

NATIONAL ASSESSMENT PROGRAM – LITERACY AND NUMERACY

Online Assessment Research
Development Study 2014 Cognitive
Interviews: Challenging Items
(Reading)

2014



Online Assessment Research
Development Study 2014 Cognitive Interviews: Challenging Items (Reading)

Project management

ACARA's online research program is directed by Dr Goran Lazendic. The National Assessment and Surveys Online Program is managed by Julie-Anne Justus, John Skehan, Dominik Swierk, Justine Tyrrell and Rosemary Vo. Item and test development is managed by Anna Cohen (reading), Stephen Phillip (numeracy) and Ross Bindon (conventions of language).

Report author(s)

ThinkLink Consultancy, working with ACARA staff (Dr Goran Lazendic and Anna Cohen), delivered the student and school interviews and developed the report entitled *NAPLAN Online 2014 Development Study: Cognitive interview research activity: Perceived difficulty of challenging Reading items*.

National Assessment and Surveys Online Program

The National Assessment and Surveys Online Program, funded by the Australian Government, is designed to deliver national assessments and surveys online. ACARA is responsible for planning and implementing a clearly defined assessment and reporting research agenda that will allow reporting to the Education Council on issues and options for delivering NAPLAN online. A key aspect of the program is ACARA's expanded assessment and reporting research agenda, incorporating a comprehensive investigation into assessment instruments and programs using online technology.

Acknowledgements

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Level 10, 255 Pitt Street
Sydney, NSW 2000
Email: info@acara.edu.au

The appropriate citation for this report is:

ThinkLink Consultancy, *NAPLAN Online 2014 Development Study Cognitive interviews research activity: Perceived difficulty of challenging Reading items*. ThinkLink, Adelaide, December 2014. Prepared for the Australian Curriculum, Assessment and Reporting Authority.



NAPLAN Online 2014 Development Study

Cognitive interviews research activity 2b:
Perceived difficulty of challenging Reading items

8 December 2014

Prepared by Irene Janiszewska (THINKLINK Consultant)

Acknowledgements

The following people contribution to the Cognitive Interviews Research into the perceived difficulty of challenging Reading items and the preparation of this report:

Ms Michelle Davidson
Ms Robin Dillon-Griffin
Mr Peter Heydrich
Ms Ludmilla Trus

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Acronyms

CIR	Cognitive Interview Research
DNA	Did Not Attempt
NAPLAN	National Assessment Program-Literacy and Numeracy
NASOP	National Assessment and Survey Online Program

Executive Summary

Background

This report provides an analysis and evaluation of the participation of 40 high performing students in 4 year-level-based NASOP (National Assessment and Survey Online Program) on-line reading testlets.

The Cognitive Interviews Research into the perceived difficulty of challenging Reading items, conducted through individual interviews, was initiated in order to investigate the knowledge, thinking skills and strategies that 10 high performing students from each of the 4 NAPLAN (National Assessment Program Literacy and Numeracy) testing levels of schooling, (Years 3, 5, 7 and 9) used to answer items in Reading Testlet F in an online environment.

The Year 3 Testlet F consisted of 13 items and 2 paired multi-texts.

The Year 5 Testlet F consisted of 13 items and 3 individual texts.

The Year 7 Testlet F consisted of 16 items and 3 multi-texts.

The Year 9 Testlet F consisted of 16 items and 3 texts, including 1 multi-text.

Testlets F have been specifically designed to test the skills of high performing students at each of the four NAPLAN testing levels. Testlet F is the last in a set of three tests which incrementally increase in level of difficulty and which high performing students will complete in order to provide data about their reading abilities.

The objectives of the Cognitive Interviews Research into the perceived difficulty of challenging Reading items were to investigate:

- knowledge, thinking skills and strategies that 10 students at each of the 4 NAPLAN testing year levels implement to answer items in Reading Testlet F,
- how each student's knowledge, thinking skills and strategies relate to what item and test developers ostensibly wanted to test,
- the functioning of item stems and /or stimulus and any other response options, and
- students' performance and interaction with the whole of Testlet F in an on-line testing environment.

The research questions answered by this study are:

1. What range of strategies/processes/understandings did this group of students use to successfully answer each item and which processes/understandings were used most frequently?
2. What strategies/processes/understandings were used by students who got the item wrong and what led students to this response?
3. What processes did students employ to answer inter-textual questions and did students employ different metacognitive processes to answer items stemming from the longer, denser stimulus texts and paired multi texts than they did with the other texts in the testlet?
4. How does students' perception of item difficulty compare with student performance data?
5. How did students engage with the longer, denser stimulus texts and the units with paired texts and multi texts, and which texts did the students find most engaging and stimulating? Why did they find them engaging?
6. In terms of difficulty, how does this test rate compared to any other reading tests or activities this group of students has done in the past? For example, is this test harder than the NAPLAN tests they have done in the past.

Within this report, in order to avoid the repetition of findings, research questions have been grouped under the following headings:

- Item-related research questions
- Text-related research questions
- Testlet-related research question

Methodology

Ten high-performing students from each of Years 3, 5, 7 and 9 were selected for the study. These students

were considered to be in the top 20 percentile, articulate, willing to participate, parental approval for their involvement was available and their involvement reflected a balanced spread of gender and socio-economic and socio-cultural backgrounds.

The cognitive interviews methodology used in this research study included three main qualitative information-sourcing techniques. These were:

- **'Think aloud'**, the process by which the student articulate what they are thinking, doing and feeling as they are undertaking each task.
- **Post activity response**, the process by which the student using recall, describe, after undertaking each task, what they thought, did, and felt while doing it.
- **Questioning and discussion** after the completion of each task.

Interviews were conducted in the students own schools.

Interview data was recorded, collated and analysed by the interviewers.

Regular post-interview debriefing sessions facilitated the sharing of professional judgement, perceptions and insights.

Cross categorisation techniques were used to identify the relationships between emerging concepts and strategies which students commonly used and the extent to which such findings might answer the research questions.

The analytical processes used to identify and confirm findings which specifically answer the research questions included the identification of common factors and supporting evidence, refining concepts, seeking alternative explanations, the discarding of unsubstantiated explanations, and the evaluation and validation of explanations.

Key Findings

1. Students at each year level drew on wide-ranging reading skills relating to each of the 4 reading development levels; literal comprehension, interpretation, critical reading and creative reading depending on the specific stimulus texts and the items they engaged with.
Overall however:
 - Year 3 students were generally at the literal and inferred meaning stage of reading development.
 - Year 5 students demonstrated more evidence of critical and creative reading than did Year 3 students, and
 - Year 7 and 9 students were often proficient at evaluating texts, passing judgement, commenting on accuracy and developing their own ideas stemming from the texts.
2. The skills that students used to answer items stemming from the longer, denser stimulus texts and paired multi texts included analysis, comparing and synthesising information, identifying common key ideas, deduction, logical processing and rationalising, and justifying. These skills were employed at different levels and in different ways when applied to these contexts as opposed to the less complex - texts.
3. Perceptions of the difficulty of an item sometimes varied significantly and it did not always follow that successful students perceived an item to be easier than unsuccessful students did.
There is no clear correlation between the individual ratings that students gave each of the items and correct responses.
There is no overall clear correlation between the averaged perceived difficulty of each item and the number of correct responses for that item.
4. Students engaged with a text when they were learning something new, could relate to the topic and the text was not too difficult for them to understand.
Overall, the second year 3 text was rated as the most engaging.
Overall, the first year 9 text was rated as the least engaging.
5. The overall average perceived level of the difficulty of the testlets is 2.3 (slightly harder than NAPLAN).

Key Recommendations

1. That the results and findings of the Cognitive Interviews Research into the perceived difficulty of challenging Reading items be used to inform the development of texts and items for NAPLAN Testlets F.

Namely that:

- the listed reading skills, demonstrated as being within the capabilities of the research cohort, be used as a basis for future Testlet F item development.
 - simplified versions of the Year 3 Testlet F text types be used.
 - informative texts and poems be more in line with the interests and abilities of Year 5 students.
 - the structure of the Year 7 text set be used across all year levels as appropriate.
 - the structure and complexity of the informative Year 9 text and a modified version of the multi-text set be used as a basis for Year 9 testlets.
2. That the issues listed in Appendix 3: *Out of scope issues* be examined in terms of their impact on the validity of any Testlet F items being considered for testing purposes and the development of future NAPLAN testlets.

1 Introduction

1.1 Background

This report provides an analysis and evaluation of the participation of 40 high performing students in 4 year-level-based NASOP on-line reading testlets.

