE NO. 12 |      | Condition No. B |                | Report No. 1 |              | Anthology: Lion |  |
|-------------|------|-----------------|----------------|--------------|--------------|-----------------|--|
| Clause no.  | Task | Theme           | Anthology text | Exogenous    | Unclassified |                 |  |
| 1           |      | *               |                |              |              |                 |  |
| 2           |      | *               |                |              |              |                 |  |
| 3           |      |                 | *              |              |              |                 |  |
| 4           |      |                 | *              |              |              |                 |  |
| 5           |      |                 | *              |              |              |                 |  |
| 6           |      |                 | *              |              |              |                 |  |
| 7           |      |                 | *              |              |              |                 |  |
| 8           |      |                 | *              |              |              |                 |  |
| 9           |      |                 | *              |              |              |                 |  |
| 10          |      |                 | *              |              |              |                 |  |
| 11          |      |                 | *              |              |              |                 |  |
| 12          |      |                 | *              |              |              |                 |  |
| 13          |      |                 | *              |              |              |                 |  |
| 14          |      |                 | *              |              |              |                 |  |
| 15          |      |                 | *              |              |              |                 |  |
| 16          |      |                 |                | *            |              |                 |  |
| 17          |      |                 |                | *            |              |                 |  |
| 18          |      |                 | *              |              |              |                 |  |
| 19          |      | *               |                |              |              |                 |  |
| 20          | *    |                 |                |              |              |                 |  |
| 21          | *    |                 |                |              |              |                 |  |
| 22          |      | *               |                |              |              |                 |  |
| 23          |      | *               |                |              |              |                 |  |
| 24          |      | *               |                |              |              |                 |  |
| Total: 24   | 2    | 6               | 14             | 2            | 0            |                 |  |

Figure 6: The pattern of movement among source sites by a less practised reader writing from one anthology text (Student 12B)

Dear Murians,

There are many very different cultures from other people, and other traditions are different from each other. One of the Chinese culture is The Lion Dance. This dance is to celebrate the beginning of the New Year. The dance gives you good luck for the months ahead. It also awakens the lion. This dance involves lots of energy and movement so the people who dance must have plenty of this. The dance features a clown which is a person who dances in front of the lion. The lion is actually two people inside a bright colourful Chinese costume. The music is usually just drums. At the beginning of the dance the drums start off slow and then get faster and faster. This is a bit like a street fair . This sort of thing can be passed down from generations. Many Chinese children get taught this dance. So this is really how the people can keep their traditions. So I suggest that this is what the Murians should do- keep your cultures alive by teaching everybody your cultures thoughts and beliefs to people and not just in your own culture but to everybody living on the planet Mur.

It is important that you do save your traditions. Education would certainly help you a great deal. Remember who you are!

Notes: 1. This was the first report prepared by student 12A. The writer had read one anthology text from *Teasing The Lion (Teasing The Lion)* 2. The report was rated as follows:

Relevance = 6    Range = 3    Clarity = 4    Tone = 5    Total = 18

*Figure 7: A report written from one anthology text by a less practised reader (Student 12B)*

| Code No. 12 |      | Condition No. B |        | Report No. 2 |        | Anthology: Lion |              |
|-------------|------|-----------------|--------|--------------|--------|-----------------|--------------|
| Clause no.  | Task | Theme           | Text 1 | Text 2       | Text 3 | Exogenous link  | Unclassified |
| 1           |      | *               |        |              |        |                 |              |
| 2           |      | *               |        |              |        |                 |              |
| 3           |      |                 | *      |              |        |                 |              |
| 4           |      |                 | *      |              |        |                 |              |
| 5           |      |                 | *      |              |        |                 |              |
| 6           |      |                 | *      |              |        |                 |              |
| 7           |      |                 | *      |              |        |                 |              |
| 8           |      |                 | *      |              |        |                 |              |
| 9           |      |                 | *      |              |        |                 |              |
| 10          |      |                 | *      |              |        |                 |              |
| 11          |      |                 |        | *            |        |                 |              |
| 12          |      |                 |        |              |        | *               |              |
| 13          |      |                 |        | *            |        |                 |              |
| 14          |      |                 |        | *            |        |                 |              |
| 15          |      |                 |        |              | *      |                 |              |
| 16          |      |                 |        |              | *      |                 |              |
| 17          |      |                 |        |              | *      |                 |              |
| 18          |      | *               |        |              |        |                 |              |
| 19          |      | *               |        |              |        |                 |              |
| 20          |      | *               |        |              |        |                 |              |
| 21          |      | *               |        |              |        |                 |              |
| 22          | *    |                 |        |              |        |                 |              |
| 23          |      | *               |        |              |        |                 |              |
| 24          |      |                 |        |              |        | *               |              |
| Total 24    | 1    | 7               | 8      | 3            | 3      | 2               | 0            |

Figure 8: The pattern of movement among source sites by a less practised reader writing from three anthology texts (Student 12B)



Dear Murians,

These stories are all different examples about how different humans have different cultures. First of all there is a special holiday in a few countries called Anzac Day. This is a day when all the humans who celebrate remember how the brave soldiers went to fight in world war 1. All the men in the war are quite old now. But they have their special celebrations. They wear their ribbons with their medals on the end and all remember their friends and family who died.

Here is another example - A Maori wedding. Maori people also have their own traditions. Their weddings have dances from their own culture. They also have food from their own culture. Maori funerals also feature something special. They mourn the departed by staying on a special place called a marae.

All traditions are different and if they were the same everyone wouldn't think or act differently. It is important to keep cultures going. I suggest that you share your culture around. Maybe there will be respect for the ways of others and that will end thoughtless behaviour.

Notes: 1. This was the second report prepared by student 12A. The writer read three anthology texts from *Teasing The Lion (The Anzac Biscuit/A Very Special Day/ My Nanny)* 2. The report was rated as follows:  
Relevance = 7 Range = 7 Clarity = 7 Tone = 5 Total = 26

*Figure 9: A report written from three anthology texts by a less practised reader (Student 12B)*

#### **6.6.4 NESB student**

One of the most striking examples of how working from three source texts drove a reader/writer to attend to rhetorical contexts that were different from those of the source texts was the report written by student 15 A. This student had recently arrived in New Zealand from Bagdad where he had learned English as a foreign language. Although he had diligently participated in the first and second parts

activity cycle it was difficult to know how comfortable he was with the general themes of the work. For his first report (Figures 10,11), he was required to work with three texts from the anthology *Teasing The Lion*. After reading and re-reading the anthology and listening carefully to the advice from his classmates, he used the following pattern of source site activity to write his report to the Murians (Figure 10):

| Code No. 15 |      | Condition No. A |        | Report No. 1 |        | Anthology: Lion |              |
|-------------|------|-----------------|--------|--------------|--------|-----------------|--------------|
| Clause no.  | Task | Theme           | Text 1 | Text 2       | Text 3 | Exogenous link  | Unclassified |
| 1           |      | *               |        |              |        |                 |              |
| 2           |      |                 | *      |              |        |                 |              |
| 3           |      |                 | *      |              |        |                 |              |
| 4           |      |                 | *      |              |        |                 |              |
| 5           |      |                 |        |              |        | *               |              |
| 6           |      |                 |        |              |        | *               |              |
| 7           |      |                 |        |              |        | *               |              |
| 8           |      |                 |        |              |        | *               |              |
| 9           |      |                 |        |              |        | *               |              |
| 10          |      |                 |        |              |        | *               |              |
| 11          |      |                 |        |              |        | *               |              |
| 12          |      |                 |        |              |        | *               |              |
| 13          |      |                 |        |              | *      |                 |              |
| 14          |      |                 |        |              | *      |                 |              |
| 15          |      |                 |        |              | *      |                 |              |
| 16          |      |                 |        |              | *      |                 |              |
| 17          |      |                 |        |              | *      |                 |              |
| 18          |      |                 |        |              | *      |                 |              |
| 19          |      |                 |        |              | *      |                 |              |
| 20          |      |                 |        |              | *      |                 |              |
| 21          |      |                 |        |              | *      |                 |              |
| 22          |      |                 |        |              | *      |                 |              |
| 23          |      |                 |        |              | *      |                 |              |
| 24          |      |                 |        |              | *      |                 |              |
| 25          |      |                 |        |              | *      |                 |              |
| 26          |      |                 |        |              | *      |                 |              |
| 27          |      |                 |        |              | *      |                 |              |
| Total 27    | 0    | 1               | 3      | 0            | 15     | 8               | 0            |

Figure 10: The pattern of movement among source sites by an NESB student writing from three anthology texts (Student 15A)

People on Earth they celebrate the New Year like the Chinese culture they celebrate by the Lion Dance. What is the Lion Dance? It's a dance to celebrate the Chinese new year or any other new beginning.

The Islamic culture they celebrate in the new year. They are go in the morning to the mosque, they are very relax they wear new clothes. After they went to the mosque and finish they back and make a group of two families or more. They cooked a lot of food they have a special day.

March the twenty fourth, his aunty Heeni was marrying uncle Job. That make very special day. They marrying in a big hall and the had made a big cake and a lot of food.

When the party is start they coming to the hall they sit on the chairs the man sit on the right and the woman sit beside the man on the left. They start on the dance and they bring the man and the woman to the dance the people after this they go to cut the cake.

When they cut it the woman take a piece of cake to the man and the man take a piece of cake to the woman accepts. They bring two children to dance the marrying was very good.

Notes: 1. This was the first report prepared by student 15A. The writer had read three texts from *Teasing The Lion (Teasing The Lion/Chuti/A Very Special Day)* 2. The report was rated as follows:

Relevance = 4    Range = 5    Clarity =3    Tone = 3    Total = 15

*Figure 11: A report written by an NESB student using three anthology texts (Student 15A)*

The student had used elements from two of his chosen texts in combination with personal knowledge that he felt was relevant to the expansion of the theme of cultural celebration. Instead of reproducing a source text (as he did in his second report), the student began by identifying a theme that allowed him to link personal knowledge and text information to a new rhetorical context. He also acknowledged

the need to explain the exact nature of the *Lion Dance* to the Murian audience and brought his own cultural knowledge into play before returning to examples from two of the source texts. In dealing with the anthology texts, the student took the first steps towards paraphrasing relevant parts of the texts.

When using one anthology text, the student fell back on a strategy which he perhaps associated with the experience of working with single texts (see Figures 12, 13). He summarized the text without any departure from the rhetorical context set by the author of *Men of the School*. He made no mention of theme or task, and included no additional material from his personal knowledge. It was not that he did not understand the task, he had already shown in his first report that he was aware of what was being asked of him. On the second occasion, when using one source text, it appeared that an entrenched impression of tasks that combine reading and writing for the purpose of displaying comprehension overrode his previous approach to the task which had been assisted by the presence of three source texts.

For this student the choice between reproducing or transforming source text appeared to be linked to the number of texts from which he was writing. In the three text situation, he had to abandon the summarization strategy, move away from the rhetorical context of the single anthology text, and take the first steps towards organizing information for a new context.

| CODE NO. 15 |      | Condition No. A |                | Report No. 2 |              | Anthology: Lion |  |
|-------------|------|-----------------|----------------|--------------|--------------|-----------------|--|
| Clause no.  | Task | Theme           | Anthology text | Exogenous    | Unclassified |                 |  |
| 1           |      |                 | *              |              |              |                 |  |
| 2           |      |                 | *              |              |              |                 |  |
| 3           |      |                 | *              |              |              |                 |  |
| 4           |      |                 | *              |              |              |                 |  |
| 5           |      |                 | *              |              |              |                 |  |
| 6           |      |                 | *              |              |              |                 |  |
| 7           |      |                 | *              |              |              |                 |  |
| 8           |      |                 | *              |              |              |                 |  |
| 9           |      |                 | *              |              |              |                 |  |
| 10          |      |                 | *              |              |              |                 |  |
| 11          |      |                 | *              |              |              |                 |  |
| 12          |      |                 | *              |              |              |                 |  |
| 13          |      |                 | *              |              |              |                 |  |
| 14          |      |                 | *              |              |              |                 |  |
| 15          |      |                 | *              |              |              |                 |  |
| 16          |      |                 | *              |              |              |                 |  |
| 17          |      |                 | *              |              |              |                 |  |
| 18          |      |                 | *              |              |              |                 |  |
| 19          |      |                 | *              |              |              |                 |  |
| 20          |      |                 | *              |              |              |                 |  |
| 21          |      |                 | *              |              |              |                 |  |
| 22          |      |                 | *              |              |              |                 |  |
| 23          |      |                 | *              |              |              |                 |  |
| 24          |      |                 | *              |              |              |                 |  |
| 25          |      |                 | *              |              |              |                 |  |
| Total 25    | 0    | 0               | 25             | 0            | 0            |                 |  |

Figure 12: The pattern of movement among the source sites by an NESB student writing from one anthology text (Student 15A)

They are three man, the first man is Kiwa, he put a big bag on his shoulders, the second man his name is Kotuku, his ran outside before his two older brothers. The third his name is Joshua, he is always the last man. They are Maori brothers they have dancing with other boys from their school. The brothers didn't get the word they was in the top but the people didn't see them. The brothers at lunch time did not eat their lunch The bell go and Mr. Potai say I want the children go before you and I want to change your place. I want to put the three brothers in the back and I want the other children go in the front. The brothers was very happy about this. After the children finish their Maori song they go to sing their song. They start, Mr. Potai give them the word of the song, the song was say:

Poutini, Poutini, ki te rua rearea ha!

Aue kapa aue kapa tana rua rearea ha!

Ua tana auahi ana, ua tana auahi ana!

Kss hei, kss hei, kss hei ha!

kss hei, kss hei, kss hei ha!

Notes: 1. This was the second report prepared by student 15A. The writer had read one anthology text (*Men of the School*) 2. The report was rated as follows:  
Relevance = 1 Range = 1 Clarity = 1 Tone = 1 Total = 4

*Figure 13: A report written by an NESB student using one anthology text (Student 15A)*

## 6.7 Summary

When students read anthologies for the purpose of preparing reports to be used by an imaginary audience, the quality but not the length of the reports depended primarily on the number of sources that were used to generate the reports, and, secondly, on the particular topic content of the anthologies used in the study. The difference in the quality of the reports when using three sources was most marked when students were familiar with the theme of the anthology and

when they were drawing on both narrative and non narrative texts. On the other hand, the moderating influence of the contents of the anthologies did not seem to affect reports written from a single source, suggesting that the specific skills that were contributing to the success of discourse synthesis under the three text condition were in the process of development for the students concerned.

At the individual level, there were two elements that appeared to be important to the students in the way they composed their reports. First, they adopted a particular stance towards the use of the source sites. Some students visited all the source sites. Others were able to satisfy their understanding of the task by limiting their use of the sources available to them. Second, students varied in the frequency with which they moved from one source site to another. Some visited the source sites recursively throughout the report, while others spent more time on a particular site.