The Cognitive Interviews Research into the perceived difficulty of challenging Reading items, conducted through individual interviews, was initiated in order to investigate the knowledge, thinking skills and strategies that 10 high performing students from each of the 4 NAPLAN testing levels of schooling, (years 3, 5, 7 and 9) used to answer items in Reading Testlet F in an online environment.

The Year 3 Testlet F consisted of 13 items and 2 paired multi-texts.

The Year 5 Testlet F consisted of 13 items and 3 individual texts.

The Year 7 Testlet F consisted of 16 items and 3 multi-texts.

The Year 9 Testlet F consisted of 16 items and 3 texts, including 1 multi-text.

Details of these texts and associated items are presented in Table 16 on page 37.

Testlets F have been specifically designed to test the skills of high performing students at each of the four NAPLAN testing levels. Testlet F is the last in a set of three tests which incrementally increase in level of difficulty and which high performing students will complete in order to provide data about their reading abilities.

1.2 Objectives

The objectives of the Cognitive Interviews Research into the perceived difficulty of challenging Reading items were to investigate:

- knowledge, thinking skills and strategies that 10 students at each of the 4 NAPLAN testing year levels implement to answer items in Reading Testlet F,
- how each student's knowledge, thinking skills and strategies relate to what item and test developers ostensibly wanted to test,
- the functioning of item stems and /or stimulus and any other response options, and
- students' performance and interaction with the whole of Testlet F in an on-line testing environment.

2 Methodology

2.1 Research Questions

The research questions answered by this study into the perceived difficulty of challenging Reading items are:

1. What range of strategies/processes/understandings did this group of students use to successfully answer each item and which processes/understandings were used most frequently?
2. What strategies/processes/understandings were used by students who got the item wrong and what led students to this response?
3. What processes did students employ to answer inter-textual questions and did students employ different metacognitive processes to answer items stemming from the longer, denser stimulus texts and paired multi texts than they did with the other texts in the testlet?
4. How does students' perception of item difficulty compare with student performance data?
5. How did students engage with the longer, denser stimulus texts and the units with paired and multi texts, and which texts did the students find most engaging and stimulating? Why did they find them engaging?
6. In terms of difficulty, how does this test rate compared to any other reading tests or activities this group of students has done in the past? For example, is this test harder than the NAPLAN tests they have done in the past?

Within this report these questions have been grouped under the following headings:

- Item-related research questions
- Text-related research questions
- Testlet-related research question

2.2 Research Design

The Cognitive Interviews Research into the perceived difficulty of challenging Reading items used qualitative methods to answer the research questions.

Data was collected through Cognitive Interviews conducted with individual students in a quiet space in the student's own school environment while they were engaged in completing the reading Testlet F for their specific year level.

Information-sourcing techniques

The cognitive interviews methodology used in this research study included three main information-sourcing techniques. These were:

- **'Think aloud'**, the process by which the student articulate what they are thinking, doing and feeling as they are undertaking each task.
- **Post activity response**, the process by which the student describe, after undertaking each task, what they thought, did, and felt while doing it. This process is based on recall.
- **Questioning and discussion** after the completion of each task.

To facilitate metacognition and clarify recall each interviewer facilitated a combination of these interview techniques with each student.

Each student was encouraged to use whichever strategy felt most natural for them and which was the least intrusive in terms of their ability to comprehend the text and answer the items to the best of their ability.

Before the interviews, individually or as a group, students were briefed about the purpose of the interview and given an overview of what to expect. Students were also given an opportunity to practice the 'Think Aloud' process with a text from a past test. Students were generally keen to participate in the research, albeit some were a little nervous to start with.

Towards the end of each interview students completed a brief survey of the reading skills they had used while completing the testlet.

There were no time restrictions placed on the completion of the test and interview. The time taken for each interview ranged between 1-2.5 hours depending on the level of detail each student provided.

Additional time did not noticeably advantage student test performance. However, several students said that

because of NAPLAN's time restrictions they were more relaxed during the interviews than they were during the NAPLAN test and felt that they could take more time to think.

Students were asked at the end of the interview whether the interview process had been intrusive and in any way impacted on their ability to do the test to the best of their abilities. All students said that it had not affected their ability to do the test and many said that having to describe what they were doing to answer each item enabled them to think more deeply. The opportunity to analyse and think more deeply during this testing process compared with completing the NAPLAN under normal test conditions may have assisted students in answering more items correctly.

2.3 Instruments

Data collection, record keeping and note taking associated with each interview was co-ordinated through the use of a Cognitive Interview Notebook. This notebook provided process consistency and ensured that all of the key aspects of the study were covered. The Cognitive Interview Notebook included a range of optional prompts, observation checklists and proformas for recording student responses to each stimulus and item and the overall test.

Interview questions were age-appropriate, most were open-ended and some sought a fixed response.

Questions and actions which directly or indirectly might assist the student in answering the question or lead them to articulate a process that they were not using were not used.

The research team also attempted to electronically record each interview. This involved video recording the computer screen used by each student while completing the testlet. In some cases an audio tape-recording of the interview was also made. While every attempt was made to record each interview in this way, technical and scheduling issues, or giving priority to settling nervous students, resulted in a small number of interviews not being recorded.

An example of the Cognitive Interview Notebook is attached in Appendix 1: *Year 3 Cognitive Interview Notebook*

2.4 Sample

The student sample consisted of 40 high-performing students selected by their teachers on the basis that they have the potential to progress to Testlet F during the proposed NAPLAN online multiple branching testing program.

Ten high-performing students from each of years 3, 5, 7 and 9 were selected for the study. These students were considered to be in the top 20 percentile, articulate, willing to participate, parental approval for their involvement was available and their involvement reflected a balanced spread of gender and socio-economic and socio-cultural backgrounds.

These students were selected from 11 South Australian public, private and Catholic, metropolitan/rural schools participating in the NAPLAN Online Development Study.

No more than 4 students from any given year level at any site, were interviewed.

2.5 Data Collection

Data was collected between 1 September 2014 and 22 October 2014.

The research team which consisted of people with extensive interviewing and teaching experience, specifically in the reading domain, collected the information students articulated and demonstrated during the Cognitive Interviews.

2.6 Data Analysis

The research questions provide the framework for the analysis of the research data.

The following qualitative data management and analysis techniques were used in this research project:

- Interview data was recorded in pre-designed 'Cognitive Interview Notebooks'. These notebooks facilitated the organisation, and subsequent categorisation of data (comments, observations, and professional assessments).

- Excel spreadsheets were developed for each text and item so that data relating to each of the research questions could be grouped for analysis at each of the year levels and across year levels.
- Interview data and fixed response data were entered onto the spreadsheets by the interviewer as soon as possible after each interview. These spreadsheets are attached in Appendix 2: *Years 3, 5, 7 and 9 spreadsheets*
- The interview data which was recorded in the Year 3, 5, 7 and 9 spreadsheets and which is attached as Appendix 2 has been summarised, tabulated and analysed and used as a basis for this report
- Where necessary, video and tape recordings of the interviews have been used to confirm and clarify the data being entered.
- Regular post-interview debriefing sessions have facilitated the sharing of professional judgement, perceptions and insights.
- Cross categorisation techniques have been used to identify the relationships between emerging concepts and strategies which students commonly used and the extent to which such findings might answer the research questions.
- The team leader, with input from the interviewers, has used analytical processes to identify and confirm findings which specifically answer the research questions. These processes include the identification of common factors and supporting evidence, refining concepts, seeking alternative explanations, the discarding of unsubstantiated explanations, and the evaluation and validation of explanations.
- Issues which are outside the scope of the research and which have been identified through the data analysis process have been reported in Appendix 3: *Out of Scope Issues*
- The findings have been identified and reported. These findings are based on the analyses of student comments, contained in the Appendices and tables within this report, and the professional observations made by researchers during the interviews and agreed to during post-interview debriefing sessions as being significant.

2.7 Limitations

The main limitations of this study are:

- the sample size
- the inability to recruit an equal number of boys and girls and source students from a representative range of cultural and linguistic backgrounds
- the inability to fully determine the strategies, processes and understandings that the students used due to the myriad of automated processes involved and the limitations that the interview process alone places on the collection of such data.

The results need to be interpreted with these limitations in mind.

2.8 Issues arising out of the research process

In addition to the research findings identified within this report, the Cognitive Interview processes highlighted a number of issues relating to the validity of items. The level of detail obtained from students about each text and test item was significant and valuable and has the potential to complement the psychometric analyses of trialled items.

The research team highly recommends that consideration be given to using Cognitive Interview process to review items being proposed for future tests.

3 Results

ITEM-RELATED RESEARCH QUESTIONS

3.1 What range of strategies/processes/understandings did this group of students use to successfully answer each item and which processes/understandings were used most frequently?