For students who were less practised readers, the presence of three texts appeared to open up the composing process to the effect of the audience and purpose inherent in a fresh rhetorical context.

## Chapter 7

### CASE STUDIES

#### 7.1 Introduction

Four students were chosen in order to follow more closely the procedures they used to complete the task. Four questions guided this section of the project:

1. How did the case study students interpret the task and how did they plan to monitor their performance?
2. What tactics did they use to study the texts?
3. How did they select information from the source texts to include in their written reports?
4. What links did they make between the source texts, the task, the theme, and their prior knowledge?

The questions were answered retrospectively and the verbal reports audiotaped. The case study students were selected to represent each condition and to maximise differences in reading proficiency.

#### 7.2 Case study students

Table 11 profiles the characteristics of the four case study students.



*Table 11: Profiles of case study students*

| Pseudonym | Age   | Level of proficiency <sup>1</sup> | Experimental condition <sup>2</sup> |
|-----------|-------|-----------------------------------|-------------------------------------|
| June      | 13.0  | High                              | Group A<br>(3,1,1,3)                |
| Dan       | 11.2  | High                              | Group B<br>(1,3,3,1)                |
| Peter     | 12.10 | Low                               | Group A<br>(3,1,1,3)                |
| May       | 12.1  | Low                               | Group B<br>(1,3,3,1)                |

Notes

<sup>1</sup> As indicated from PAT school records. <sup>2</sup> The order in which the students read either three texts or one text is shown in brackets.

Table 12 indicates the points in the activity cycle where verbal reports were gathered. The questions used to prompt the verbal reports are reprinted in Appendix G.

*Table 12: Points at which the retrospective questions were answered*

| Stage in the activity cycle   | Verbal report task  |
|---|---|
| 1. After the task scenario had been assembled and discussed by students in groups                         | Case subjects taped their responses to the questions printed in the task booklet. The questions asked students how they were interpreting the task, how they planned to carry it out and how they planned to monitor their performance. |
| 2. After the students had selected and read the text(s) from an anthology i.e. before writing each report | The interview questions probed text comprehension, study tactics and the tactics used to organise, select and connect ideas.  |
| 3. As students wrote their reports  | Case study students 'thought aloud' as they composed their reports.   |
| 4. After completing four written reports  | Questions probed task impressions, choice of texts, reading tactics, coordination of texts, and overall use of the anthologies.   |

The tapes were transcribed and reviewed according to the principles of grounded theory (Miles and Huberman 1994). The data was coded utterance by utterance to locate general and individual task impressions and strategies used to complete the tasks.

### **7.3 Interpretation of the task**

Four questions probed the way the task was interpreted by the case study students:

1. What have you been asked to do?
2. How are you going to do it?
3. What should you remember as you are doing the job?
4. How will you know if you have done a good job?

The case study students shared the general impression that their job was to help the Murians by writing reports based on their own knowledge and information in the anthologies. In detail, however, they each saw their role differently. For example, May saw a need to negotiate a change in the Murians' attitudes and in doing so she tried to interpret the task through the eyes of the audience:

They [the Murians] want me to look at these books that they saved because they can't really understand them properly without an Earth person to help them think of what it all means. Now I have to try and say how they can do things different and change their minds about how they've been thinking all these years and to just look at what they've been doing wrong to their planet

Dan saw himself as an interpreter. He perceived that the anthology selections would need to be transformed and supplemented in order to provide the kind of advice that would be useful to the Murians:

They want four reports two on each thing but it'll be no good just telling them the stories because they need a bit more of an explanation- well they're Murians

and:

Well it's no good doing like a straight-out translation from English into Murian or whatever they speak because they still won't understand the ideas behind it

June wanted to provide practical information for the Murians and she discussed the difficulty of taking a set of experiences in one context and using them in a quite different context:

I have to somehow use them [the anthologies] to show how we carry on on Earth when we have pollution problems and how we use our culture to keep our spirits up. It is going to be quite hard because they don't really know anything about us. I'll have done a good job if they understand me and if they see some things they can do straight away

Peter hoped to help the Murians understand the texts by getting inside the motivation and expectations of the intended audience:

They [the Murians] want us to read the anthologies because they think there might be some secret information in them that might help them solve their problems. I just have to explain our ways to them so they understand it in their own way...

By giving careful consideration to their role as experts, each case study student had begun to supplement the task context from their own imaginations by making links to their personal understandings of the ways in which helpers might act in particular situations.

Students had specific plans to monitor the efficacy of their reports. For example, Peter realized that the text would be an offering that would still require a reader to make decisions about the value of the content:

But we are the only ones that can tell them what it all means and if it's any use to them so we have to write to them saying how or what of our ways would be good to follow. They could get very bored by them...right well as long as my letter isn't just saying the things in the anthologies because it will be too boring - as long as I try to put in other things as well then it should be interesting for them

Having a main point was viewed as important to the success of the reports. Peter commented:

I'll try to have one main idea or thing to stick to that can help the Murians and so I can fit or just choose things to go with that idea. By the time I look at them all [the anthology texts], and then the thing the Murians want I'll probably have to sort of change to a new idea from the stories

The notion of an overarching idea appeared to stem from a discussion in the first part of the activity cycle when the students had noticed the way in which the original title of a source text was inappropriate for a text that had resulted from a synthesis of the source text and additional information.

Peter, June, and Dan, appeared to enter into the spirit of the task in that they all planned to ask a classmate to review their reports for interest, clarity, and realistic advice. In particular they said they would ask the reviewers to read the reports through the eyes of the Murian High Council. May, however, thought that the researcher would eventually mark her reports for spelling and punctuation and would also be the final judge of her efforts.

Thus, before the case study students had embarked on the discourse synthesis task their remarks showed that they had begun to compose rhetorical contexts into which they might fit the anthology texts and the task at hand.

#### **7.4 Tactics used**

To explain how they went about the task of selecting and synthesizing texts the case study students answered a series of ten questions between reading for and writing each report. They also audiotaped their thoughts as they composed their reports. In addition, they answered six debriefing questions on completion of the assignment.

Of particular interest were the tactics that students used to carry out the following operations:

1. Choosing texts from the anthologies for use with the task
2. Selecting material from each text for the reports
3. Synthesising more than one text for a single report
4. Processing ideas during writing.

In essence the case study students were asked:

1. How did you choose the texts from the anthology?
2. What were you looking for?
3. How did you go about making three texts into one report?

#### **7.4.1 Choosing a text**

All four students agreed that illustrations played an initial role in their choice of texts. For example, Dan explained:

I kind of use a combination of like everything - if it's got good ideas or interesting pictures - it's just - it just happens - like when I was little I would choose the one with the most pictures so that you didn't have to read all the words because you didn't know half of them so you looked at the pictures and they kind of tell you what's happening. Well it's like that now except now I look at the words as well

Links to personal experience also contributed to the choice of texts, as for example when May said:

I decided to read it because it was about a grandmother. Also because it was called *Nanny*. I thought about how close I was to my grandmother and how I used to be scared of her when I was little

After writing the first report, however, the requirements of the task were cited as a deciding factor in the choice of text. For example, June and Peter explained:

June:

I thought it [*Men Of The School*] would help the Murians quite a bit to hear about such a strong culture and how they (Maori) make it survive these days

Peter:

It had lots of information on how they care for them [Kakapo] - what they do to keep them alive so they won't be extinct so the Murians can see how to have a new attitude to animals and plants and not be - oh well - not to be really thinking they are the only important ones on the planet

Although the case study students all spoke of a need to help the Murians, they initially chose texts using personal taste and experience as a criteria. Quite soon, however, the needs of the Murians began to be cited as a reason for choosing texts. As the rhetorical context of the task was built up, the criteria for choosing texts became a merger of personal preferences and Murian needs.

#### **7.4.2 Selecting content for the report**

The students were interested in recalling personal experiences that they could both relate to the Murian problem and to the content of the anthologies. For example, while reading *Men of the School* Dan commented:

Well I've been to a few other cultures and their things like Maori things and Samoan things so I thought of that, and the stories were about you know how people go about cultural stuff, but that it's important to make an effort to keep the old ways alive so that's what I could use for the Murians

Students used a variety of criteria for selecting information from personal knowledge and from the anthology texts. Some of the criteria matched original statements about their intended actions. For example, after explaining that she would suggest practical

actions that the Murians could take, June tried to support this intention by looking for a variety of ideas to include in her report:

I looked for stuff that would help the Murians for my report and stuff that would try and solve their problems and something realistic that I could suggest and then when I got an idea I was looking for more things for it to fit into it and to make it sort of real to them

Dan saw the need to choose content that he could interpret in ways that would make sense to his audience:

I looked for ideas, a good story and something easy to write about, something where the Murians can make sense of it for their own needs so it's not just a whole lot of facts that don't make sense

While reporting on how they selected material for the reports, the students projected their original impressions of their roles in the Murian scenario.

### **7.4.3 Combining three texts for a report**

The ways in which students coordinated three texts to write one report seemed to vary according to the difficulty and content of the texts chosen. June explained how these factors might affect her method of coordinating texts:

I read the three, make the link, and then just use them as suggestions, because we had the assignment to help us know what to look for and the stories weren't hard so they could all be equal in importance and I just read it and kept it in my head. I read the whole book and I left out one - *My Nanny* - that I wasn't interested in. If there was one hard one I'd probably go for the easy one first and then try to link the hard one onto that. It's easy just if the words are what you know and you know some of the ideas

May expressed a similar point of view:

May:

Let's just say I that I took three stories...and they were all about the same thing...so they were all equal, but one might put the idea in my head, but I don't think so because there were no really unusual ones - or like ones with things I really hadn't heard of before

Dan had grasped that the development of an overall theme was an important strategy for synthesis. He developed the theme of responsibility to link parts of three texts and a personal experience.

What happened in *Space Junk* was like what happened to me a Oriental Parade when I cut my foot... and then they [texts] were all linked by the idea of taking care of the environment, looking out for other people and not being careless about how you act - you know thinking hard about why we do things....and they [texts] all gave a lot of useful information on that one topic, but they had other ideas as well like the Maori thing is a culture thing, you know they don't like to take anything they don't need from the sea - well I just happen to know that - and the space thing or the sea part - so you can link all those things as well. It shows you how these separate things connect up to the one idea

June recognised the value of factual information for use as material to support a theme when she discussed her coordination of three expository texts from *The Eye of Tangaroa*, an anthology with an environmental theme. June said:

It was easier because these ones were all just clear facts given to you in a nice interesting way

May was also aware of the problems associated with reducing three texts to one text:

It [three texts] was sort of hard but then with three I had more to go on, but then it was quite hard to get them all in but I didn't worry about it really

Then she commented on the extra effort involved in choosing material from three texts when she explained:



May:

I skim sort of things that don't have anything to do with it and things that don't belong - well they do belong but not - well not on what I want to say - you know I'm not thinking of using them because - because well it might be extra stuff

In the example above, the case study students appeared to be grappling with the problem of synthesizing material from several texts in order write a report that would need to be shaped for another rhetorical context. The students thought that new or difficult information in one text could be handled by linking it to easier concepts in other texts. Strategies emerging from the activity cycle were carried over to the synthesis task as students pointed to the effectiveness of having a main idea under which to collect personal knowledge and text knowledge. Although the amount of information available in the texts was seen to create an organization problem, it was also viewed as an advantage for solving the problem at hand.

#### **7.4.4 Using one text to write a report**

When using one text to write a report to the Murians all the case study students confirmed that they used their own ideas to make up for the lack of examples in the single text situation. May and Dan summed up the essential differences between using three texts as opposed to one text as follows:

May:

I thought about it and looked at the chart to remind me of a main idea- just to check up that I was still on the main point - and then if I liked that story I linked it up however I could and it was a bit easier because you only have to worry about that one story and what you already know yourself, but it was ok with three as well because you've got more things

Dan:

That was a bit harder because you have to link it up just to what you know and then its hard because you don't have so much to choose from for examples and its a bit dry really compared to when you can use three

The problems associated with using one text appeared to be connected to the reduction of ideas available for a solution to the problem as defined by the rhetorical context. The students were hard put to behave as expert advisers when drawing on ideas limited by the context of a single text.

#### **7.4.5 Importance of the Anthologies**

When commenting on the usefulness of the anthologies as part of the task, June who was a more practised reader said that she had not really needed the texts:

They weren't that useful, they gave me a couple of ideas but I could have done it without them. I already had a lot of ideas about the subjects of culture and the environment and that - so some of the words started me thinking but they didn't have anything really new in them, for me anyway, so I used them for examples

Although Dan (the second practised reader) felt he had made more use of the texts, he also thought that the task could be done without them:

I used them for main ideas and for examples of what to do or how it works on Earth. So - say I suggest a ceremony to keep up with tradition and get people feeling positive about their culture or something - then I will show something like *Chuti* as an example - so yes I did use them a lot although I could have done the job without them but it would have taken a lot longer and it would have had different, oh or less examples

In contrast both the less practised readers, Peter and May, said they had relied on the anthologies to trigger main ideas, and links to personal knowledge, or to find examples. Peter said:

Peter:

Well I virtually used them for the whole job to show how we do things on Earth and to prove that it's true. Yes I used them a lot. I went right into them and got out heaps of things for my reports. It would have been too hard without them because there were things I hadn't thought about or didn't know, so I really did need them

Of particular interest is the difference in attitude to the source texts between the practised and less practiced readers. Dan and June had confidence in their personal knowledge store, realising that if necessary they could draw on their wide experience of other texts (in the expanded sense) to complete the task. Peter and May did not share that confidence in their intertextual capacity. They both felt that the anthologies were the route through which they would accomplish the task.

#### **7.4.6 Reading style**

The case study students were asked to report on the type of reading they used during the task. They all made an effort to explain their use of what they called *deep* and *skim* styles of reading. After each had read three texts, June and Peter spoke about the way they had used the two different types of reading.