- 3.1.1 The strategies/processes/understandings that successful and unsuccessful students used to answer each item, and successful students most frequently used to answer each of the items, are summarised in Appendix 4: *Strategies and processes used to answer each item*.

This data and the data presented below in Tables 1, 2, 3 and 4 which provide summaries of the strategies/processes/understandings successful students used to answer items at each of the 4 year levels, show that:

1. **Successful Year 3 students generally:**

- Read the texts confidently
- Understood the stem,
- Analysed and evaluated
- Understood the vocabulary used in the item and the text,
- Referred to the text where necessary,
- Used recall and personal knowledge once they felt confident that they understood the text,
- Eliminated distractors using personal understanding of the topic and understanding of the text.

The reading skills they demonstrated included:

- Text analysis,
- Vocabulary analysis
- Locating information
- Using context clues
- Understanding main idea
- Inferring meaning
- Recognising relationships
- Interpreting
- Classifying
- Comparative analysis of options and text
- Drawing conclusions
- Making links with own experiences and knowledge
- Understanding the mechanics of reading

2. **Successful Year 5 students generally:**

- Understood subtleties in the use of language
- Identified synonymous words and concepts
- Used analysis and evaluation more frequently than did the year 3 students
- Identified related and least plausible options and used this knowledge in the elimination of distractors
- Used recall and checking strategies

The reading skills they demonstrated included:

- Making use of text features and managing text density
- Identifying inferred relationships and synonymous concepts

- 'reading between the lines'
- Anticipating endings
- Locating and matching
- Understanding subtle differences in meaning
- Making links with own knowledge and understandings
- Sorting, evaluating and judging

3. **Successful Year 7 students generally:**

- Understood key vocabulary
- Analysed the stem
- Identified related themes and concepts
- Inferred and engaged with a greater level of understanding and insight into the text than did the year 3 and 5 students
- Used reasoning and logic to eliminate distractors without effort and promptly identified the key more often than did students at the lower year levels
- Confidently backed their judgement with reference to the text
- Used accumulated understanding of the texts

The reading skills they demonstrated included:

- Summarising content
- Reading for 'gist'
- Understanding global perspectives
- Understanding the use of figurative language
- Understanding the essence of the text and item
- Comparing concepts and texts
- Recognising and applying own knowledge

4. **Successful Year 9 students generally:**

- Used sophisticated analysis strategies which included the application of structures
- Analysed the stem in detail
- Identified links between distractors and narrowed the elimination process to two options.
- Had good vocabulary and decoding skills
- Identified related and key concepts with ease
- Skilfully analysed texts, e.g. stem, characterisations, settings, themes
- Saw beyond literal meanings and could justify their choices

The reading skills they demonstrated included:

- Recognising bias and persuasion
- Emotionally connecting with the text
- Critiquing texts
- Understanding author's purpose
- Presenting own point of view about the text
- Analysing characters and events
- Visualising
- Comparing, contrasting and analysing texts
- Understanding the use of metaphor, symbolism, and social attitudes
- Discounting irrelevant information

3.1.2 Year 3 Students

Table 1: Year 3_Summary of strategies/processes/understandings used by successful students to answer each item

Item / Number of correct responses	Summary _Year 3	Most frequently used strategies	Key skill(s) used
1 (4/10)	3 students immediately chose A. The stem contained the word 'describe' and one of the keys contained this word. The four students who successfully answered part of the question chose C as their second answer. C could be considered as being correct depending on one's interpretation of 'how'. Each of these students carefully analysed the text to arrive at their answer.	<ul style="list-style-type: none"> Understanding the stem. i.e. Clarity about what was being asked Text analysis. 	<ul style="list-style-type: none"> Understanding the stem.
2 (1/10)	The successful student demonstrated an understanding of the word opinion and felt that 'can' in option B suggested an opinion. She arrived at the answer by eliminating the incorrect options: i.e. the ones which seemed to her to be facts. This left her with C as her choice. She tried to use contextual clues relating to what constituted an opinion but was unable to locate any which were familiar, other than 'can'.	<ul style="list-style-type: none"> Sound understanding of concept being tested. i.e. how an opinion is presented. Elimination of options which appeared to be facts rather than opinions. 	<ul style="list-style-type: none"> Understanding of what 'opinion' means. Elimination of related distractors
3 (5/10)	The range of reasons given for choosing the correct response varied widely: i.e. it being stated in the text, not needing much in a small house, discarding A on the basis that they would already have furniture.	<ul style="list-style-type: none"> Applying personal understanding i.e. Elimination of options on the basis of own understandings of what would be required as opposed to revisiting the text to clarify and confirm. 	<ul style="list-style-type: none"> Elimination of options based on own knowledge/understanding of topic/issue
4 (6/10)	The 6 successful students identified A and B as facts which applied to tiny houses and the remaining options as being applicable to any house. Their thought processes involved logic rather than comprehension strategies, E.g. cheaper and easier to clean because of size.	<ul style="list-style-type: none"> Detailed analysis of the stem. Successful Students generally relied on recall, logic, deduction and personal opinion to answer this item. 	<ul style="list-style-type: none"> Elimination of options based on own knowledge/understanding of topic/issue
5 (1/10)	The successful student discounted A and eliminated D because it doesn't apply to all small houses. This student knew which part of the text to refer to. She interpreted the stem correctly, located the relevant information, matched it to each option, and selected the correct options.	<ul style="list-style-type: none"> Understanding of the concept of 'creative use of space' in the stem as opposed to the word 'creative'. Locating information, comparative analysis of options and text. 	<ul style="list-style-type: none"> Comparative analysis of option and text.
6 (1/10)	The successful student read paragraph 2 prior to answering this item, however, her thinking processes indicate that she only eliminated one of the options (option C) on the basis of what she had read in the paragraph. She arrived at the correct answer through elimination, using logical analysis. i.e. A is not necessarily true and B, not all tiny houses are movable. The remaining option was the correct one and she did not elaborate as to why she thought this was correct.	<ul style="list-style-type: none"> Reference to the text, analysis of and elimination of options using logic and personal knowledge. 	<ul style="list-style-type: none"> Reference to the text, analysis of and elimination of options using logic and personal knowledge.

7 (3/10)	<p>These students were clear about the fact that they needed to refer each option to the illustration and did so methodically. One of these students needed to be prompted to scroll down so that the full illustration was visible. Once she saw the wheels she immediately changed one of her choices.</p> <p>One student commented on the picture of the truck, saying it wasn't really a truck, it was a ute. Nevertheless, unlike the 3 unsuccessful students who commented on the truck not being a truck she still chose D as an option.</p>	<ul style="list-style-type: none"> Methodically referring to each option and comparing it to the illustration. 	<ul style="list-style-type: none"> Comparing and analysing text and illustration
8 (5/10)	<p>The responses from successful students each related their own personal understanding of the word 'handy' as opposed to anything specific in the text. One of these students said that the concept of 'handy buyers' confused her. Most of the correct responses were vaguely correct as opposed to being accurate. When one of these students was asked, after providing her response, whether her father or mother were handy she was very clearly able to explain what the word meant.</p>	<ul style="list-style-type: none"> Drawing on own understandings. 'Handy buyer' needed to be understood in the context of the text. However, students who answered correctly used prior understanding of the word to answer the item rather than information in the text. 	<ul style="list-style-type: none"> Use of own knowledge/understanding of topic/issue
9 (5/10)	<p>Successful students substituted the words provided in the options to see what made sense in regard to washing. These students seemed to have better decoding skills and were not as worried about words that they did not understand as those who were unsuccessful.</p>	<ul style="list-style-type: none"> Word substitution 	<ul style="list-style-type: none"> Word substitution
10 (7/10)	<p>Successful students confirmed their choices by returning to the text for at least one of the options. Once one, and then two of the options were aligned, the last was clear and generally just needed to be confirmed. In most cases it was the bed that was left to last.</p> <p>'Mushrooms being used to sit on' was generally the first to be connected as they could recall this fact quickly.</p> <p>They were less certain about the other two.</p>	<ul style="list-style-type: none"> Use of accumulated understanding and confirmation of last choice by returning to the text if necessary. 	<ul style="list-style-type: none"> Recall of facts and checking against the text.
11 (0/10)	<p>No student answered this item correctly.</p>		
12 (6/10) Inter-textual Item	<p>Successful students were generally very clear about the fact that the houses were both very small and that Wendy and the owners of the tiny houses would need to be happy with few possessions.</p> <p>They had no difficulty in zoning in on option B.</p>	<ul style="list-style-type: none"> Use of accumulated understanding of the text Drawing on general understanding the main ideas of both texts and eliminating the distractors not mentioned in the texts. 	<ul style="list-style-type: none"> Drawing on general understanding of the main ideas of both texts and eliminating the distractors not mentioned in the texts.
13 (6/10) Inter-textual Item	<p>Successful students had no difficulty seeing that the small size of both homes was a key idea in both texts.</p> <p>One student was more lateral in her approach and referred to the wood in the tree and wood also being used to build a house.</p>	<ul style="list-style-type: none"> Identifying a key idea that is common to both texts and being able to state what this is in a constructed response. 	<ul style="list-style-type: none"> Identifying a key idea that is common to both texts