June:

I used both deep and skim because I read them word for word at first and then I skimmed over all of them to get the overall idea and to sort out what I would use for my report

Peter:

The sort of reading I did was deep I didn't skim through it. I knew I should try to read it properly - well exactly as it says - very carefully so I get everything for my report

The students seemed to associate *skim* reading with an intertextual stance wherein they ranged across the texts for information that was relevant to the theme of the problem. *Deep* reading seemed to be

regarded as an intratextual strategy, used to comprehend single texts or parts of texts. This interpretation is supported by comments on how the two styles of reading were used when only one text was read for a report. For example, June and Dan stated:

June:

I used mainly deep reading but a little bit of skim - but deep really because there is just one story and you want to get everything out of it

Dan:

I used deep reading but some skim reading - you don't really need too much skim because there's only one story

The case study students were asked to explain their understanding of *deep* and *skim* reading during the post-task report prompts. They described deep reading as a tactic used to get involved in a text and to learn from it. Skim reading on the other hand was for picking up ideas and details for use in other situations. Peter summed up:

Oh reading it slowly is deep, taking everything in sort of so you can virtually remember it - looking for all the ideas and that. You use it for research - if you've already found the idea and you want to understand it - it's slow. Skim is for - if you've got a whole book on animals and your looking for a certain animal and you skim until you find it - and when you do you just back track and go deep so you can get all the facts. So I use them both for different things and here I used a bit of both, say deep to get what's in the story and skim to go back for things to match up for my main idea for my report and to check that I'd got everything that I might use

The case study students shared the idea that different types of reading suited different purposes. In their reports, they articulated ideas they had gathered from their experience with school reading, namely that slow, studied reading is for understanding a text, and

that faster reading might suit gathering ideas for a new context. They all felt, however, that a mixture of the two types of reading was appropriate to a task which they had interpreted, correctly, as one which required the initial understanding of texts, the harvesting of relevant information, the careful scrutiny of information according to an organising criteria, and then the evaluation of information for durability in a new context.

#### **7.4.7 Testing the context**

An interesting tactic emerged as the case study students wrote their reports. All the students reported imagining the results of their advice with reference to the rhetorical context. For example:

Dan:

- a. Ha ha! I wonder what the Murians would feel like doing a haka
- b. How would they hold a camera? - [I wonder] if they've got hands or eyes
- c. Just imagine them going for a swim!

Peter:

- a. Do they have wars they must fight sometimes?
- b. Their birds could be huge or poison - they could drop the food off to them or put it in  
with a stick

By frequent attempts to imagine a real version of the context, the students appeared to be monitoring their reports for authenticity.

#### **7.5 Quality of the reports**

The texts written by the case study students were given a quality score (see Table 13). The means and standard deviations for the class as a whole are given in the last row as a reference point for interpreting the case study scores.

Table 13: Quality assessment of the texts produced by the case study students (expressed as means) <sup>1</sup>.

| Case students       | Writing from multiple sources | Writing from a single source |
|---------------------|-------------------------------|------------------------------|
| June                | 34                            | 32.                          |
| Dan                 | 28                            | 30                           |
| Peter               | 20                            | 14                           |
| May                 | 20                            | 18                           |
| Class mean (and SD) | 21.5 (6.14)                   | 15.8 (6.79)                  |

Notes

<sup>1</sup> The means for the case students have been rounded to the nearest whole number. The means represents typical performance across four reports. The scores from which the means were calculated represent a combined assessment of organization, content, relevance, and sensitivity to context.

June and Dan received some of the highest quality ratings for their reports. Dan's higher overall score under the single source condition resulted from a high quality score for the report based on *The Eye of Tangaroa*. Under the single source condition, Dan drew on the text *Pollution - What happens?* adding his own extensive personal knowledge of sewage systems when composing his report. It is interesting to note that in Dan's case extensive personal knowledge of a topic acted in the same way as access to more than one text on the subject. Peter and May, although chosen to represent less practised readers, produced reports that were very close to the class average, suggesting that the process of recording verbal reports may have assisted their successful completion of the tasks.

### 7.5.1 Sample text (May)

The following text written by May (an unpractised reader) will be used to draw attention to certain features of the student's writing:

Dear Murians,

Do you have problems with responsibility if so then listen to this. In three that I have read from *The Eye of Tangaroa*. In the stories I have read they all involve responsibility and how we try not to be greedy, like in one of the stories it involves pollution and it is trying to treat it and not leave it anywhere near animals because it can kill them. Sometimes people can get arrested and receive a large fine maybe over \$1000 so try not to be greedy and take responsibility. Try to put your rubbish in the recycle bin and then you will have a clean planet. Please take this advice and listen to your friends and animals and don't try to be more important than the others. Thank you and goodbye Murians.

Notes: This was the third report prepared by student 16B. The writer read three anthology texts from *The Eye of Tangaroa* (*One Day at the Beach/Feeding the Kakapo/Pollution: What Happens?*). The report was rated as follows:  
Relevance = 6      Range = 5      Clarity = 4      Tone = 4      Total = 1

*Figure 14: A report written from three anthology texts by a less practised reader (student 16A)*

May had interpreted her role in the task as follows (see section 7.2.1):

Now I have to try and say how they can do things differently and change their minds about how they have been thinking all these years

In her text, May has succeeded in carrying through her interpretation of the task in so much as she offers advice to the Murians about their problems by suggesting four ways that they could change their thinking. She then gives an example of how humans dealt with those who offended against the environment. She also gives the Murians a piece of practical advice about rubbish tins and ends with more

examples of the new mind set she is suggesting as a solution to the problems on Mur.

May said at the outset of the project that she would use a range of reading tactics:

To start with I'll really read them right through and then I might talk to some of my group to see what they're thinking. Then what I'll do is read them again

She stated further that she used a linking procedure to locate the common themes which are evident in her texts:

Well I made both outside and inside [links] and I saw through these articles that they were all about pollution and they all had one thing - environment and saving and they all had animals in them and well not to be greedy and take responsibility for pollution and not take the babies and so they can grow up and for me I know a few people who are really greedy and I know some others who don't have anything

May felt that her tactical approach to using three texts to write one text was one of even-handedness. Indeed her text offers an example of how this can be done. She also mentioned that after deciding on a theme she then looked for relevant information and examples:

Let's just say that I took the three stories and they were all about the same thing. Well I just looked for a main idea and that was being responsible and so then I tried to find an example in each thing to go with being responsible for your planet and animals and things

Of the two examples she offers in her report, one comes from a text and the other from personal knowledge. In this way May demonstrates how she looked to her personal knowledge to fill a gap she felt existed between the source texts and her theme. It is worth noting that although May planned to use several examples from each of the texts at her disposal, she in fact used only one. Those students who tried to select information from each text on an even-share basis at the level of examples wrote less successful synthesis over all,



perhaps because by doing this they spent less time developing an overall theme for their advice. May's report shows that by referring back to the task and the texts she had paid careful attention to what the Murians wanted:

...and [I'll] maybe write down some of the main points... but I'll have to keep looking at the books and that - well you know what they are really wanting

May's writing log confirmed her frequent referrals to the anthologies and the task booklet. She also thought that her writing might be monitored by seeing if it 'stuck to the point', but saw this kind of evaluation as part of the researcher's role rather than her own:

I suppose you can tell if my writing is ok or if I stuck to the point...I have to stick to the main point really -they're probably really busy and I have to remember about full stops and that and some spelling

May was the only case study student whose thinking-while-writing protocol showed no evidence of re-reading. She made no drafts, but she did note two or three main points by writing them down as single words. The only sign of monitoring was her use of an eraser and her sounding out of individual words.

May's text shows some encouraging features from a discourse synthesis point of view. When she suggests a new way of thinking to solve the Murian problems, she gives an example of this by synthesising information from her three source texts, ('In the stories I have read they all involve responsibility.') Here May develops an overarching theme for the information she is about to deliver. She then goes on to integrate the themes that she has located for each of her texts (greed, pollution management, and conservation) with her main theme of responsibility and expresses these ideas into one sentence (even though she cited one story as the source of this information).

The text also shows evidence of May's attempts to set a context by acknowledging her audience and purpose. She begins by formally addressing the Murians, and because she has already opened earlier reports by restating the problems and offering the Murians her sympathy, in this, her third report, she moves to an assertive tone which assumes that the context has already been set. She calls on the Murians to listen and then alludes to their request for an analysis of the anthologies. She ends by reminding them of the urgency of their situation.

### **7.5.2 Sample text (June)**

June is a contrasting case in that she initially represented her role in the task somewhat differently to May. May wanted to change the attitudes of the Murians whereas June chose to concentrate on promoting a range of practical suggestions. For example, June said:

I'm going to make them think a bit and I'll give them lots of things they can understand and they can start doing without too much trouble before it's too late

June followed this intention through in her text:

Dear Murians,

Here is the report you asked for, I hope that it is of use to you. You Murians could copy some of the methods that our planet and people use, here are our methods: Some cultures on Earth pass down their cultures in special ceremonies, where they collect all the family together to celebrate something special that has happened to one of their family members. For example, Chuti which is an Indian name giving ceremony, it is a part of Indian culture to put a small red dot on the baby being named. This is to give the baby good luck, they also do this on birthdays, weddings and funerals. Most Parents on Earth pass down their culture to their children. They teach their children all about their culture, way of life, beliefs and culture's history. Most parents on Earth want their children to learn about their culture and other cultures. You could copy the way that at high school the children have to choose a language. They have to learn about the language and culture so they understand what the cultures beliefs are, the cultures history and the cultures way of life. You might also copy Earth about how we perform concerts and dances to teach other people about our culture language and dance. A good way people do to stop prejudice is perform to large groups of people to show off their culture to other people of different cultures. This is found to be a good way of teaching other people about different cultures and that they are important to this planet and to the people who live by that culture. Many cultures on Earth celebrate every New Year. The Chinese people celebrate it with a dance e.g. some Chinese people dress up as a lion and one person waves a fan in front of it as if the person is teasing it, Scottish people sing a song called Auld Lang Syne, English people have a thing called Christmas which they celebrate. People know about these celebrations because of books, T.V., radio and people who tell other people about their culture. So you can see that communication is the best way to stop prejudice and celebrating people's different ways. Good luck.

Notes: This was the first report prepared by student 1A. The writer read three anthology texts from *Teasing The Lion* (*Teasing The Lion/The Anzac Biscuit/A Very Special Day*) 2. The report was rated as follows:

Relevance = 9    Range = 9    Clarity = 9    Tone = 7    Total = 34

*Figure 15: A report written from three anthology texts by a more practised reader (student 1A)*

June begins her report with a promise to the Murian readers, '...here are our methods', and uses two related themes: how to promote culture and how to deal with prejudice. She carefully explains a range of examples chosen for their variety and relevance to the Murian

problems. She promotes a particular practice, gives examples of the practice in operation on Earth, and identifies it as something the Murians could copy. Reporting on her tactics for reading the texts for this report, June said:

Well I read *Teasing The Lion* first and then I had my main idea and some examples so then I - well the *Anzac Biscuit* was different - so I just sort of collected more ideas as I went along and I used the overall idea to get bits out of it to go with the main idea and then I looked for parts of the *Special Day* one that would sort of help.

June's report shows how she synthesized the themes of the texts with a main theme that emerged from the task context. Of particular interest is how she dealt with ideas about cultural values when they were embedded in the story *The Anzac Biscuit*. June was aware of the special tactics need to find information in a narrative to suit her report. She explained:

Well it was sort of hard really I just had to remember what I knew about it - facts you know because you can get facts from it but not just straight out ones

June's remarks show that, as she became involved with the rhetorical context promoted by the task, she found it difficult to ignore relevant information from texts other than the ones she had cited for her report, as when she employed an example from *Chuti* to support her theme (a text she did not cite as a source for this report).

May and June both successfully synthesized material from their personal knowledge, the anthologies, the task and the activity cycle. The personalised nature of each context meant that the reports differed in length. May, as a mind changer, focused on ways of thinking, giving one or two examples of the results of attitudes. June, on the other hand, offered a range of immediate actions through which the Murians could address their problems at a practical level. Although June gained higher scores for her report, one could question

whether there is a material difference in the quality of the advice given by both students.

## **7.6 Summary**

The students' attempts to unroll a rhetorical context for the task appeared to be the driving force that determined what was read, what information was selected, student stances towards the information, and what guided students to monitor the efficacy of their reports. Their reading proficiency did not appear to make a substantial difference to the way the task was interpreted, nor to the way the task was accomplished tactically. Different perceptions of their roles within the task context shaped the way they treated material in their reports, but they all appeared to be able to adopt a flexible stance to the material at hand. They accepted the texts at face value, and used them as a stimulus to frame the advice and explanation required by the task. The texts produced by the case study students differed in quality, but this was due more to a lack of composing skills than to a lack of tactical awareness of the reading and writing requirements of the task. This suggests that discourse synthesis is less an age related issue than one of experience with the component skills.

## Chapter 8

### DISCUSSION

#### 8.1 Introduction

The aim of the study was to achieve some understanding of how pre-adolescent children chose, read, and responded to texts in an anthology and how they wrote new texts based on the gathered information. The data confirmed that the approaches taken by the children to their reading and writing were shaped by their understanding of the task they were required to do, and by their ability and willingness to build information into a rhetorical context that differed from those suggested by the individual texts.

#### 8.2 Anthologies and discourse synthesis

The results of the study showed that the *Choices* anthologies were comprehensible to the children and invoked connections to their cultural and social experiences. The children were able to detect general themes which showed how texts could be connected, yet were also flexible enough to be exploited for a particular purpose. Data collected from the case study students showed that as the children explored the themes of the anthologies they were able to detect a model of how the texts were used to help build the rhetorical context inherent in the canon of each anthology. In a recent study of the role of text coherence in comprehension and learning, Danielle, McNamara, Kintsch, Songer, and Kintsch (1996) have suggested that the learning achieved by readers is facilitated by imperfectly written texts as long as the students are coming to the topic with a threshold level of background knowledge. They argue that while less knowledgeable

readers need coherent texts to aid initial comprehension, knowledgeable readers are more likely to build rhetorical contexts for meaning when they deal with gaps in text coherence. While the present study supports the idea that learning from texts requires texts and tasks that encourage the building of new rhetorical contexts, anthologies rather than incoherent texts were seen to provide these opportunities. While the case study students had no difficulties in comprehending the anthologies, they said that they were helped with more challenging texts by referring to easier texts. Both the gaps between the texts in the anthologies and the gaps between the anthologies and the task requirements seemed to provide the students with sufficient discrepancies to encouraged them to build new rhetorical contexts.

### **8.2.1 Synthesizing from different genre**

Because the present study explored the potential of anthologies as resources for learning from text, the anthologies used for the task were prescribed by the researcher. However, an element of choice was introduced by asking the children to choose texts from the anthologies which contained both information texts and narrative accounts. As they worked from the anthology *Teasing The Lion*, all but two students integrated ideas and information from both types of texts as well as from prior knowledge. *The Eye of Tangaroa*, on the other hand, offered one narrative and five information texts, and, working with this anthology, the children made considerably less links to prior knowledge. This result indicates that the presence of narratives among the information sources may assist children in their initial attempts at discourse synthesis. Support for the idea emerges from Many, Fyfe, Lewis, and Mitchell's study (1996) of the reading and

writing engagements of learners conducting a research project. The researchers found that the students who transformed information for their reports were also the ones most likely to have supplemented information texts with other types of texts - including narratives. Although their students were exposed to a variety of texts collected on the theme of World War Two, they utilized only a narrow range of text types, concentrating mainly on information texts. While the focus on information texts was attributed to the effect of task impressions that called for the accumulation and transfer of information, it is possible that the students lacked a coherent model of how different types of texts work together to contribute to a theme. An anthology may have provided a more accessible model of the intertextual potential of texts than general library reading might have done.

In the present study, the use of anthologies containing narratives, poems, illustrations, and information texts, seemed to offer the children a helpful model of inter-genre activity associated with a theme. The criteria used to collect stories for the series resulted in opportunities to comprehend texts in the physical presence of other related texts. By reading an anthology, children were exposed to the need to fill gaps in the thematic coherence between the individual texts, and between the texts and their personal knowledge. At the same time, the discourse synthesis task provided practice in the skills needed to organize, select, and connect information for an entirely new text.

### **8.2.2 Anthologizing materials**

While there are many advantages of using published anthologies, teachers and students are equally capable of anthologizing their own



resources. Children, for example, having experienced published anthologies, could take responsibility for the location, collection and compilation of resources for a particular purpose. The *School Journals* provide an ample bank of texts that can be sampled for a particular purpose, with helpful categories provided in the catalogue. A natural progression within the present study, for example, would have been an exploration of the *School Journals* by the students in order to find further material relevant to the problems faced by the Murians.

In compiling an anthology, it appears important to include narrative texts as discussed in the previous section. Readers who lack background topic knowledge find it hard to comprehend expository texts, but this is not the case for texts with a fictional quality. Such texts require what Rosenblatt (1980) calls an *aesthetic* reading wherein readers' social/aesthetic knowledge is allowed equal status with their logical/cognitive skills. According to Widdowson (1983) such circumstances allow the reader to create a new reality out of the text which cannot be challenged as right or wrong. Furthermore, text information and personal knowledge may be merged to initiate an information base which is relevant to the problem at hand. In the present study, May, as an unpractised reader, gave an example of how a fictional text is used as the basis for writing an information text. In discussing her initial choice of the text *My Nanny* from the anthology *Teasing The Lion*, May explained:

I really liked the story because I could really see how she felt. Well when people die and that you have to do something like a ceremony and that shows just how you think and your different cultures might feel about it so I used that one for my first one because I really miss my grandmother too. It's the same only it's a Murian Nanny

May began her project for the Murians by sourcing a fictional text, and in this way she was able to use interpretative procedures to access information for the new rhetorical context she was attempting to satisfy. It would therefore appear that the inclusion of narrative texts among information texts is a useful feature of collections of source material that are to be used for acquiring discourse synthesis skills.

### **8.3 Task impressions**

Case study students in the present study confirmed that task impression was a decisive element in how they chose and applied tactics for the completion of the discourse synthesis task. The pilot study showed that the children's impressions of what was required by the task resulted from previous experiences of tasks that seemed similar. Two recent studies have reported the effects of children's ideas about task demands on their problem solving strategies (Whitebread 1996), and on their research strategies (Many, Fyfe, Lewis, and Mitchell 1996). Using a context-independent task, Whitebread (1996) assessed the processes by which pre-adolescent children generated task-specific strategies, showing that for some children, lack of past experience with tasks requiring the development of problem solving abilities caused them to persist in applying strategies that made the task more difficult. The study concluded that programmes for helping students to develop the ability to solve problems should require learners to experience situations in which comprehended information is used for further meaningful purposes. The reaction of students to the pilot task in the present study tended to confirm that consistent experience of reading and writing tasks which required a display of initial comprehension

without the benefit of the further application of understanding inhibited the willingness of students to develop new rhetorical contexts. In their study of how pre-adolescents completed a research project, Many, Fyfe, Lewis, and Mitchell (1996) examined the relationship between students' task impressions and the tactics they used. They found that particular task impressions accounted for the difference in emphasis that students put on the various sub-tasks, as well as accounting for the strategies that they employed to complete the research. Discussing the development of strategy use, Many, Fyfe, Lewis, and Mitchell (ibid:31) point out that, because an understanding of the nature of strategies develops along with a grasp of the purpose of the whole task, an important developmental dimension is located for students in the way in which tasks are represented in cognition.

The reports of the case study students in the present study showed that their interpretation of the task and the task itself were in fact inseparable. As they read, discussed, and wrote, the students used their experiences of other texts and other tasks, their beliefs about reading and writing at school, and their knowledge of the topic and the problem, to help them construct a rhetorical context for the job at hand. In Whitebread's (1996) study, students were trying to solve a context-independent task for which they had no comparative task impression and hence they could not monitor the efficacy of their strategies. In the present study, by way of contrast, the children were consistently involved in situating what they had to say within the context of the Murian problem, and thus they were able to monitor their work according to the new situation. Their perceptions of themselves as experts were reflected in their individual intentions as advisers on a problem.

### **8.3.1 Developing task impressions**

If, as recent research points out, some children are inhibited as strategy users by their task impressions, a question of central significance to teachers might be how task impressions can be developed. Discussing problems surrounding the development of flexible task impressions, Many, Fyfe, Lewis, and Mitchell (1996:32) point out that students sometimes jeopardise present levels of success during the adjustment period:

If...students try to improve their current levels of performance or try to incorporate new subtasks or strategies, then they may well put at risk the level of success they have achieved.

However, the students in Many, Fyfe, Lewis, and Mitchell's study were working at a self-directed task and as such were showing their historical understanding of how to go about a research project. Once the task had been interpreted by the students and strategies set in motion, any attempts to influence the plans to carry out the task may have inferred that the task and the students' interpretation were not the same thing. Under these circumstances, the researchers would then need to have engaged in some clarification of the task by teaching and discussion. Since data from the pilot task in the present study indicated the likelihood of inconsistencies between student task impressions and the intended task, the task was deliberately presented as part of an activity cycle during which inconsistencies were ironed out through the discovery, discussion and application of tactics for synthesis.

### **8.3.2 Discourse synthesis tasks**

Attempts to solve the problem of task impressions in the present study produced the criteria for the development of the *discourse*

*synthesis* task. On the face of it such tasks would seem adequate if they simply required students to merge a number of texts for the purpose of writing one text. Indeed some research involving *discourse synthesis* operations has relied on engaging students in familiar tasks such as report writing (for example, Raphael and Boyd 1991) and research projects (for example, Many, Fyfe, Lewis, and Mitchell 1996) as a vehicle for expressing operations that are either new or at least more complex or less familiar than others. However, as Whitebread (1996:2) has pointed out, an issue of significance to anyone interested in assessing thinking, reasoning and problem solving abilities is the effect of past experience. It was evident from the results of the present study that the work done by the children to uncover the tactics for synthesizing from more than one source had influenced the way they approached the task. Thus, it is important to note that the teaching and practice of discourse synthesis skills cannot be achieved through using traditional tasks. The practice of discourse synthesis moves forward from traditional memory recall in important ways. The skills required for successful synthesis are more complex and as such they reflect more complex processes and contexts than those required for recall tasks. While the mental models of text information needed for discourse synthesis represent a progressive movement towards more complex ideas, they also represent a link to a world free from the fixed task impressions learned by students in primary school settings. Such fixed task impressions exist in a world where the rhetorical audience and purpose for writing is discounted in favour of a display of the knowledge being acquired. In the present study, while the audience and the purpose for the task were patently imaginary, they were representative of audiences and problems which do in fact exist in the real world of the children. The

Murians and their problems were able to be imbued with a history and a future simply because they were part of a task that required a full revolution of the cognitive spiral - the movement of information and ideas from one rhetorical context to another.

To encourage writing from a fresh rhetorical perspective, discourse synthesis tasks should be designed to encompass a move away from fixed genre types as proposed outcomes. In discussing the teaching of genre processes, Coe (1994:160) points out that, although genres embody our responses to social situations which we may generalize as being similar, it is important to remember that the origins of genre are in real social situations. Thus, all genre are open to modification according to the rhetorical contexts that are prompting them. Many of the reports written in the present study exemplified the generalization and modification of genre for a specific purpose. Although the children were instructed to write a report, the nature of the Murian request caused them to adopt a generalized letter format in order to answer a formal request for information. Also the specific nature of the Murian's problems appeared to cause the report genre to be modified in favour of an argument text as the students took on the job of changing the behaviour and thinking of the Murians. Thus it is necessary to pay close attention to the capability of the task to invoke a rhetorical context in which the skills of discourse synthesis may be usefully applied.

In a sense, the issues around the design of discourse synthesis tasks which have emerged in the present study are closely linked to pedagogical issues surrounding the development of the inquiry model for literacy discussed by Bruce and Wasser (1996) as they traced the influence of reading in historical models of learning. When an inquiry

problem is the focus of student learning, literacy skills take their place on an equal footing with other skills such as experimentation, discussion, and observation (ibid:289). The argument proposed by Bruce and Wasser for the use of the inquiry model for literacy relies on the idea that complex learning occurs more easily when children understand a reason for their participation in an activity that seems meaningful. In the present study, when the task posed an inquiry problem, discourse synthesis skills became a means to an end.

#### **8.4 Authorship**

Another question of central interest to teachers concerned with the development of reading/writing is how previous experiences with texts help shape children's sense of authorship as they develop interpretations of texts during reading and writing. Hartman (1995) argues that extensive experiences with tasks requiring the comprehension of single texts helps to create stances towards texts that are unhelpful for the transfer of knowledge to novel situations. Hartman's (1991) study discusses the stances readers take according to their perceived authority in the mental context of reading. He describes an *intratextual* stance as one where readers focus on ideas from the text in hand, and an *intertextual* stance as one where readers utilize any idea source available in order to elaborate their model of meaning. The present study differs from Hartman's in terms of the rhetorical context. Because they were not reading for a particular purpose, Hartman's subjects showed typical generic reader stances which had been built up over time. However, in the present study, when the children read several texts in order to write for a specific set of circumstances, they appeared to take an intertextual stance to the authorship of their reports. Hartman's study identified the reader



stances according to a linking profile which showed the number of links made to personal knowledge, text-at-hand, and other texts read previously as part of the study. A reader's authority within the mental contexts created while reading was measured by how much attention a reader paid to each of the three idea sources. If the patterns of movement around the source sites emerging from the present study are considered in the light of Hartman's findings, it is possible to describe them as ranging from intratextual, where more attention was paid to one text, to intertextual, where students roamed all the available source sites for relevant ideas for the elaboration of a situation model. Indeed, the differences between Hartman's study and this one underscore important aspects of the influence of situation models for literacy events. When the source sites were seen to include the task as well as the instructional activities for practising transformations of texts, and information from various texts and from personal knowledge, the students in the present study showed a high degree of intertextual behaviour under both experimental conditions.

#### **8.4.1 Mapping the source sites**

In other studies involving the analysis of self-directed engagements (see for example McGinley and Tierney 1989; Many, Fyfe, Lewis, and Mitchell 1996), researchers have focused on student use of the various textual sources available. Many, Fyfe, Lewis, and Mitchell traced the sources of information included in written projects by asking their participants to say where the information came from. In the present study the source sites were traced to categories that emerged from the data itself. In a similar way to the above studies, written texts and the children's personal information were principal



sources drawn upon by the students. Unlike the above studies, however, both the Murian task itself and the work done on the tactics for synthesis also emerged as major sources of information. It has not been usual in either research or teaching practice to acknowledge the task itself or the packaging and presentation of skills as information resources for problem solving. However, it is of interest to note that as the students engaged in an inquiry problem and focused their attention on preparing information that would be useful to the Murians, they generally tried to use whatever came to hand. References to the Murian's situation, as described in the task, were used to anchor the information being given to the audience. References to the main themes of the anthologies were used to give coherence and authority to the information and advice being offered in the reports. It is easy to imagine that, had the students construed the task as a display of knowledge of the anthology texts, then the task itself and the themes in the anthologies would not have emerged as potential source sites for the production of new texts.

#### **8.4.2 Using source sites**

The students appeared to operate in a number of ways in order to complement the context set by the task. First, they read and discussed the task. They then read and comprehended the texts with reference to the requirements of the task. Next, they transformed a compilation of newly acquired tactical knowledge, task knowledge, text knowledge and personal knowledge to develop the rhetorical context for the Murian assignment. When provided with the invitation and the opportunity to use multiple sources to write a report, the children did just that. But the way they did it reflected the broader context in which they engaged in the task. For example, knowing that

they were practising the transformation of texts, the students tried to reflect the principles discussed in the activity cycle. Extra personal knowledge was used to flesh out the links when they used a single text, thereby balancing a similar number of links when they used three texts. The similar length of the reports written under both conditions may also have been the result of the children inferring from the task that the Murians wanted four reports of equal value, since it was never suggested to them that a better report should result from using three texts versus one text. The importance of understanding the effect of the children's task impressions on the number and type of links they made in a report is illustrated in the case study data. While a generally appropriate task impression may have been achieved as a product of the activity cycle, subtleties in the children's perceptions of what was required also strongly influenced their tactics.

The source sites which were identified through examination of the clauses in the reports may be seen as evidence of the categories of knowing which contributed to students' construction of a rhetorical context where the activity cycle and the Murian task were conflated. Links to the source site categorized as *theme* were construed as representing references to the core principles emerging from the work on transforming texts. Links to the *task* were seen to express composers touching base with the rhetorical elements used to sustain the context where the texts as incoming information and additional personal knowledge were put to use. Of particular interest in terms of the use of source sites was an emerging category of ambiguous clauses. These clauses were difficult to categorize encompassing as they did inferential references from often as many as three or four source sites. In the study by Many, Fyfe, Lewis, and Mitchell (1996),

the students identified their sources of information during an analysis of their texts. While many of the key informants could identify specific sources of information others were less specific. For example, one student (ibid:29) described the source of her information as "I got this from my head" and went on to discuss a variety of sources that contributed to her written ideas. Many, Fyfe, Lewis and Mitchell attributed the ambiguity of sources to the synthesis of information from multiple sources. In the present study, children were also transforming information by adding inferential material that was difficult to distinguish from the material they were reading.

#### **8.4.3 Extension and elaboration**

Although the students' traversal of the source sites was generally energetic, they appeared to use them differently according to the single and multiple texts conditions. Constructivist researchers have theorized that the process of integrating old knowledge with new knowledge involves the elaboration of the meaning offered by a source text or a task towards an evolving mental context for the job in hand. These elaborations may serve to augment meaning-making by the addition of information (Reder 1980), or they may contribute to generalizations across details of texts (e.g. Kintsch 1990) or to inferences from source texts (Kintsch 1988). In his description of mental models for comprehension, Kintsch (1994) shows that an important part of *text-base* construction is the encoding of the semantic and rhetorical relations of the text, leading to the use of the *text-base* in the elaboration of a *situation model* for use in new circumstances. In the present study, students working in the single text condition appear to have used clauses to attend to the expansion

of the *textbase* by additions in the form of examples, details, analogies and restatements. Research by Chan, Burtis, Scardamalia, and Bereiter (1992) identified five levels of cognitive activity leading to the construction of increasingly elaborate mental models. The levels are: prefactual restatement of the text topic, knowledge retelling, assimilation, problem solving, and extrapolation of text ideas for new situations (ibid:103). Of particular interest in the present study, under the single text condition, is the third level of activity where students engaged in the construction of meaning-based text representations by paraphrasing the text, by recalling personal knowledge relevant to the text, and by paraphrasing text statements with the addition of simple elaborative inferences. This level of activity would explain the lower marks for 'range of ideas' in the single text condition since the clauses were used to expand on a limited range of ideas emanating from the single texts, but did not reflect a range of different ideas associated with a new theme. Likewise the lower marks for relevance obtained under the single text condition would seem to indicate a tendency on the part of the children to be attending to the inadequacies of the single text in terms of the task requirements.