3.1.3 Year 5 Students

Table 2: Year 5_Summary of strategies/processes/understandings used by successful students to answer each item

Item / Number of correct responses	Summary _Year 5	Most frequently used strategies	Key skill(s) used
1 (8/10)	<p>Although 8 students answered this item correctly, 6 of these did not understand what 'ominous' meant and hence did not consider this option. 3 also did not understand what 'majestic' meant. This resulted in these three students choosing from the two remaining options and narrowing down to B after discounting D since there was nothing in the text about this. (These 3 students may have been advantaged by not knowing what 'ominous' and 'majestic' meant and having the good fortune that neither of these was the key. These 3 students may have answered this item correctly by default.)</p> <p>Successful students also made a connection between 'surroundings' and 'camouflage'.</p>	<ul style="list-style-type: none"> • Understanding key vocabulary (the meaning of camouflage, majestic and ominous) was central to answering this item correctly. • Making a connection between 'surroundings' and 'camouflage'. 	<ul style="list-style-type: none"> • Elimination of least implausible option.
2 (7/10)	<p>Successful students generally identified the relationship between 'absurd' in the text and 'wouldn't believe' in the key. Some students used personal knowledge of art and artists in their analysis of which was the correct answer and returned to the relevant section of text to confirm their choices. Two successful students cited 'conventions' as an unknown word and hence discounted this option, and interpreted 'initially' to mean 'instead', or dismissed it as unimportant.</p>	<ul style="list-style-type: none"> • Use of personal knowledge of drawing and artistic temperament • Understanding that 'absurd' and 'wouldn't believe' are related concepts. 	<ul style="list-style-type: none"> • Linking synonymous concepts
3 (9/10)	<p>Most frequently students eliminated A because of their belief that no matter what, the animal would be making some noise as it moved through the leaves. Some perceived 'carefully' to encompass 'silently' and 'confidently' and some did not understand what 'stealthily' meant so did not consider this option.</p>	<ul style="list-style-type: none"> • An analysis and systematic elimination of options using knowledge of subtle differences between words 	<ul style="list-style-type: none"> • An analysis of the subtle differences in meaning of each word used in the options.
4 (4/10)	<p>Successful students understood that 'vocalisation' related to talking or communication and that communication was important. Hence A and D were ruled out. Most of these students did not have a clear understanding of 'sophisticated' and 'subtle' and hence out of the two options which referred to the sloths' mode of communication, B was not considered and C remained and seemed correct. One student mentioned that she guessed it was correct.</p>	<ul style="list-style-type: none"> • Understanding of a key word in the key. Logical elimination of least plausible options. 	<ul style="list-style-type: none"> • Understanding of key words. • Correctly interpreting the vocabulary used in the stem and options.
5 (1/10)	<p>Despite not knowing what 'docile' meant, the successful student eliminated each distractor one by one and felt that as the others didn't make sense, A must be correct.</p>	<ul style="list-style-type: none"> • Despite not knowing the meaning of a key word in the key, the elimination of least plausible options led to only the key remaining. 	<ul style="list-style-type: none"> • Analysing and evaluating • Elimination of implausible options.
6 (4/10)	<p>Successful students analysed each distractor against their understanding of the poem and systematically eliminated each until they were left with the key. Two of these students had a good understanding of what was meant by 'conflict', the other two less so.</p>	<ul style="list-style-type: none"> • Analysing and eliminating options. • Making connections between personal understanding of what was involved in conflict and anger management and the poem. 	<ul style="list-style-type: none"> • Analysing and evaluating • Elimination of implausible options.

7 (4/10)	Despite generally not understanding two of the key words, such as 'provoke' and 'fester', the successful students worked through the less plausible options to arrive at the key. One of the successful students understood all of the vocabulary and gave clear reasons for eliminating each option and choosing the key. Her final decision was that 'fester' was synonymous with 'letting anger grow'.	<ul style="list-style-type: none"> Analysing and evaluating Elimination of implausible options. 	<ul style="list-style-type: none"> Analysing and evaluating Elimination of implausible options.
8 (7/10)	Successful students generally worked through their own understanding of 'fear' and 'anger' (what they had learned in class) and hence eliminated A and B. This left them with C and D. Successful students were able to see that 'fear' and 'anger' were not the same but that they did go together. i.e. they are 'kind of the same thing'.	<ul style="list-style-type: none"> Use of own understanding of conflict management and an ability to interpret 'go together' as meaning that there is some relationship between the two and not necessarily that they are the same. 	<ul style="list-style-type: none"> Understanding of conflict management
9 (5/10)	Successful students worked through the options and despite not knowing all of the vocabulary used in the options, managed to find a reasonably valid reason for choosing the key. Some connected 'abbreviation' with symbols. One of these responses started out as a hunch, i.e. despite the student not knowing what 'elaborate' meant, he decided that the others were incorrect and that 'abbreviated' must be right. He subsequently connected the word 'abbreviated' with symbols. Another explained his thinking by saying that the messages needed to be short because poor weather could 'damage' or 'delay' the messages if they were long.	<ul style="list-style-type: none"> Understanding an adjective used in the key Finding the synonymous relationship that the key has with one of the text's main foci. 	<ul style="list-style-type: none"> Understanding of vocabulary
10 (5/10)	Only one of the successful students immediately identified the link between the item and the text. Most of the other successful students eliminated the options relating to convict behaviour and then considered why the system was dangerous. i.e. they saw a clear connection between the stem and the two more plausible options.	<ul style="list-style-type: none"> Identifying a connection between the stem and the two more plausible options and subsequently eliminating the remaining distractor 	<ul style="list-style-type: none"> Identifying a relationship between the options and analysing these options against the stem
11 (8/10) 1 by default	Most successful students could easily see the synonymous connections between the question, key and last paragraph and referred to the last paragraph to confirm their choice. One student seemed to answer the item by default i.e. she interpreted the question as a negative statement and chose C because it contained a negative word. (fails).	<ul style="list-style-type: none"> Identification of synonymous relationship Confirmation with text 	<ul style="list-style-type: none"> Identifying synonymous concepts using analysis and comparison.
12 (8/10) 1 by default	Most of the successful students understood that 'invitation to transmit' meant that they were ready to receive a message. One student may have answered the question correctly by default i.e. she did not understand vocabulary in B and C and out of the remaining two, after eliminating A=rest. D was the only remaining option.	<ul style="list-style-type: none"> Location of relevant information and interpretation of diagrammatic text Understanding of the meaning of 'invitation to transmit' 	<ul style="list-style-type: none"> Understanding of the meaning of 'invitation to transmit' Interpreting, analysing and comparing
13 (8/10) 1 by default	Three of the successful students used strategies which indicate that they were looking for the 'likely' text as opposed to the 'least likely' text. However, they returned to the stem during the process and self-corrected. One student seemed to answer the question correctly by default since he had interpreted 'Semaphore' as a 'conveyor belt' with which you would be unlikely to have fun with. Another student also seemed to answer by default, commenting on C as being in a different tense and not being factual.	<ul style="list-style-type: none"> Reference to the word 'fun' as being significant in choice. i.e. The main text was not about having fun Categorisation of text as being 'factual' and not a 'personal' or narrative style of writing. Self-correction 	<ul style="list-style-type: none"> Analysis and matching

3.1.4 Year 7 Students

Table 3: Year 7 _Summary of strategies/processes/understandings used by successful students to answer each item