Under the multiple text condition, the children appear to have identified a sufficiently expanded pool of information to allow them to proceed with the extrapolation of the text ideas for a new situation. This took the form of extending ideas beyond text and personal information to reformulate them according to the Murian context. In this way, higher marks for the relevance and range of ideas were attained under the multiple text condition as information crossed the border between one rhetorical context and another.

## **8.5 Student talk**

The quality scores for the reports written by the less practised case study students were relatively high. This may be explained by the fact that they were required to talk about each aspect of their reading and writing by answering the prompt questions. As less practised readers, Peter and May were no less articulate than Dan and June when it came to discussing their thoughts in terms of the job they were asked to do. It would appear that the opportunity to respond to questions about their interpretation of the task, choice of texts, understanding of ideas, and tactics for completing the task advantaged them over the other less practised readers involved in the study. Two features of the conditions under which the case study students talked are worth noting. First, they were required to reply to sixteen different prompts. The questions required the students to repeatedly discuss the rhetorical contexts of the source texts and to build up the rhetorical context for the texts they themselves were preparing to write. Also included in the prompts were questions which required the students to talk about the intertextual connections they were making between the source texts, their own experiences, and the audience and purpose for the new texts. The transcripts of the talk illustrate the intertextual nature of their thoughts as they linked ideas for the job at hand. The second interesting feature of the talk was that it took place without the help of an adult. The chance to clarify observations and intentions with peers or privately, seemed to be an integral feature of discourse synthesis operations, especially as far as the less practised readers were concerned.

## 8.6 Summary

It would appear from the results of the present study that early adolescent children were able to synthesize information from more than one written text in order to complete an inquiry task. It would also appear that the opportunity to use more than one text was not only embraced by children of this age, but it enhanced their ability to construct complex mental models of texts and to interact with fresh rhetorical contexts. However, the children's ability and willingness to synthesize texts appeared to rely on a number of features that fell within the scope of methodology. It is a matter of task design whether or not there is a fresh rhetorical purpose for linking texts. In the present study, it was not just a question of how many written texts a student was asked to synthesize; it was also a question of how well the task managed to represent a rhetorical context that was identifiably different from the main sources of information. Furthermore, the results attested to the fact that there was a difference between what students thought they were being asked to do and what they could actually achieve in terms of learning. Their grasp of processes and strategies appeared to be matched to a clear invitation and a purposeful need to use them. The presence of narrative texts in the collection of sources appeared to encourage students to transfer ideas from one context to another, perhaps because the narrative genre presented ideas in a way that made them more accessible to links with personal knowledge. The extent of the pool of information available to a student, whether from personal knowledge, several texts, or a combination of both, appeared to be the key agent in allowing ideas to cross contextual boundaries.

## Chapter 9

### CONCLUSION

#### 9.1 Introduction

A task was designed that would promote the integration of material contained in an anthology series published by Learning Media. Students produced four reports, using two anthologies and either three texts or one as references. The resulting reports were analysed for quality and for the extent to which students traversed the source sites available to them.

#### 9.2 Motivation for the research design

Intermediate school students involved in a pilot study demonstrated that they were unaccustomed to using tactics for discourse synthesis when faced with an unelaborated task. It was clear that in order to investigate intermediate aged students' synthesis of a collection of texts it would be necessary to design an activity cycle which would guide them through the identification and location of synthesis tactics used in written discourse, and which would offer a purposeful opportunity to practise such tactics.

#### 9.3 The activity cycle

During the activity cycle students identified texts as being either transformations or reproductions of other textual sources and they discussed the differences between the tactics used to produce each type of text. The students then completed an inquiry task which provided an opportunity to publish their attempts at synthesis within a context that provided a meaningful reason for doing so.



## **9.4 The reports**

Essentially, when students were asked to synthesize information from sources, they were able to do this with reasonable efficiency. Whilst they may not have had sufficient practice and experience to synthesize texts well, they certainly understood the principles of discourse synthesis. This was evidenced in most reports by the attempts to sample the source sites available, and to integrate information from them according to the rhetorical demands of the task.

### **9.4.1 Source sites**

The majority of the students traversed the dimensions of a discourse synthesis task as defined by the activity cycle. When the reports were partitioned into clauses and attributed to sources, the clauses drew on the sources of information available to the students, namely the task, the theme of the anthology, the texts, and personal knowledge. The use of both the task rubric and the anthology themes as source sites was an instructional focus in the activity cycle. The inclusion of material from these sites in the final reports showed an effort by students to adopt an intertextual stance to all the information available to them for the purpose of satisfying the task requirements. When the students found themselves in a position to take up an intertextual stance, they demonstrated their ability to do so by extending their source sites to include all the ideas inherent in the activity cycle.

### **9.4.2 Length of the reports**

The length of the reports was not greatly affected by how many texts the students were officially referring to or by the theme of the



anthology. When students were referring to three texts, they wrote on average, only two more clauses than when they nominated one text as a reference point. The theme of cultural celebration in *Teasing The Lion* proved closer to the experience of the students than the theme of conservation in *The Eye of Tangaroa* yet the students managed to meet the requirements of the reports with similar amounts of synthesis and elaboration of source materials. These results demonstrated the importance of student task impressions. In spite of a difference in the number of sources available, and the difference in opportunities to include personal knowledge, the students held to an impression inferred from the task that the reports should be equally useful to their intended audience.

#### **9.4.3 Three texts versus a single text source**

When students used three texts as input to their reports, they appeared to use the clauses to elaborate information rather than to expand upon it. Three texts appeared to offer a sufficiently broad *textbase* to allow the students to get on with the integration, qualification, and evaluation of ideas. Under the single text condition, however, the students appeared to use the source sites to search for additional information to expand the pool of ideas from which the written reports were composed. When students worked from one text, they would typically take an idea from the text and expand on it by adding examples from personal knowledge. Motivated by the events of the instructional section of the activity cycle and the task itself, students using a single text seemed to be attending to a stage prior to but necessary for the synthesis of information - that of creating a *textbase* of relevant information. The difference in the use of three texts versus one in the context of the discourse synthesis task was

the difference between evaluation/integration and collection/extension.

### **9.5 The task**

The use made of discourse synthesis was related to the students' impressions of the task. The task in the present study attempted to over-ride the demands usually associated with reading and writing tasks. The rhetorical context specified the need to combine sources, as well as to elaborate information using background knowledge in order to address a problem for a particular audience. The fact that the majority of students drew on information contained in the various source sites was evidence that task impressions could be altered through paying attention to task design and through taking time to check the students' perception of the task at the outset. The students choice of tactics to complete the discourse synthesis task was supported by the close proximity of the task to the initial analysis of tactics used for synthesis as part of the activity cycle. The fact that the activity cycle included the identification of tactics for synthesis and an inquiry problem which called for those same tactics to be used meant that students were able to effectively block out traditional impressions about reading and writing tasks.

### **9.6 Materials**

Anthologies of texts collected from the bank of texts published as part of the *School Journals* provided ample links to the social and cultural experiences of the intermediate school students sampled in the study. At the same time, the anthologies appeared to provide sufficient gaps in coherence between the overall canon of each title, and, on the one hand, the texts contained in the title, and on the other

hand, the inquiry problem presented to the students, to create an intertextual field in which students could roam the various source sites. The inclusion of narrative texts as well as expository texts on a general theme proved a valuable feature of the anthology format in that many students took advantage of the narrative texts as information sources to which they could more easily apply their personal experience. Moreover, the anthologies used in the study provided the students with a useful model of the way different textual resources, for example, narratives, poems, illustrations, and information texts, may be linked to a theme.

## **9.7 Advice to teachers**

While it is difficult to abstract advice for teachers from a single research report, there are sufficient studies appearing in the literature on intertextuality and discourse synthesis to suggest a number of guidelines.

### **9.7.1 Essential conditions**

There are at least four conditions that should be met for discourse synthesis tasks to be effective in promoting situation models for text comprehension and composition:

- a. Students should be introduced to the principles of discourse synthesis through an activity cycle that includes goal setting, discussion, practice of tactics, and reflection.
- b. The task should become fully specified in the minds of the students through its placement in a purposeful activity cycle. Students need the opportunity to talk about their impressions of the task, who the audience is, and what the reasons are for

integrating the texts. Through the exchange of views, a rhetorical context is built up in which an audience is conceptualized as having a past, a potential for action, and a future.

- c. An expanded view of comprehension in the direction of interpretation needs to underlie all aspects of work with texts as a vehicle for learning. Information is sought for a purpose; it is unlikely to reside in a single text in a form that is appropriate for the task at hand. The ability to integrate information from several sources lies at the heart of knowledge acquisition.
- e. The operations that students engage in to complete the task must include noticing themes, connections, and stances, comparing these with their own output, and transforming information to meet a rhetorical purpose.
- f. The input texts should contain overlapping information, some discrepant information, and be written according to different rhetorical plans. Such texts may be available in anthologies or collected by teachers and students.

### **9.7.2 Prescriptions for designing discourse synthesis tasks**

Based on the experience gained in the present study, the following steps are recommended for the design of discourse synthesis tasks:

1. Design a discourse synthesis task that requires a rhetorical context to be built up through considering the special needs of an audience. The design of the task should make discourse synthesis a reasonable option for satisfying the task requirements.

2. Have suitable texts. Choose texts that can not meet the demands of the task simply by being reproduced. Texts should give students the opportunity to search for information relevant to the task from among information that is both relevant and not relevant.
3. Build up the task with the students. Encourage students to discuss different interpretations and approaches to the task by applying their knowledge of the situation suggested by the task.
4. Check task impressions. Discuss the goals of the task with the students, giving them an opportunity to clarify the stances appropriate to the completion of the task and the sub- tasks.
5. Give feedback on attempts. Discuss differences between the source texts and the texts the students are producing. Encourage the students to assess their output texts in the light of task requirements. In particular, identify the reasons for organization, selection, and connection of information.
6. Create a forum in which the discourse synthesis can be published and evaluated. For example, publish the student's texts in anthology form so as to extend the bank of resources available for a particular theme.
7. Use a checklist to evaluate the outcomes. Design a checklist to evaluate the results of the synthesis. Include opportunities for students to evaluate their work in terms of the intended audience and purpose.

## 9.5 Summary

One of the main features of the research methodology was that a pilot study was used to develop the instructional aspects of the project. In order to address the gap between current teaching practice and the ideas emerging from constructivist research in literacy, research is needed that examines the procedures that promote the use of processes and strategies for reading and writing among primary school children. If, for example, the research methodology in the present study had relied on an unelaborated task, carrying with it only an invisible potential to invoke the synthesis of texts, then the results of the study would probably offer support to a stage model of literacy development. The fact that the research task emerged from the study of an instructional method meant that it was unique to the particular learning occasion. Thus, as practised and unpractised reader/writers set about a task which required an intertextual cognizance of a unique situation, a generally optimistic picture emerged of their ability to synthesize from a collection of sources.

The original motivation for the study set out to examine how an intermediate school language programme could reflect the constructivist themes in the document *English in the New Zealand Curriculum*. In exploring the dimensions of a circumstantial model for reading-to-write from texts collected in an anthology, the study demonstrated that when discourse synthesis was presented as a response to a new rhetorical context, the resulting interplay between texts at hand and texts in memory began to reflect a constructivist notion of literacy.

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## Appendix A

### *Student profiles*

| Student code | Age<br>at 1.11.96 | PAT Reading<br>comprehension<br>level score | Gender | ESL |
|--------------|-------------------|---|--------|-----|
| 1 A          | 13.0              | 10 e  | F      |     |
| 1 B          | 11.2              | 10 e  | M      |     |
| 2 A          | 12.11             | 10 g  | M      | *   |
| 2 B          | 12.0              | 10 g  | M      | *   |
| 3 A          | 13.2              | 9 e   | M      | *   |
| 3 B          | 12.0              | 8 a   | F      |     |
| 4 A          | 12.4              | 8 a   | M      |     |
| 4 B          | 12.1              | 8 b   | M      |     |
| 5 A          | 13.0              | 8 e   | F      | *   |
| 5 B          | 13.3              | 8 b   | F      |     |
| 6 A          | 11.11             | 8 e   | F      |     |
| 6 B          | 12.7              | 8 d   | M      |     |
| 7 A          | 11.7              | 7 a   | F      |     |
| 7 B          | 12.8              | 7 a   | M      |     |
| 8 A          | 13.3              | 7 b   | F      | *   |
| 8 B          | 12.4              | 7 a   | M      |     |
| 9 A          | 12.10             | 7 c   | M      | *   |
| 9 B          | 13.0              | 7 b   | M      |     |
| 10 A         | 13.2              | 7 d   | M      |     |
| 10 B         | 12.2              | 7 e   | F      | *   |
| 11 A         | 12.5              | 7 e   | M      |     |
| 11 B         | 13.3              | 7 f   | M      |     |
| 12 A         | 12.4              | 6 a   | F      | *   |
| 12 B         | 12.10             | 7 g   | F      |     |
| 13 A         | 11.10             | 6 a   | F      |     |
| 13 B         | 12.11             | 6 b   | F      | *   |
| 14 a         | 12.2              | 5 a   | M      |     |
| 14 B         | 13.5              | 6 b   | M      |     |
| 15 A         | 12.6              | Absent                                      | M      | *   |
| 15 B         | 13.5              | 5 c   | M      | *   |
| 16 A         | 12.10             | 5 f   | M      | *   |
| 16 B         | 12.1              | 5 g   | F      |     |
| 17 A         | 13.6              | 4 e   | M      |     |
| 17 B         | 12.8              | 4 d   | F      |     |

## Appendix B

### *Description of the anthologies used for the study*

| Anthology Title     | Anthology Theme   | Text Title               | Text Type | Reading Age | Text Abstract  |
|---------------------|---|--------------------------|-----------|-------------|--|
| Teasing The Lion    | Important events or occasions in the lives of people from a variety of cultures | Teasing The Lion         | Article   | 8.5-9.5     | An interview about the Lion dance which is done to celebrate Chinese New Year                          |
|                     |   | Men Of The School        | Story     | 9-10        | Performing the haka gives Kotuku and his brothers a feeling on pride and history                       |
|                     |   | The Anzac Biscuit        | Story     | 8-9         | A child's eye view as his war veteran grandfather experiences another Anzac Day                        |
|                     |   | A Very Special Day       | Article   | 9-10        | A child's account of her aunt's wedding where different cultures come together                         |
|                     |   | Chuti                    | Article   |             | An Indian naming ceremony  |
| The Eye of Tangaroa | Conservation and pollution in New Zealand                                       | Space Junk               | Article   | 8-9         | The danger of debris left in orbit by our space craft  |
|                     |   | Protecting Our Kaimoana  | Article   | 11-13       | A MAF fisheries Officer explains his job on the Mahia Peninsula  |
|                     |   | One Day At The Beach     | Article   | 9-10        | A MAF fisheries officer explains the consequences of taking undersized seafood from our coastal waters |
|                     |   | Feeding The Kakapo       | Article   | 8.5-9.5     | A scientist tells how she visits Little Barrier Island to help feed the endangered Kakapo              |
|                     |   | Pollution: What Happens? | Article   | 10-12       | A comic strip shows what happens to our sewage and how to reduce Pollution                             |
|                     |   | Eeling                   | Story     | 9-10        | Some children see the importance of respecting nature  |

Note: The information in the table is taken from the *School Journal Catalogue* (1994a).