Item / Number of correct responses	Summary _Year 7	Most frequently used strategies	Key skill(s) used
1 (8/10)	While eliminating the distractors successful students commented on what was not mentioned in the text. Some students eliminated on the basis that the paired words were contradictory while others felt that contradictory combinations were possible. One student did not understand many of the words but finally decided that 'agile', which was one of the words in the key, described the swans.	<ul style="list-style-type: none"> Knowledge of key vocabulary Elimination of options not mentioned in the text. 	<ul style="list-style-type: none"> Comparing options to know facts in text
2 (6/10)	Most students discounted at least one of the options on the basis of not knowing what the word meant or that the word did not apply to this context. Most students settled on 'paddle' because it sounded like 'dabble' in the text or there was some other relationship that they felt existed between these words.	<ul style="list-style-type: none"> Elimination of distractors on the basis of known vocabulary and concepts. 	<ul style="list-style-type: none"> Understanding of vocabulary used in the options and being able compare them with this text.
3 (8/10)	Five students immediately zoned in on A on the basis of the description being imprecise and then continued to justify their choice by pointing out why the distractors were wrong. The others generally eliminated B first and then D because they did not relate to a physical description of the swan and were not mentioned in the text. One of these students did not understand 'inexplicable' and discounted this option.	<ul style="list-style-type: none"> Understanding of the stem and what they had read in the text. 	<ul style="list-style-type: none"> Elimination of options based on own knowledge of the text.
4 (8/10)	Successful students immediately discounted C and D on the basis of what they had read and the fact that they never perceived the cygnets as defenceless or that their parents showed little interest. The choice between A and B generally came down to identifying the cygnets as independent. One student looked for characteristics that any normal parent would exhibit.	<ul style="list-style-type: none"> Elimination of the two least plausible options and choosing between the remaining options. 	<ul style="list-style-type: none"> Elimination of the two least plausible options and choosing between the remaining options.
5 (9/10)	Despite generally not knowing what 'squadron' meant, most of the successful students made the connection between 'nocturnal' and flying at night. These students eliminated the distractors on the basis that the formation was not parallel, or in a grid and that the swans did not hover.	<ul style="list-style-type: none"> Making the synonymous link between 'nocturnal' and flying at night. 	<ul style="list-style-type: none"> Making the synonymous link
6 (4/10)	The successful students were able to zone in on key words within the distractors and justify why they were incorrect. i.e. the explorers were not dismayed (too negative), delighted (too positive) or fearful. A 'delighted' was generally discounted first.	<ul style="list-style-type: none"> Understanding the meaning of words used in the options Ability to apply this knowledge to the context within the text. 	<ul style="list-style-type: none"> Ability to apply vocabulary knowledge to the text
7 (7/10) Inter-textual Item	Most students chose B quickly on the basis that passage 1 was factual. To justify their choice they eliminated the distractors by citing at least one of the adjectives as not being applicable to these texts.	<ul style="list-style-type: none"> Identifying a key word in the key as being correct Text analysis Elimination of distractors 	<ul style="list-style-type: none"> Vocabulary knowledge and text analysis

8 (8/10)	All of the students immediately discounted A as an option as they could see that there were no choices involved. C and D were discounted as being implausible and the key remained. B was not the obvious choice in the first instance. i.e. Students worked through the options.	<ul style="list-style-type: none"> Discounting of least plausible options. 	<ul style="list-style-type: none"> Discounting of least plausible options.
9 (9/10)	Most students chose the key on the basis that there was a clear reference in the text to 'folklore' and they connected this with 'culture'. Successful students generally understood all the vocabulary used in the options.	<ul style="list-style-type: none"> Ability to make a connection that has a clear reference in the text. 	<ul style="list-style-type: none"> Identification of related themes in two texts
10 (10/10)	Successful students eliminated implausible options to arrive at the key. The students who did not understand the meaning of 'inevitable' discounted it in the first instance but later felt that D was obviously correct. 'Monstrous' was dismissed immediately as being incorrect. Two students chose the key prior to eliminating the distractors to justify their choice.	<ul style="list-style-type: none"> Elimination of implausible options. 	<ul style="list-style-type: none"> Elimination of implausible options.
11 (10/10)	Most of the students commented on the distractors as being relevant to passage 1 not passage 2. Most students immediately saw the key as standing out as the correct answer because of its cultural element. They clearly saw the distractors as being related to the swan's physical aspects.	<ul style="list-style-type: none"> Identification of key element of related texts. i.e. cultural theme. 	<ul style="list-style-type: none"> Identification of related texts
12 (6/10)	Successful students generally saw A and C as being feasible but felt that the first line in the text was about the swan's dignified manner so the key was quite obviously correct. i.e. majestic was linked to stately sailing.	<ul style="list-style-type: none"> Understanding of the synonymous concepts in the poem and the item.. 	<ul style="list-style-type: none"> Understanding of the synonymous concepts
13 (8/10)	Successful students efficiently identified the key by eliminating options which contained at least one word which they could see did not relate at all to swans. I.e. 'inefficient', inflexible, cumbersome and awkward. Most students referred to feet as being practical and saw this a key factor in choosing the key.	<ul style="list-style-type: none"> Eliminating options which contained descriptions that do not apply 	<ul style="list-style-type: none"> Eliminating options which contained descriptions that do not apply
14 (3/9)	The three successful students zoned in on the word 'fierce'. Two students immediately looked for the option which was opposite to this while the other identified each distractor as being synonymous with being fierce in some way and hence then arrived at the key as being the opposite.	<ul style="list-style-type: none"> Identifying the need to identify an opposite characteristic and methodically applying strategies to do this. 	<ul style="list-style-type: none"> Identifying the need to identify an opposite characteristic and methodically applying strategies to do this.
15 (7/9) Inter-textual Item	Successful students efficiently identified the key by eliminating options which contained information which was not referred to in both texts. A was eliminated immediately as a distractor which was not referred to in either text. These students used an accumulated understanding of what the main essence of each text was to eliminate the distractors.	<ul style="list-style-type: none"> Eliminating options which did not apply to either or both texts. 	<ul style="list-style-type: none"> Eliminating options which did not apply to either or both texts.
16 (2/9) by default Inter-textual Item	Although two students selected the key. Their responses clearly showed that they did not understand what 'enigmatic' meant.	<ul style="list-style-type: none"> Guessing 	<ul style="list-style-type: none"> Guessing

3.1.5 Year 9 Students

Table 4: Year 9_Summary of strategies/processes/understandings used by successful students to answer each item

Item / Number of correct responses	Summary _Year 9	Most frequently used strategies	Key skill(s) used
1 (9/10)	Some of the successful students applied filters to their answering strategies. i.e. they discounted any options that were negative on the basis that the scene was pleasant. In choosing between the remaining options, students generally commented on the fact that the scene was not magical as it was not unreal. Students had gained a good 'feel' for what was being described. Although 'foreboding' and 'physicality' were unfamiliar words to 3 students they were able to draw upon existing related understandings which were enough to keep them on the right track.	<ul style="list-style-type: none"> Discarding of options that did not fit the setting 	<ul style="list-style-type: none"> Ability to immediately discard options that did not fit
2 (7/10)	Successful students were able to analyse the text in terms of what the author was hoping to convey. These students also analysed the options to differentiate between them and subsequently use them as a means of justifying their initial choice. I.e. they used the options to their advantage as they made them consider alternatives and think more deeply.	<ul style="list-style-type: none"> Ability to analyse the stem and text and go beyond literal interpretation. 	<ul style="list-style-type: none"> Ability to analyse the stem and text and go beyond literal interpretation.
3 (9/10)	Successful students analysed the description in depth. Some did this purely on recall while others revisited the text to confirm their interpretation of the two characters. The character study which ensued was quite precise with each student discarding the descriptions which were out of sync with the text.	<ul style="list-style-type: none"> Vocabulary knowledge and ability to analyse characters 	<ul style="list-style-type: none"> Vocabulary knowledge and ability to analyse characters
4 (8/10)	Successful students analysed the item and the text to find the best answer. Most students chose C initially and then proceeded to justify their choice. Most students described the girl as being 'negative' hence they also saw the relationship between 'carefree' and 'pre-occupation'.	<ul style="list-style-type: none"> Analysis of options and text 	<ul style="list-style-type: none"> Elimination of the two least plausible options and choosing between the remaining options.
5 (7/10)	The stem required students to select the option that 'best describes', Successful students were able to select the better of two very close options through a detailed analysis of her characterisation. Students returned to the text frequently to confirm their choice and to justify the elimination of the distractors.	<ul style="list-style-type: none"> Analysis of stem to understand what was required careful and detailed analysis of the characterisation of the girl. 	<ul style="list-style-type: none"> Analysis of stem and text
6 (7/10)	Students identified the key word in the stem and quickly zoned in on either A or D as the answer with 3 students indicating that A was the obvious answer. Students analysed the text to show that the distractors did not reflect the key issue.	<ul style="list-style-type: none"> Understanding the focus of the stem analysing the text to identify the main issue. 	<ul style="list-style-type: none"> Understanding the focus of the stem analysing the text to identify the main issue
7 (8/10)	Most students used a word substitution strategy to identify the best fit. Most felt that option B could also replace the word 'understand' but that in this context D was the correct answer. Almost all student said that D, (recognise) was synonymous with 'understand'.	<ul style="list-style-type: none"> Word substitution Text analysis 	<ul style="list-style-type: none"> Word substitution Text analysis

8 (7/10)	Most students correctly interpreted the 'argument' of the text as being synonymous with the author's point of view. Those who were clear about the fact that the author believed that those with few possessions were the happiest the choice of correct option was straightforward.	<ul style="list-style-type: none"> Understanding the author's point of view text analysis. 	<ul style="list-style-type: none"> Understanding the author's point of view text analysis.
9 (3/10)	Two of the successful students found this item easy and thought that the answer was obvious. Although one of these students did not understand the meaning of 'vindictive' the rest of this option was not considered to be quite right. The other two categorised the options and then eliminated them on that basis.	<ul style="list-style-type: none"> Categorisation of options and understanding of text 	<ul style="list-style-type: none"> Categorisation of options and understanding of text
10 (9/10) Inter-textual Item	Most students identified 'envy' as relating to the girl in text 1. They appeared to have little trouble in also making the connection between envy and the 'accumulation of wealth' even though this was not as obvious as that relating to the girl. These students were also clear about which options only related to one text. Most students relied on recall with some referring back to the text to scan and locate concepts such as 'consequences'.	<ul style="list-style-type: none"> Connecting accumulated understand of texts with analysed options. 	<ul style="list-style-type: none"> Making connections between accumulated knowledge of the text and the options Analysing options
11 (9/10) Inter-textual Item	The answer was very obvious to most of the successful students. These students understood the stem and immediately analysed each text and evaluated them in terms of them being able to reveal the nature of readers.	<ul style="list-style-type: none"> Understanding of key concept in stem text analysis 	<ul style="list-style-type: none"> Understanding of key concept in stem text analysis
12 (10/10) Inter-textual Item	Successful students quickly scanned and located the section of text relating to the question. Some had heard the saying before and the answer was obvious to most students. One of the students made an educated guess. Two students answered the item using recall.	<ul style="list-style-type: none"> Matching understanding of the saying with the correct text. 	<ul style="list-style-type: none"> Matching understanding of the saying with the correct text.
13 (5/10)	Successful students analysed one of the texts and used it to anchor their thinking to one of the descriptors in the options. Once they had made a match they confirmed the other using the same process.	<ul style="list-style-type: none"> Text analysis Matching 	<ul style="list-style-type: none"> Text analysis Matching
14 (3/10) 1 by default	Two of the successful students had a clear understanding of what 'democratic' means and gave very clear, logical reasons for their choice of answer. One of the successful students did not understand the meaning of 'democratic'. i.e. she thought that it meant demonstrates and justified her answer accordingly.	<ul style="list-style-type: none"> Knowledge of vocabulary used in options. 	<ul style="list-style-type: none"> Knowledge of vocabulary used in options.
15 (3/10)	Successful students analysed the text to make the link with 'learning' as opposed to 'talent' which was the more obvious answer. These students also identified the relationships that exist between the concepts behind the effort that goes into learning, chance and 'application'.	<ul style="list-style-type: none"> Analysis of text Comprehension 	<ul style="list-style-type: none"> Analysis of text Comprehension
16 (7/10) Possibly more than half by default. Inter-textual Item	Most students found this item difficult. Some of the responses seem to indicate that some students may have chosen text 3 because it had been repeated twice in the options while others chose text 3 because of its reference to art. Only two of the arguments provided were logical and convincing. Successful students promptly identified text 1 as being a good fit. Some eliminated 4 and then scanned and re-read the texts to arrive at the correct response.	<ul style="list-style-type: none"> Identifying the most obvious text. Making a connection with the word 'art' in the stem and text 3. 	<ul style="list-style-type: none"> Identifying the most obvious text. Making a connection with the word 'art' in the stem and text 3.

3.2 What strategies/processes/understandings were used by students who got the item wrong and what led students to this response?

3.2.1 The strategies/processes/understandings that unsuccessful students used to answer each of the items within the four Reading testlets are summarised in Appendix 4: *Strategies and processes used to answer each item*. These summaries show that in answering the range of items within their specific testlet:

1. Unsuccessful Year 3 students generally:
 - were unsuccessful in decoding unfamiliar words
 - did not consider options which contained unknown vocabulary,
 - misunderstood key words and worked through the options using this misunderstanding.
 - due to a lack of skills, failed to analyse the stem in enough detail to fully understand the nuances of the question,
 - focused on words within the stem and option which were not key to their meaning,
 - were unable to fully conceptualise and became confused with information presented in the text and their own understandings of the issue
 - rarely went back to consider an option that they had initially dismissed.
 - did not accurately analyse options against the text. This was particularly important for students who had gone off track with their thinking and needed to refocus.
 - appeared quite lax in their approach to the test and did not confirm their choice against the text.
2. Unsuccessful Year 5 students generally:
 - did not consider options which contained unknown vocabulary,
 - became confused with information presented in the text and their own understandings of the issue
 - rarely went back to consider an option that they had initially dismissed.
 - did not accurately analyse options against the text.
 - did not confirm their choices against the text.
3. Unsuccessful Year 7 students generally:
 - were at times influenced by concepts and vocabulary presented in previous items and made assumptions based on this information and that in the text.
 - brought irrelevant personal knowledge into play
 - were attracted by specific word or ideas and were taken off on a tangent in their thinking
4. Unsuccessful Year 9 students generally:
 - Became caught up in trying to validate a particularly appealing distractor.
 - Were unable to decode unknown vocabulary.
 - Chose options which were close but not the 'best fit'
 - Were confused by the vocabulary or concepts

3.2.2 Key finding relating to 3.1 and 3.2:

3.2.2.1 Students at each year level drew on wide-ranging reading skills relating to each of the 4 reading development levels; literal comprehension, interpretation, critical reading and creative reading depending on the specific stimulus texts and the items they engaged with.

Overall however:

- **Year 3 students were generally at the literal and inferred meaning stage of reading development.**
- **Year 5 students demonstrated more evidence of critical and creative reading than did year 3 students, and**
- **Year 7 and 9 students were often proficient at evaluating texts, passing judgement, commenting on accuracy and developing their own ideas stemming from the texts.**

3.3 What processes did students employ to answer inter-textual questions and did students employ different metacognitive processes to answer items stemming from the longer, denser stimulus texts and paired multi texts than they did with the other texts in the testlet?

3.3.1 Although the number of inter-textual items in the study was small, as shown in Table 5: *Summary of strategies/processes/understandings used by students to answer inter-textual items*, differences existed in the strategies and processes (including those of a metacognitive nature) used by students to establish meaning relating to two or more texts which were sometimes dissimilar in style and content.

Successful students generally:

- analysed and compared texts
- synthesised and generalised information relating to linked texts
- made decisions as to whether they needed to return to a previous text to confirm their understanding
- accumulated knowledge and understanding as they completed each task and this often prompted students to look at the text and items from different perspectives.
- gained increased confidence in being able to engage with multi-texts as a result of gaining a broader understanding of a topic through their reading
- required a thorough understanding of a stem as it related to more than one context,
- identified common or related aspects and classified similarities within texts
- often did not return to a text to choose an option or confirm their choice especially where they had read and re-read more than two texts
- drew upon oft extensive personal knowledge bases
- justified their thinking associated with the understanding of both texts

3.3.2 Inter-textual items differed from other items in that students needed to recall or revisit information in two or more related texts.

Successful students generally had the ability to accumulate and retain information from paired and multi-texts and had little difficulty in answering associated inter-textual items. It was evident that at times, engaging with an item made them think more clearly about the context and meaning of a text and this enabled them to build on their original understanding of the text.

3.3.3 As they proceeded through the testlet, Year 7 and 9 students who were presented with multi-text were aware that the texts were related. i.e. It was obvious to students that the three 'Black swans' passages complemented one another. Nevertheless some students were surprised, but not phased when they were required to answer their first inter-textual item, item 7.

The presentation of the '4 Comments on literature' texts suggested that they were related and Year 9 students seemed less surprised about having to answer the inter-textual items relating to these texts.

3.3.4 Some of the inter-textual items required students to identify a common element within two texts. This required students to analyse two texts or analyse their understanding of both texts in order to identify a common key idea. E.g. Year 3 items 12, 13, and Year 9 item 10. In the Year 3 inter-textual item 13 students were required to generate their own response whereas in the other Year 3 inter-textual item and the Year 9 item the options were available for them to choose from.

Alternatively students were required to identify which one of the multi-texts reflected/related to a specific characteristic, E.g. Year 9 inter-textual items 11 and 12, or in the case of Year 9 inter-textual item 16, which two of a set of 4 texts reflected a specific characteristic.