## Appendix C

### *Materials used in lessons to introduce the research task*

#### a. *Original text*

*Lambing Time*  
by Jan Maguiness

This is the story of the first day in the lives of twin lambs.

Before the lambs were born, their mother looked very big and uncomfortable. When she felt it was time for the lambs to be born, she lay down and began pushing the first one out.

The birth was soon over, and the ewe started cleaning her lamb. The first lamb was a female.

Now, after about twenty minutes, the ewe is ready to give birth to the other twin.

The lamb is born in a thin water bag, which the mother licks off. This new lamb is a male. He is still attached to the umbilical cord, the tube through which he was fed during his five months in the ewe's belly. It breaks as the ewe licks him.

Meanwhile, the other lamb sucks at her mother's udder for milk.

The mother and twins learn to know each other's smell. They need to do this so they can recognise each other.

The new lambs learn to stand quite quickly on their trembly little legs, and soon the ewe takes the twins for their very first walk. The lambs stay close together.

The ewe knows when the lambs are tired, and she lets them rest near the shelter of some logs.

Later in the day, the farmer comes to see the new lambs. He looks at them carefully to make sure they are all right.

After the farmer has gone, the lambs wander off and explore for a while.

But it's not long before they are hungry. They bleat loudly for their mother. She hears them and calls to them. Off they run to join her. Their tails wag happily as they drink her lovely warm milk.

*Alpacas in Heaven Choices* series Wellington: Learning Media: pp.22-25.

*b. Example text A*

Before the lambs are born their mother gets big and uncomfortable. When she thinks the lambs are coming she lies down. There are about twenty five minutes between the lambs being born.

The mother licks the lamb to clean it because it comes in a little bag and when she licks it off she breaks the chord.

Lambs drink milk from their mothers and they can recognise each other by their smell. They quickly learn to walk and they like to explore. The farmer checks to see if the lambs are ok.

*c. Example text B*

The overall idea of birth is the same for all living creatures.

Humans and animals like Sheep, Zebras, Rabbits and Horses all grow inside their mothers before they are born. The lamb is like a human baby because it uses an umbilical cord to get food from its mother while it is waiting to be born. Animals that come out of eggs don't have an umbilical cord to join them onto their mothers so they must get food from inside their egg.

Humans and sheep are also the same because the mother lies down to have the baby and someone has to break the umbilical cord after the baby is born. The mother sheep does this by licking at the little bag that her lamb comes in and the farmer also checks to see if everything is ok. The Doctor usually cuts the cord for the human baby. Wild animals don't get any help with the birth so they must have to know what they are doing.

Humans and sheep both drink warm milk from their mothers but I think animal babies stop doing this a lot sooner than humans.

Lambs and other animals learn to get around straight away after they are born but human babies have to learn to crawl and then walk and it takes about six months. I suppose this is because baby animals have to start looking after themselves a lot sooner than humans.

Mothers carry their babies for different lengths of time. For example the Elephant goes for twenty two months, the sheep for five months and humans for nine months.

There are some similarities and some differences in the way things are born but the reason is still the same. To carry on life.

(From student writings previously collected by the researcher)

*d. Chart used to compare text b and text c with text a.*

| Use the question to analyse the texts | Give a title to each text | Where do the ideas come from? | What is the order of the ideas? | Who is the text written for? | Why was the text written? |
|---------------------------------------|---------------------------|-------------------------------|---------------------------------|------------------------------|---------------------------|
| Text B                                |                           |                               |                                 |                              |                           |
| Text C                                |                           |                               |                                 |                              |                           |



## Appendix D

### Lesson plans for introducing discourse synthesis skills

#### a. Day one

|           |  |
|-----------|--|
| Aim       | To give students the opportunity to contrast the reproduction and transformation of a written text resource  |
| Materials | <i>Lambing Time</i> as an original source text<br>A text-based reproduction of <i>Lambing Time</i><br>A transformation text using <i>Lambing Time</i> and other information<br>A chart showing criteria for the analysis of the reproduction, and the transformation   |
| Method    | The students were asked to work in groups, reading the three texts and noting differences and similarities by completing the inquiry chart.  |
| Outcome   | The students noticed that the reproduction texts were shorter and that they did not contain any ideas not presented in the original text. They saw that the topic was unchanged and that the information was in the same order as it was in the source texts. The audience was described as the teacher. The purpose behind the text was identified as the recall information. On the other hand, the students noticed that the transformed text was longer and contained new information not present in the original text, but related to its topic. The information was introduced in a different order to that in the original text. The audience was described as being another student who was needing information. The purpose was identified as the combination of information and ideas. |

#### b. Day two

|         |   |
|---------|---|
| Aim     | To discuss the strategies used to synthesise sources.   |
| Method  | Working in groups the students were asked to define the terms <i>reproduction</i> and <i>transformation</i> and to use the terms to label the texts they had used on day one. The strategies for the transformation of texts were isolated and discussed using an OHP of the transformation text.   |
| Outcome | The students defined <i>reproduction</i> as copying or duplication. <i>Transformation</i> was defined as producing a new or different text. The process was likened to a caterpillar turning into a butterfly. The students identified the tactics for transformation as: using a new title or main idea; using a new idea or title to locate some but not necessarily all of the information in texts; Using the organisation structure of a source text only if it was suitable to the new purpose. Using information and ideas from sources other than one text, film, or conversation. The students thought that a specific audience and purpose would help in the composition of a transformation. |

c. Day three

|           |   |
|-----------|---|
| Aim       | To familiarise the students with the anthologies used in the study                      |
| Materials | One copy each of the anthologies <i>Teasing The Lion</i> and <i>The Eye of Tangaroa</i> |
| Method    | The students were given time to become <i>experts</i> on the anthologies.               |
| Outcome   | The students asked questions about vocabulary, illustrations, and text meaning.         |

d. Day four

|           |   |
|-----------|---|
| Aim       | To locate the themes of anthologies by locating links between the texts   |
| Materials | The anthologies <i>Teasing The Lion</i> and <i>The Eye of Tangaroa</i>  |
| Method    | Working in groups the students were asked to locate the links between the texts and to identify themes.   |
| Outcome   | There was a lively discussion as each group recorded the links and themes they had identified. The students argued, agreed, compromised, pointed to evidence in the anthologies, and made long lists of possible themes. Each group contributed to a wall chart listing the themes they had located (see Appendix E). |

## Appendix E

Themes located in each anthology by the students

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|        | <i>Teasing The Lion</i>   | <i>The Eye of Tangaroa</i>   |
|--------|---|--|
| Themes | Getting involved<br>Eating special food   | Taking responsibility for our rubbish<br>Taking care of what is left   |
|        | Respecting other cultures<br>Family and community cohesion  | Not being greedy about resources<br>Learning from our mistakes         |
|        | Preserving traditions, education,<br>and different views of history                                   | Valuing and protecting nature<br>and the ecosystem                     |
|        | Preserving the circle of culture<br>Having ceremonies for fun   | Spending our time and money<br>Respecting our planet                   |
|        | Feelings of identity  | Regeneration and planning for the<br>future                            |
|        | Passing on the benefits of<br>traditions, personal experience, and<br>expertise                       | Conservation, control and respect<br>for other life forms              |
|        | Expressing feelings   | Thinking of others and leaving enough<br>for them                      |
|        | Practise and patience<br>Protecting culture, religion, skill, by<br>dancing, singing, actions, acting | Be committed to avoiding the<br>extinction of species                  |
|        | Gaining praise, confidence, pride,<br>strength, and confidence  | Changing attitudes and priorities<br>Obtaining and spreading knowledge |
|        | Being committed, responsible,<br>sympathetic, open minded and<br>curious                              | Act now to educate children<br>Make rules and laws                     |
|        | Performing, and enjoying things<br>Wearing special clothes  | Present action is needed   |
|        | Breaking down racial prejudice  | Doing what ever you can to contribute<br>to saving the world           |
|        | Building up self esteem<br>Getting people together<br>Importance of differences                       | Getting closer to nature.<br>Feel the power and spirit of nature       |
|        | Respecting different people and<br>their cultures as a resource                                       | Considering the rights of other life<br>forms                          |

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## Appendix F

### *Murian scenario and writing tasks*

#### a. *Murian scenario*

#### CULTURE AND CONSERVATION IN A DISTANT HOME



# MÜR

CONNECTING IDEAS TO SOLVE A PROBLEM

**Resources:** *Teasing the Lion / The Eye of Tangaroa*

#### SCENARIO

You are living on the planet Mür. Your ancestors were early explorers who set out from Earth to discover the galaxy. Their craft was destroyed when it crashed on the distant planet Mür and the survivors could not return to Earth.

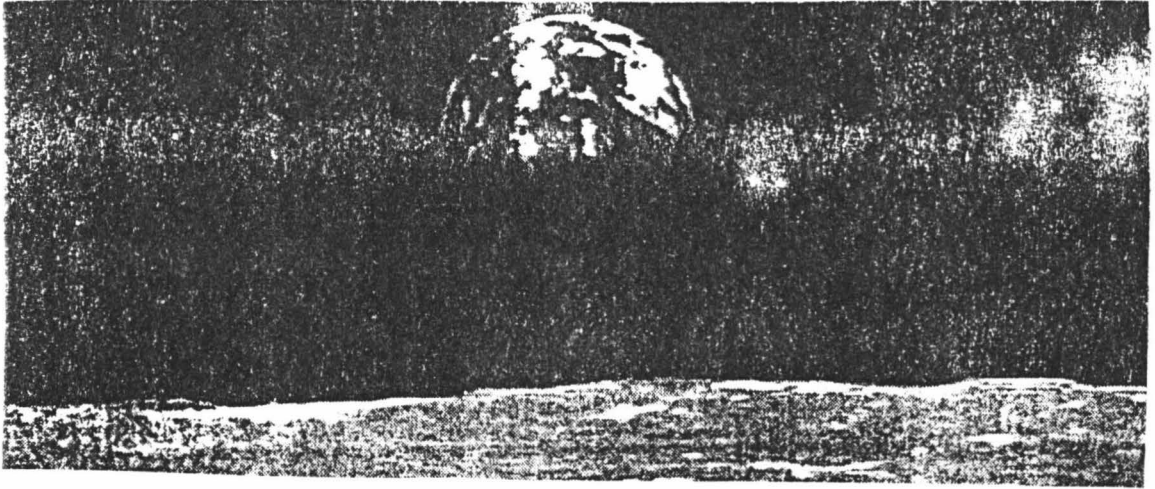
Mür is very much like earth, and the aliens your ancestors met there were friendly. Gradually, with the love and support of the Mürians your ancestors made Mür their home.

Although they are happy on Mür, your people still live according to **human** ways. Knowledge about **Earth** its resources and civilisations has been carefully passed down to you from generation to generation.

**Now, there are problems on Mür!**

The Mürians are losing their self esteem and prejudice is spreading because cultural traditions are being ignored.

Increased pollution and the wasting of resources has meant that many forms of Mürian animal and plant life are dying out.



The **Mürian High Council** are worried about the well being of their planet and their people.

A few days ago, an unmanned space capsule crashed on Mür. It had been launched from Earth to carry messages to distant galaxies. Only two small books were salvaged.

Interested in ideas and information that might help solve their problems the **Mürian High Council** have asked you to do an important job:

**Connect the information and ideas in the salvaged books and your own knowledge to write reports about how humans try to solve the same problems.**

Although there are strange **Mürian** instructions for writing these reports, you wish to repay the kindness that the **Mürians** have shown you over generations, so you agree to help.

Attend a briefing on this assignment. You will be assigned to a group and asked to write four reports each. Follow the instructions carefully. First, write the answers to the following planning tasks:

1. Choose three words to describe the Murian High Council.
2. What have you been asked to do?
3. How are you going to do it?
4. What should you remember while you are doing the job?
5. How will you know if you have done a good job?

Note: The graphics for the task booklet were contributed by the students as part of the input to the development of the Murian scenario. The graphics were obtained by the students by accessing the NASA site on the internet.

b. *Writing tasks*

The following rubrics represent the order of tasks for group A:

**REPORT ONE**

***TEASING THE LION***

Using **THREE** texts from *Teasing The Lion* as a reference, write a one page report for the Mürrian High Council.

REFERENCE TEXTS:

- 1.
- 2.
- 3.

**REPORT TWO**

***TEASING THE LION***

Using **ONE other** text from *Teasing The Lion* as a reference, write a one page report for the Mürrian High Council.

REFERENCE TEXT:

- 1.

**REPORT THREE**

***THE EYE of TANGAROA***

Using **ONE** text from *The Eye of Tangaroa* as a reference, write a one page report for the Mürrian High Council.

REFERENCE TEXT:

- 1.

**REPORT FOUR**

***THE EYE of TANGAROA***

Using **THREE other** texts from *The Eye of Tangaroa* as a reference, write a one page report for the Mürrian High Council.

REFERENCE TEXTS:

- 1.
- 2.
- 3.

The following rubrics represent the order of tasks for group B:

**REPORT ONE**

**TEASING THE LION**

Using **ONE** text from *Teasing The Lion* as a reference, write a one page report for the Mürrian High Council.

REFERENCE TEXT:

1.

**REPORT TWO**

**TEASING THE LION**

Using **THREE other** texts from *Teasing The Lion* as a reference, write a one page report for the Mürrian High Council.

REFERENCE TEXTS:

1.

2.

3.

**REPORT THREE**

**THE EYE of TANGAROA**

Using **THREE** texts from *The Eye of Tangaroa* as a reference, write a one page report for the Mürrian High Council.

REFERENCE TEXTS:

1.