3.3.5 The denser, more complex texts engaged students in a more layered argument and the options were not easily eliminated using logic alone.

This was evident not only in the stimulus texts but also in the item texts which at times contained complex distractor vocabulary. Often this required students to infer meaning, analyse, think more deeply about the range of possibilities available to them and self-correct once clarity was reached.

These strategies were particularly obvious in regard to items relating to Year 7 Passages 1 and 2 as students presented their explanations and arguments.

- 3.3.6 The study showed that the items drove the thinking relating to the comprehension of the texts and that the understanding of complex and dense texts depended on students having a range of filters on hand through which they could narrow down the variables under consideration together with an understanding of the vocabulary being used in the options. Students who had been taught to use filters in their analyses had a distinct advantage over those who did not. Understanding of option vocabulary was particularly important in the answering of Year 9 items 1, 5, 14 and Year 7, item 7.
- 3.3.7 Most students had a good understanding of the concepts of fear and anger and were able to answer Year 5, item 8 without referring to the complex text.
- 3.3.8 Elicitation skills similar to those required to work through complex or multi-texts were required in the answering of single-text items which contained lengthy options. E.g. Year 3, items 2, 7, and 11.

3.3.9 Key finding

- 3.3.9.1 ***The skills that students used to answer items stemming from the longer, denser stimulus texts and paired multi texts included analysing, comparing and synthesising information, identifying common key ideas, deduction, logical processing and rationalising, and justifying. These skills were employed at a different levels and in different ways when applied to these contexts as opposed to the less complex texts.***

Table 5: Summary of strategies/processes/understandings used by students to answer inter-textual items

Item / Number of correct responses	Summary	Most frequently used strategies	Key skill(s) used
<ul style="list-style-type: none"> • • Year 3 • 			
12 (6/10) Inter- textual Item	Successful students were generally very clear about the fact that the houses were both very small and that Wendy and the owners of the tiny houses would need to be happy with few possessions. They had no difficulty in zoning in on option B.	<ul style="list-style-type: none"> • Use of accumulated understanding of the texts • Drawing on general understanding the main ideas of both texts and eliminating the distractors not mentioned in the texts. 	<ul style="list-style-type: none"> • Drawing on general understanding of the main ideas of both texts and eliminating the distractors not mentioned in the texts.
13 (6/10) Inter- textual Item	Successful students had no difficulty seeing that the small size of both homes was a key idea in both texts. One student was more lateral in her approach and referred to the wood in the tree and wood also being used to build a house.	<ul style="list-style-type: none"> • Identifying a key idea that is common to both texts and being able to state what this is in a constructed response. 	<ul style="list-style-type: none"> • Identifying a key idea that is common to both texts
<ul style="list-style-type: none"> • • Year 7 • 			
7 (7/10) Inter- textual Item	Most students chose B quickly on the basis that passage 1 was factual. To justify their choice they eliminated the distractors by citing at least one of the adjectives as not being applicable to these texts.	<ul style="list-style-type: none"> • Identifying a key word in the key as being correct • Text analysis • Elimination of distractors 	<ul style="list-style-type: none"> • Vocabulary knowledge • Text analysis
15 (7/9) Inter- textual Item	Successful students efficiently identified the key by eliminating options which contained information which was not referred to in both texts. A was eliminated immediately as a distractor which was not referred to in either text. These students used an accumulated understanding of what the main essence of each text was to eliminate the distractors.	<ul style="list-style-type: none"> • Eliminating options which did not apply to either or both texts. 	<ul style="list-style-type: none"> • Eliminating options which did not apply to either or both texts.
16 (2/9) by default Inter- textual Item	Although two students selected the key. Their responses clearly showed that they did not understand what 'enigmatic' meant.	<ul style="list-style-type: none"> • Guessing 	<ul style="list-style-type: none"> • Guessing
<ul style="list-style-type: none"> • • Year 9 • 			
10 (9/10) Inter- textual Item	Most students identified envy as relating to the girl in text 1. They appeared to have little trouble in also making the connection between envy and the accumulation of wealth even though this was not as obvious as that relating to the girl. These students were also clear about which options only related to one text. Most students relied on recall with some referring back to the text to scan and locate concepts such as 'consequences'.	<ul style="list-style-type: none"> • Connecting accumulated understand of texts with analysed options. 	<ul style="list-style-type: none"> • Making connections between accumulated knowledge of the text and the options • Analysing options

11 (9/10) Inter-textual Item	The answer was very obvious to most of the successful students. These students understood the stem and immediately analysed each text and evaluated them in terms of them being able to reveal the nature of readers.	<ul style="list-style-type: none"> • Understanding of key concept in stem • text analysis 	<ul style="list-style-type: none"> • Understanding of key concept in stem • text analysis
12 (10/10) Inter-textual Item	Successful students quickly scanned and located the section of text relating to the question. Some had heard the saying before and the answer was obvious to most students. One of the students made an educated guess. Two students answered the item using recall.	<ul style="list-style-type: none"> • Matching understanding of the saying with the correct text. 	<ul style="list-style-type: none"> • Matching understanding of the saying with the correct text.
16 (7/10) Possibly more than half by default. Inter-textual Item	Most students found this item difficult. Some of the responses seem to indicate that some students may have chosen text 3 because it had been repeated twice in the options while others chose text 3 because of its reference to art. Only two of the arguments provided were logical and convincing. Successful students promptly identified text 1 as being a good fit. Some eliminated 4 and then scanned and re-read the texts to arrive at the correct response.	<ul style="list-style-type: none"> • Identifying the most obvious text. • Making a connection with the word 'art' in the stem and text 3. 	<ul style="list-style-type: none"> • Identifying the most obvious text. • Making a connection with the word 'art' in the stem and text 3.

3.4 General observations and results

In addition to the observations and results relating to specific year levels and groups of successful and unsuccessful students identified in sections 3.1, 3.2 and 3.3, interview data revealed the following factors which impacted on students' ability to answer the items correctly.

- 3.4.1** Successful and unsuccessful Year 3 and 5 students who did not understand a specific word within an option and could not decode it using contextual clues generally discounted that option. In most cases the unknown words with which many students struggled were contained in the distractors rather than in the key. In some cases this resulted in students having only two remaining options from which to choose. This led to students arriving at the correct answer for the wrong reasons.

As expected, Year 7 students and especially Year 9 students had a much broader vocabulary knowledge and better decoding skills and were less phased when they encountered unfamiliar words than did the younger students. At times, when the other options seemed implausible, these students chose an option which contained unfamiliar vocabulary. E.g. Some Year 7 students who said that they did not understand the words 'cohort', 'squadron' or 'regiment', but understood that 'nocturnal' was a synonym for 'night' and answered the item correctly. Likewise some Year 9 students, after eliminating less plausible options chose the key for item 1 on the basis that the scene was 'pleasant' rather than on an understanding of the meaning of 'pleasant physicality'.

- 3.4.2** Year 3 students often lacked the skills required to analyse the stem and identify key words. It often appeared as if Year 3 students were reading the stem in the same way that they would read a sentence in a narrative or informative text. This approach resulted in a focus being placed on words within the stem which they understood well or related to and the inability to establish the focus of the item. In some cases, going through the options helped clarify what was being asked but seldom enough to enable them to answer correctly. In some cases the process of justifying their choice resulted in them coming to the point where they had identified the key. However, in most cases these students stuck with their original choice.
- 3.4.3** Year 7 and 9 students often referred to the elimination of options on the basis of the distractors not being mentioned in the text. This went beyond the elimination of options without a direct connection with the text, to the discarding of options which were not synonymous and the analysis, matching and discarding of options without inferred meaning. In most instances these thought processes involved little deliberation, were based on a surprisingly clear understanding of the text, and generally appeared automated.
- 3.4.4** There was a marked difference between the limited range of strategies used by some of the Year 3 students in answering the items and the sophisticated strategies used by some of the Year 9 students.
- 3.4.5** It was noticeable that some year 3 students encountered difficulty with the length of options in some of the items E.g. items 2, 7 and 11 and that by the time they had read four or more options, some became confused with what had actually been asked. Some students became distracted from the task at hand as they made connections with their own understandings of aspects within the options and their own experiences rather than what had been written in the text.
- 3.4.6** There was a marked difference between the limited range of strategies used by some of the Year 3 students in answering the items and the sophisticated strategies used by some of the Year 9 students.