2.

3.

**REPORT FOUR**

**THE EYE of TANGAROA**

Using **ONE other** text from *The Eye of Tangaroa* as a reference, write a one page report for the Mürrian High Council.

REFERENCE TEXT:

1.

## Appendix G

Questions answered by the case study students during the project:

| Stage | Focus question  | The prompt  |
|-------|---|---|
| One   | What is the student's task impression?  | <ol style="list-style-type: none"> <li>1. What have you been asked to do?</li> <li>2. How are you going to do it?</li> <li>3. What should you remember as you are doing the job?</li> <li>4. How will you know if you have done a good job?</li> </ol>  |
| Two   | <p>What effected the choice of texts?</p> <p>What affected choice of material?</p> <p>What links were made?</p> <p>How was material selected to solve a problem?</p> <p>What reading tactics were used?</p>       | <ol style="list-style-type: none"> <li>5. Why or how did you pick the text(s)?</li> <li>6. What did you think while you read?</li> <li>7. What were you looking for Why?</li> <li>8. What links did you make?</li> <li>9. How will the text(s) help you write your report Why?</li> <li>10. What sort of reading did you use?</li> <li>11. How did you go about reading three/one texts to write a report?</li> </ol> |
| Three | <p>Had task impressions altered during the project?</p> <p>What use was made of the anthologies?</p> <p>How were the texts coordinated?</p> <p>What is the definition of <i>skim</i> and <i>deep</i> reading?</p> | <ol style="list-style-type: none"> <li>12. What were you supposed to do for this project?</li> <li>13. How did you make use of the anthologies?</li> <li>14. How did you use three texts?</li> <li>15. How did you use one text?</li> <li>16. What do you mean by <i>deep</i> and <i>skim</i> reading?</li> </ol>   |
| Four  | What is the content of student thought?   | Report your thoughts while you write each report  |



## Appendix H

Number of links to each source site in multiple and single text conditions

### a. Working from the anthology *Teasing The Lion*

| Condition: |                       | Reading across texts |      |      |      |      |                      | Reading a single text |       |      |     |      |      |       |
|------------|-----------------------|----------------------|------|------|------|------|----------------------|-----------------------|-------|------|-----|------|------|-------|
| GroupA     | task                  | theme                | T.1  | T.2  | T.3  | Know | Total                | task                  | theme | T.1  | T.2 | T.3  | know | Total |
| 1          | 5                     | 12                   | 3    | 1    | 3    | 7    | 31                   | 4                     | 7     | 4    |     |      | 14   | 29    |
| 2          | 7                     | 7                    | 3    | 6    | 3    | 4    | 30                   | 1                     | 2     | 9    |     |      | 11   | 23    |
| 3          | 5                     | 4                    | 8    | 2    | 2    | 7    | 28                   | 3                     | 5     | 3    |     |      | 3    | 14    |
| 4          | 2                     | 5                    | 4    | 1    | 5    | 4    | 21                   | 7                     | 2     | 8    |     |      | 8    | 25    |
| 5          | 3                     | 5                    | 2    | 2    |      | 4    | 16                   | 3                     | 3     | 1    |     |      | 6    | 13    |
| 6          | 3                     | 3                    | 4    | 1    | 2    | 5    | 18                   | 4                     | 4     | 5    |     |      | 4    | 17    |
| 7          | 2                     | 8                    | 4    | 5    | 3    | 6    | 28                   | 3                     | 4     | 13   |     |      | 9    | 29    |
| 8          | 1                     | 8                    | 1    | 4    | 2    | 3    | 19                   | 1                     | 5     | 11   |     |      | 2    | 19    |
| 9          | 3                     | 7                    | 1    | 5    | 2    | 20   | 38                   | 2                     | 2     | 2    |     |      | 16   | 22    |
| 10         |                       | 3                    | 3    | 3    | 17   | 7    | 33                   |                       |       | 2    |     |      | 32   | 34    |
| 11         | 6                     | 6                    | 1    | 2    | 1    | 12   | 28                   | 3                     | 6     | 7    |     |      | 5    | 21    |
| 12         | 4                     | 5                    | 3    | 1    | 1    | 9    | 23                   | 3                     | 8     | 6    |     |      | 1    | 18    |
| 13         | 2                     | 1                    | 5    | 1    | 4    | 4    | 17                   | 1                     | 3     | 6    |     |      | 9    | 19    |
| 14         | 1                     | 1                    | 1    | 1    | 4    | 3    | 11                   |                       |       | 4    |     |      | 6    | 10    |
| 15         |                       | 1                    | 3    |      | 15   | 8    | 27                   |                       |       | 25   |     |      |      | 25    |
| 16         | 5                     | 1                    | 5    | 1    | 2    | 9    | 23                   | 6                     | 1     | 2    |     |      | 13   | 22    |
| 17         | 2                     | 1                    | 3    |      |      | 4    | 10                   | 1                     | 2     | 13   |     |      | 1    | 17    |
| sum        | 51                    | 78                   | 54   | 36   | 66   | 116  | 401                  | 42                    | 54    | 1    | 2   | 1    | 140  | 357   |
| mean       | 3.4                   | 4.58                 | 3.17 | 2.4  | 4.4  | 6.8  | 23.5                 | 3                     | 3.8   | 7    | .11 |      | 8.7  | 21    |
| s.d.       | 1.78                  | 3.08                 | 1.75 | 1.07 | 4.68 | 4.09 | 7.53                 | 1.77                  | 2.03  | 5    | .77 |      | 7.47 | 6.02  |
| GroupB     | Reading a single text |                      |      |      |      |      | Reading across texts |                       |       |      |     |      |      |       |
| 18         | 1                     | 2                    |      | 6    |      | 12   | 21                   | 1                     | 3     |      |     | 2    | 10   | 16    |
| 19         |                       | 15                   |      |      |      | 5    | 20                   | 2                     | 3     | 2    |     |      | 17   | 24    |
| 20         | 8                     | 5                    |      | 4    |      | 2    | 19                   | 2                     | 2     | 1    | 1   | 2    | 6    | 14    |
| 21         | 6                     | 8                    |      | 5    |      | 7    | 26                   | 4                     | 9     | 1    | 1   | 2    | 4    | 21    |
| 22         | 9                     | 4                    |      |      |      | 12   | 25                   | 6                     | 5     |      |     | 4    | 11   | 26    |
| 23         | 3                     | 4                    |      | 10   |      |      | 17                   | 2                     | 1     | 3    | 5   | 3    | 6    | 20    |
| 24         | 2                     | 4                    |      | 2    |      | 11   | 19                   | 1                     | 2     | 2    | 3   | 3    | 9    | 20    |
| 25         | 1                     | 8                    |      |      |      | 7    | 16                   | 1                     | 7     | 1    | 6   | 4    | 4    | 23    |
| 26         | 4                     | 1                    |      | 10   |      | 16   | 31                   | 4                     | 1     | 2    | 5   | 3    | 15   | 30    |
| 27         | 2                     | 1                    |      | 28   |      |      | 31                   | 3                     | 2     | 4    | 8   | 6    | 1    | 24    |
| 28         | 2                     | 2                    |      | 5    |      | 7    | 16                   | 2                     | 5     | 4    | 3   | 2    | 2    | 18    |
| 29         | 2                     | 6                    |      | 14   |      | 2    | 24                   | 1                     | 7     | 8    | 3   | 3    | 2    | 24    |
| 30         | 3                     | 8                    |      | 8    |      | 2    | 21                   | 2                     | 2     | 1    | 1   | 1    | 5    | 12    |
| 31         | 1                     | 2                    |      | 2    |      | 10   | 15                   | 2                     | 6     |      |     | 1    | 9    | 18    |
| 32         |                       | 1                    |      | 11   |      | 6    | 18                   | 1                     | 3     | 8    | 3   | 4    | 1    | 20    |
| 33         | 5                     | 1                    |      | 3    |      | 8    | 17                   | 5                     | 5     |      | 1   | 1    | 6    | 18    |
| 34         | 2                     | 1                    |      | 7    |      | 9    | 19                   | 2                     | 3     | 3    | 6   | 6    | 1    | 21    |
| sum        | 51                    | 73                   |      | 115  |      | 116  | 355                  | 41                    | 66    | 40   | 46  | 47   | 109  | 349   |
| mean       | 3.4                   | 4.2                  |      | 8.21 |      | 7.7  | 20.8                 | 2.4                   | 3.8   | 3    | 3.5 | 2.9  | 6.4  | 20.5  |
| s.d.       | 2.44                  | 3.67                 |      | 6.48 |      | 3.94 | 4.78                 | 1.45                  | 2.27  | 2.33 | 2.2 | 1.51 | 4.69 | 4.32  |

b. Working from the anthology *The Eye of Tangaroa*

| Condition: Reading a single text |                      |       |      |      |      |      |       | Reading across texts  |       |      |      |      |      |       |
|----------------------------------|----------------------|-------|------|------|------|------|-------|-----------------------|-------|------|------|------|------|-------|
| GroupA                           | task                 | theme | T.1  | T.2  | T.3  | Know | Total | task                  | theme | T.1  | T.2  | T.3  | know | Total |
| 1                                | 1                    | 12    |      | 3    |      | 13   | 29    | 5                     | 3     | 19   | 7    | 1    | 1    | 36    |
| 2                                | 4                    | 1     |      | 13   |      | 9    | 27    | 5                     | 3     | 4    | 2    | 2    | 1    | 17    |
| 3                                | 4                    | 3     |      | 7    |      | 2    | 16    | 3                     | 1     | 4    | 3    | 4    | 3    | 18    |
| 4                                | 5                    | 3     |      | 6    |      | 7    | 21    | 4                     | 2     | 8    |      | 1    | 13   | 28    |
| 5                                | 6                    | 6     |      | 2    |      | 5    | 19    | 5                     | 1     | 1    |      | 1    | 6    | 14    |
| 6                                | 5                    |       |      | 14   |      | 6    | 25    | 5                     | 1     | 11   | 5    |      | 2    | 24    |
| 7                                | 2                    | 4     |      | 2    |      | 13   | 21    | 8                     | 4     |      | 1    |      | 10   | 23    |
| 8                                | 1                    |       |      | 3    |      | 13   | 17    | 2                     | 4     | 12   | 2    | 4    | 2    | 26    |
| 9                                | 2                    | 10    |      |      |      | 4    | 16    | 1                     | 5     |      | 3    | 5    | 3    | 17    |
| 10                               |                      |       |      | 25   |      | 14   | 39    | 1                     | 7     | 2    | 15   | 2    | 4    | 31    |
| 11                               | 3                    | 5     |      | 11   |      | 14   | 33    | 6                     | 4     | 1    | 5    |      | 15   | 31    |
| 12                               | 3                    | 2     |      | 6    |      | 15   | 26    | 4                     | 3     | 6    | 5    | 2    | 6    | 26    |
| 13                               | 4                    | 2     |      | 7    |      | 8    | 21    | 1                     | 1     |      |      |      | 10   | 12    |
| 14                               |                      | 1     |      | 6    |      | 4    | 11    | 1                     |       | 6    |      |      | 2    | 9     |
| 15                               |                      |       |      | 22   |      |      | 22    |                       |       | 10   | 5    | 9    | 3    | 27    |
| 16                               | 3                    | 3     |      | 12   |      | 1    | 19    | 4                     | 4     | 5    | 6    | 3    | 4    | 26    |
| 17                               | 1                    | 1     |      | 9    |      | 16   | 27    | 4                     | 1     | 10   |      |      | 1    | 16    |
| sum                              | 44                   | 53    |      | 148  |      | 144  | 389   | 59                    | 44    | 99   | 59   | 34   | 86   | 381   |
| mean                             | 3.1                  | 4.7   |      | 9.2  |      | 9    | 22.8  | 3.6                   | 2.9   | 7    | 4.9  | 3    | 5    | 22.4  |
| s.d.                             | 1.55                 | 3.31  |      | 6.53 |      | 4.84 | 6.68  | 1.99                  | 1.73  | 4.81 | 3.49 | 2.27 | 4.23 | 7.29  |
| GroupB                           | Reading across texts |       |      |      |      |      |       | Reading a single text |       |      |      |      |      |       |
| 18                               | 1                    |       |      | 5    | 8    | 11   | 25    | 1                     | 7     |      | 7    |      | 6    | 21    |
| 19                               | 1                    | 3     | 1    | 1    | 2    | 9    | 17    | 2                     |       |      | 9    |      |      | 11    |
| 20                               | 4                    | 3     | 2    | 1    | 2    | 5    | 17    | 2                     | 2     |      | 5    |      | 2    | 11    |
| 21                               | 3                    | 3     | 3    | 1    | 2    | 12   | 24    | 12                    | 1     |      | 2    |      | 7    | 22    |
| 22                               | 3                    | 3     | 3    | 3    | 5    | 28   | 45    | 5                     | 3     |      |      |      | 20   | 28    |
| 23                               | 2                    | 1     | 5    | 8    | 4    |      | 20    | 3                     | 1     |      | 12   |      |      | 16    |
| 24                               | 3                    | 1     | 5    | 4    | 3    | 6    | 22    | 1                     | 2     |      | 19   |      |      | 22    |
| 25                               | 1                    | 4     | 3    | 3    | 8    | 2    | 21    | 1                     | 1     |      | 18   |      |      | 20    |
| 26                               | 6                    | 2     | 5    | 1    |      | 10   | 24    | 2                     | 1     |      | 8    |      | 12   | 23    |
| 27                               | 2                    | 1     | 4    | 5    | 6    |      | 18    | 2                     | 1     |      | 5    |      |      | 8     |
| 28                               | 1                    | 2     | 8    | 5    |      | 2    | 18    | 1                     | 2     |      | 6    |      | 4    | 13    |
| 29                               | 2                    | 8     | 1    | 5    | 6    | 5    | 27    | 3                     | 5     |      | 10   |      | 4    | 22    |
| 30                               | 1                    | 2     |      | 3    | 3    | 5    | 14    | 1                     | 1     |      | 8    |      | 2    | 12    |
| 31                               | 1                    | 2     |      | 6    |      | 11   | 20    | 1                     | 1     |      | 7    |      | 1    | 10    |
| 32                               | 1                    | 1     | 7    | 8    | 4    | 3    | 24    |                       |       |      | 20   |      | 1    | 21    |
| 33                               | 4                    | 8     | 3    |      | 4    | 1    | 20    | 4                     | 3     |      |      |      | 11   | 18    |
| 34                               | 2                    | 2     | 2    | 6    | 4    |      | 16    |                       |       |      | 11   |      | 2    | 13    |
| sum                              | 38                   | 46    | 52   | 65   | 61   | 110  | 327   | 41                    | 31    |      | 147  |      | 72   | 291   |
| mean                             | 2.2                  | 2.8   | 3.7  | 4    | 4.3  | 7.8  | 21.8  | 2.7                   | 2.2   |      | 9.8  |      | 6    | 17.1  |
| s.d.                             | 1.39                 | 2.11  | 2.01 | 2.27 | 1.94 | 6.63 | 6.71  | 2.74                  | 1.73  |      | 5.2  |      | 5.5  | 5.6   |

## Appendix I

*Frequency with which various combinations of source sites were used in the written reports*

### a. *Teasing The Lion*

| Number of Students | Three Texts |       |               |           | One Text |       |      |           |
|--------------------|-------------|-------|---------------|-----------|----------|-------|------|-----------|
|                    | Task        | Theme | Text<br>1 2 3 | Exogenous | Task     | Theme | Text | Exogenous |
| 1                  |             |       |               |           |          |       | x    |           |
| 2                  |             |       |               |           |          |       | x    | x         |
| 1                  |             |       |               |           |          | x     |      | x         |
| 1                  |             | x     | xx            | x         |          |       |      |           |
| 5                  | x           | x     | x             | x         |          |       |      |           |
| 2                  |             |       |               |           | x        | x     | x    |           |
| 2                  |             | x     | xxx           | x         |          | x     | x    | x         |
| 1                  |             |       |               |           |          | x     | x    | x         |
| 2                  |             |       |               |           | x        | x     |      | x         |
| 2                  | x           | x     | xx            | x         |          |       |      |           |

### b. *The Eye of Tangaroa*

| Number of students | Three Texts |       |               |           | One Text |       |      |           |
|--------------------|-------------|-------|---------------|-----------|----------|-------|------|-----------|
|                    | Task        | Theme | Text<br>1 2 3 | Exogenous | Task     | Theme | Text | Exogenous |
| 1                  |             |       |               |           |          |       | x    |           |
| 3                  |             |       |               |           |          |       | x    | x         |
| 1                  |             |       | xxx           | x         |          |       |      |           |
| 1                  |             |       |               |           | x        |       | x    |           |
| 1                  | x           | x     |               | x         |          |       |      |           |
| 1                  | x           |       | x             | x         |          |       |      |           |
| 1                  | x           |       | xx            | x         |          |       |      |           |
| 3                  | x           | x     | x             | x         |          |       |      |           |
| 3                  | x           | x     | xxx           |           |          |       |      |           |
| 4                  |             |       |               |           | x        | x     | x    |           |
| 1                  |             |       |               |           |          | x     | x    | x         |
| 2                  |             |       |               |           | x        |       | x    | x         |
| 3                  |             |       |               |           | x        | x     |      | x         |
| 8                  | x           | x     | xx            | x         |          |       |      |           |

## Appendix J

### Instructions for rating the quality of the written reports

| Relevance  | Range   | Clarity   | Tone  |                |
|--|---|---|---|----------------|
| 9. The content of the report is entirely relevant to problems faced by the Murians       | 9. The ideas are accompanied by a wide range of examples with suggested applications to problems faced by the Murians                               | 9. The report is entirely coherent in terms of the purpose of the task        | 9. The audience is consistently acknowledged. They are advised with careful attention to their background and viewpoint   |                |
| 8  | 8   | 8   | 8   |                |
| 7  | 7   | 7   | 7   |                |
| 6  | 6   | 6   | 6   |                |
| 5. The content of the report is only partially relevant to problems faced by the Murians | 5. The ideas are accompanied by a selection of material offering some examples and some suggested applications to the problems faced by the Murians | 5. The report is only moderately coherent in terms of the purpose of the task | 5. The audience is partially acknowledged. They are advised with sporadic consideration to their background and viewpoint |                |
| 4  | 4   | 4   | 4   |                |
| 3  | 3   | 3   | 3   |                |
| 2.   | 2.  | 2.  | 2.  |                |
| 1. The report has no apparent relevance to a problem faced by the Murians                | 1. There are one or two ideas which are not explained in terms of the problems faced by the Murians   | 1. The report has no coherence in terms of the purpose of the task            | 1. The audience's viewpoint is not considered in the advice   |                |
| 0. No text   | 0. No text  | 0. No text  | 0. No text  |                |
| Total =  | Total =   | Total =   | Total =   | <b>TOTAL =</b> |

## Appendix K

### Quality ratings for the written reports

#### a. Working with the anthology *Teasing The Lion*

| Condition: Reading across Texts |           |       |         |      |       | Reading a single text |       |         |      |       |
|---------------------------------|-----------|-------|---------|------|-------|-----------------------|-------|---------|------|-------|
| GroupA                          | Relevance | Range | Clarity | Tone | Total | Relevance             | Range | Clarity | Tone | Total |
| 1                               | 9         | 9     | 9       | 7    | 34    | 9                     | 8     | 8       | 7    | 32    |
| 2                               | 8         | 9     | 9       | 8    | 34    | 8                     | 6     | 8       | 7    | 29    |
| 3                               | 8         | 8     | 7       | 5    | 28    | 7                     | 7     | 8       | 5    | 27    |
| 4                               | 7         | 7     | 7       | 6    | 27    | 5                     | 4     | 6       | 6    | 21    |
| 5                               | 6         | 6     | 5       | 4    | 21    | 5                     | 4     | 6       | 4    | 19    |
| 6                               | 6         | 6     | 7       | 5    | 24    | 5                     | 5     | 7       | 7    | 24    |
| 7                               | 7         | 7     | 7       | 6    | 27    | 6                     | 4     | 6       | 6    | 22    |
| 8                               | 7         | 7     | 6       | 8    | 28    | 4                     | 3     | 4       | 5    | 16    |
| 9                               | 8         | 9     | 7       | 7    | 31    | 4                     | 4     | 5       | 3    | 16    |
| 10                              | 5         | 6     | 5       | 3    | 19    | 2                     | 3     | 4       | 3    | 12    |
| 11                              | 7         | 7     | 7       | 4    | 25    | 5                     | 4     | 5       | 5    | 19    |
| 12                              | 5         | 6     | 6       | 5    | 22    | 4                     | 3     | 4       | 3    | 14    |
| 13                              | 5         | 5     | 7       | 5    | 22    | 3                     | 3     | 4       | 3    | 13    |
| 14                              | 3         | 4     | 3       | 3    | 13    | 2                     | 1     | 2       | 2    | 7     |
| 15                              | 4         | 5     | 3       | 3    | 15    | 1                     | 1     | 1       | 1    | 4     |
| 16                              | 4         | 5     | 6       | 5    | 20    | 4                     | 3     | 3       | 4    | 14    |
| 17                              | 5         | 4     | 4       | 4    | 17    | 3                     | 1     | 1       | 2    | 7     |
| sum                             | 104       | 110   | 105     | 88   | 407   | 77                    | 64    | 82      | 73   | 296   |
| mean                            | 6.1       | 6.4   | 6.1     | 5.1  | 23.9  | 4.5                   | 3.7   | 4.8     | 4.2  | 17.4  |
| s.d.                            | 1.64      | 1.57  | 1.68    | 1.58 | 5.98  | 2.06                  | 1.89  | 2.20    | 1.83 | 7.64  |
| GroupB                          |           |       |         |      |       |                       |       |         |      |       |
| 18                              | 7         | 8     | 8       | 8    | 31    | 8                     | 7     | 7       | 7    | 29    |
| 19                              | 6         | 7     | 7       | 5    | 25    | 5                     | 4     | 6       | 5    | 20    |
| 20                              | 6         | 5     | 3       | 3    | 17    | 2                     | 3     | 2       | 2    | 9     |
| 21                              | 8         | 7     | 8       | 5    | 28    | 5                     | 3     | 5       | 5    | 18    |
| 22                              | 5         | 6     | 7       | 5    | 23    | 5                     | 5     | 5       | 5    | 20    |
| 23                              | 5         | 6     | 4       | 6    | 21    | 3                     | 4     | 2       | 3    | 12    |
| 24                              | 7         | 5     | 6       | 4    | 22    | 4                     | 1     | 3       | 5    | 13    |
| 25                              | 7         | 7     | 6       | 5    | 25    | 3                     | 2     | 4       | 4    | 13    |
| 26                              | 7         | 4     | 7       | 5    | 23    | 4                     | 4     | 6       | 4    | 18    |
| 27                              | 4         | 6     | 4       | 6    | 20    | 5                     | 3     | 1       | 3    | 12    |
| 28                              | 6         | 7     | 7       | 3    | 23    | 4                     | 1     | 4       | 4    | 13    |
| 29                              | 7         | 7     | 7       | 5    | 26    | 6                     | 3     | 4       | 5    | 18    |
| 30                              | 6         | 6     | 5       | 6    | 23    | 4                     | 3     | 4       | 3    | 14    |
| 31                              | 6         | 4     | 3       | 4    | 17    | 3                     | 2     | 1       | 2    | 8     |
| 32                              | 4         | 5     | 4       | 3    | 16    | 3                     | 2     | 3       | 4    | 12    |
| 33                              | 6         | 5     | 5       | 5    | 21    | 6                     | 3     | 5       | 5    | 19    |
| 34                              | 4         | 4     | 4       | 3    | 15    | 2                     | 2     | 3       | 3    | 10    |
| sum                             | 101       | 99    | 95      | 81   | 376   | 72                    | 52    | 65      | 69   | 258   |
| mean                            | 5.8       | 5.8   | 5.5     | 4.76 | 22.1  | 4.2                   | 3     | 3.8     | 4    | 15.7  |
| s.d.                            | 1.16      | 1.19  | 1.64    | 1.30 | 4.17  | 1.51                  | 1.43  | 1.68    | 1.25 | 5.07  |

b. Working from the anthology *The Eye of Tangaroa*

| Condition: Reading Across Texts |           |       |         |      |       | Reading a single Text |       |         |      |       |
|---------------------------------|-----------|-------|---------|------|-------|-----------------------|-------|---------|------|-------|
| GroupA                          | Relevance | Range | Clarity | Tone | Total | Relevance             | Range | Clarity | Tone | Total |
| 1                               | 8         | 8     | 9       | 9    | 34    | 9                     | 8     | 8       | 8    | 33    |
| 2                               | 8         | 8     | 7       | 8    | 31    | 6                     | 5     | 7       | 6    | 24    |
| 3                               | 8         | 8     | 7       | 7    | 29    | 6                     | 6     | 7       | 5    | 24    |
| 4                               | 7         | 7     | 8       | 6    | 28    | 4                     | 4     | 5       | 6    | 19    |
| 5                               | 4         | 5     | 4       | 5    | 18    | 4                     | 3     | 2       | 5    | 14    |
| 6                               | 6         | 6     | 7       | 6    | 25    | 6                     | 4     | 7       | 6    | 23    |
| 7                               | 7         | 6     | 7       | 7    | 27    | 5                     | 5     | 5       | 4    | 19    |
| 8                               | 7         | 7     | 6       | 5    | 25    | 5                     | 4     | 4       | 5    | 18    |
| 9                               | 6         | 5     | 6       | 6    | 23    | 4                     | 3     | 5       | 6    | 18    |
| 10                              | 7         | 5     | 3       | 2    | 17    | 2                     | 2     | 3       | 2    | 9     |
| 11                              | 6         | 6     | 5       | 5    | 22    | 4                     | 3     | 5       | 5    | 17    |
| 12                              | 6         | 5     | 4       | 4    | 19    | 4                     | 3     | 4       | 4    | 15    |
| 13                              | 3         | 2     | 2       | 3    | 10    | 3                     | 4     | 5       | 5    | 17    |
| 14                              | 3         | 2     | 1       | 3    | 9     | 2                     | 1     | 2       | 2    | 7     |
| 15                              | 2         | 3     | 2       | 2    | 9     | 1                     | 1     | 1       | 1    | 4     |
| 16                              | 5         | 6     | 5       | 4    | 20    | 3                     | 3     | 4       | 5    | 15    |
| 17                              | 4         | 3     | 2       | 3    | 12    | 3                     | 2     | 2       | 2    | 9     |
| sum                             | 97        | 91    | 85      | 85   | 358   | 71                    | 61    | 76      | 77   | 285   |
| mean                            | 5.7       | 5.3   | 5       | 5    | 21    | 4.1                   | 3.5   | 4.4     | 4.52 | 6.7   |
| s.d.                            | 1.83      | 1.84  | 2.32    | 2    | 7.57  | 1.85                  | 1.71  | 1.97    | 1.78 | 6.91  |
| GroupB                          |           |       |         |      |       |                       |       |         |      |       |
| 18                              | 6         | 5     | 7       | 7    | 25    | 8                     | 7     | 7       | 8    | 30    |
| 19                              | 3         | 5     | 3       | 3    | 14    | 4                     | 2     | 3       | 4    | 13    |
| 20                              | 3         | 3     | 3       | 3    | 12    | 3                     | 2     | 2       | 2    | 9     |
| 21                              | 6         | 7     | 7       | 7    | 27    | 5                     | 5     | 6       | 7    | 23    |
| 22                              | 8         | 8     | 8       | 8    | 32    | 6                     | 6     | 6       | 8    | 26    |
| 23                              | 4         | 5     | 5       | 5    | 19    | 2                     | 1     | 2       | 3    | 8     |
| 24                              | 5         | 7     | 4       | 5    | 21    | 5                     | 2     | 3       | 4    | 14    |
| 25                              | 5         | 6     | 5       | 4    | 20    | 3                     | 2     | 3       | 4    | 12    |
| 26                              | 6         | 5     | 6       | 6    | 23    | 4                     | 2     | 4       | 3    | 13    |
| 27                              | 4         | 5     | 3       | 4    | 16    | 1                     | 1     | 1       | 1    | 4     |
| 28                              | 6         | 6     | 5       | 3    | 20    | 3                     | 2     | 3       | 2    | 10    |
| 29                              | 6         | 5     | 5       | 6    | 22    | 5                     | 4     | 5       | 6    | 20    |
| 30                              | 4         | 5     | 4       | 3    | 16    | 4                     | 4     | 3       | 3    | 14    |
| 31                              | 3         | 4     | 3       | 5    | 15    | 2                     | 1     | 2       | 3    | 8     |
| 32                              | 4         | 4     | 3       | 4    | 15    | 3                     | 2     | 3       | 4    | 12    |
| 33                              | 6         | 5     | 4       | 4    | 19    | 6                     | 4     | 4       | 4    | 18    |
| 34                              | 3         | 3     | 2       | 3    | 11    | 2                     | 1     | 2       | 3    | 8     |
| sum                             | 82        | 88    | 77      | 80   | 327   | 66                    | 48    | 59      | 69   | 242   |
| mean                            | 4.8       | 5.7   | 4.5     | 4.7  | 19.2  | 3.8                   | 2.8   | 3.4     | 4.05 | 14.2  |
| s.d.                            | 1.42      | 1.29  | 1.64    | 1.56 | 5.35  | 1.74                  | 1.79  | 1.61    | 1.98 | 6.82  |