- 3.4.7** There were a number of occasions where successfully answering an item relied on the understanding of sophisticated vocabulary used in the options without there being any clues in the text by which students could deduce the meaning of such words. In these situations it was unclear at times whether the aim was to test understanding of these key words or to test understanding of the text. E.g. Year 7 items 2, 6, 14 and 16.
- 3.4.8** No Year 3 student successfully answered item 11 due to unfamiliar item vocabulary.
- 3.4.9** No Year 7 student successfully answered item 16 due to unfamiliar item vocabulary.
- 3.4.10** Some items were answered by default.
- 3.4.11** Most students read the text first without reading the item in detail, some scanned it prior to reading the text and only one student read the item and then sought to answer it by referring back to only the relevant parts of the text. This student said that he used this strategy regularly and that each time he scanned the text for an answer he increased his understanding of the text. His primary purpose was to answer the question, not to read and understand the text. He did not use this strategy when dealing with poems.

3.5 How does students' perception of item difficulty compare with student performance data?

3.5.1 After completing each item, students were asked to rate their perceptions of the level of difficulty of the item they had just completed.

The question asked was: 'On a scale of 1 to 5, where 1 is very easy, 2 is easy, 3 is average, 4 is a bit challenging but doable, and 5 is difficult, how would you rate this item?'

These ratings are shown below in Table 6: *Level of difficulty rating scale*.

Table 6: Level of difficulty rating scale	
1	Very easy
2	Easy
3	Average
4	Challenging but doable
5	Difficult

3.5.2 The Year 3 cohort

Data related to Year 3 students' perception of item difficulty compared with their performance are shown on page 28 in Table 7: *Year 3 Items_Perceived level of difficulty compared with student score*. An analysis of this data is summarised below.

Year 3 Text 1

As shown below in Figure 1: *Year 3 Text 1_Average perceived item difficulty compared with correct responses*

- The average perceived level of difficulty for all text 1 items (1-8) is: 2.9 (slightly below average)
- The average number of correct responses for all text 1 items (1-8) is: 3.3 / 10.

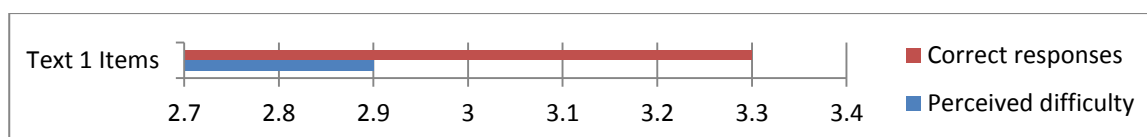


Figure 1: Year 3 Text 1_Average perceived item difficulty compared with correct responses

Year 3 Text 2

As shown below in Figure 2: *Year 3 text 2_ Average perceived item difficulty compared with correct responses*

- The average perceived level of difficulty for all single-text text 2 items (9-11) is: 3.2 (slightly above average)
- The average number of correct responses for all single-text text 2 items (9-11) is: 4 / 10

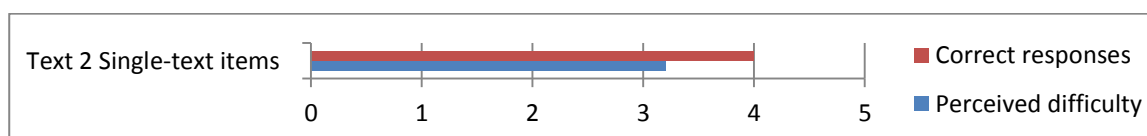


Figure 2: Year 3 text 2_ Average perceived item difficulty compared with correct responses

Year 3 Texts 1 and 2

As shown below in Figure 3: *Year 3 texts 1 and 2_ Average perceived item difficulty compared with correct responses*

- The average perceived level of difficulty for all single-text items in the year 3 Testlet F, (1-11) is: 3.1 (slightly above average)
- The average number of correct responses for all single-text items in the year 3 Testlet F, (1-11) is: 3.7 / 10
- The average perceived level of difficulty for the 2 inter-textual items (12, 13) is: 2.9 (slightly below average)
- The average number of correct responses for the 2 inter-textual items (12, 13) is: 6 /10

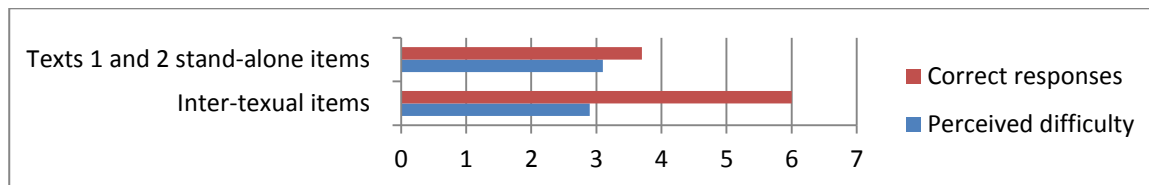


Figure 3: Year 3 texts 1 and 2_ Average perceived item difficulty compared with correct responses

3.5.2.1 Summary of Year 3 analysis

As shown below in Table 8: *Year 3 items_ Average perceived levels of difficulty and number of correct responses.*

1. Although there is only a marginal difference in perceived level of difficulty for the single-text items relating to Texts 1 and 2 and the two inter-textual items, the difference in the number of students who answered each of these sets of items correctly is significant and appears to indicate that the inter-textual items were perceived as being easier than the other (single-text) items in the test.
2. Although Text 1 items and the inter-textual items were perceived as being of the same level of difficulty, 6 students answered the inter-textual items correctly compared with 3.3 for text 1 items.
3. The results for the single-text items for texts 1 and 2 are inversely proportional to their perceived levels of difficulty.
4. Item 11 was perceived to be the most challenging item with a rating of 4.5 (challenging to difficult). There were no correct responses for this item.
5. Item 10 was perceived to be the easiest item with a rating of 2.2 (easy+). There were 7 correct responses for this item.

Table 8: Year 3 items_ Average perceived levels of difficulty and number of correct responses.

Text	Average perceived level of difficulty	Average number of correct responses
Text 1 (8 Single-text items)	2.9 (slightly below average)	3.3
Text 2 (all items)	3.0 (average)	4.8
Text 2 (3 Single-text items)	3.2 (slightly above average)	4,0
Texts 1 and 2 (2 inter-textual items)	2.9 (slightly below average)	6.0
Texts 1 and 2 (all items)	3.0 (average) / 50%	4,1 (41%)

Table 7: Year 3 Items_Perceived level of difficulty compared with student score

Student	1	2	3	4	5	6	7	8	9	10	Average perception of difficulty /Score	Summary
Items relating to Text 1 (Items 1-8)												
Item 1	3	2	3	3	2	3	3	2	4	3	2.8	The four successful students rated this item from easy to challenging. Unsuccessful students rated it as easy to average. On average successful students rated this item as 3.5 in terms of difficulty whereas unsuccessful students on average rated it as 2.5.
Score	1	1	1	0	0	0	0	0	1	0	4	
Item 2	4	3	4	3	3	2	2	3	4	4	3.2	The successful student rated this item as average in terms of difficulty. Unsuccessful students mostly rated it as challenging. Five of the unsuccessful students rated it as easy to average.
Score	0	1	0	0	0	0	0	0	0	0	1	
Item 3	3	2	3	3	3	3	3	4	1	4	2.9	The ratings allocated to this item by successful students varied from very easy to challenging, with most rating it as average. Unsuccessful students rated it as easy to average.
Score	1	0	0	1	0	1	0	1	1	0	5	
Item 4	2	2	2	2	1	4	3	4	2	4	2.6	Most of the successful students rated this item as easy, with one rating it as challenging. Unsuccessful students generally perceived this item to be challenging.
Score	0	1	1	1	1	0	0	0	1	1	6	
Item 5	1	3	3	3	4	3	3	3	3	3	2.9	Most students perceived this item to be of average difficulty. However, only one student answered it correctly.
Score	0	1	0	0	0	0	0	0	0	0	1	
Item 6	4	3	4	4	3	2	3	3	3	3	3.2	Most students perceived this item to be average to challenging in terms of difficulty.
Score	0	1	0	0	0	0	0	0	0	0	1	
Item 7	3	3	2	4	2	5	3	5	4	3	3.4	The overall rating for this item varied from easy to difficult. Successful students perceived it to be easy to average in terms of difficulty.
Score	0	1	1	0	0	0	0	0	0	1	3	
Item 8	3	2	5	3	1	3	4	1	3	3	2.8	There was significant variation in the perception of difficulty of this item, with one of the successful students rating it as difficult and one of the unsuccessful students rating it as very easy.
Score	0	0	1	1	0	0	0	1	1	1	5	
Items relating to Text 2 (items 9-11)												
Item 9	1	2	4	4	2	2	4	3	3	3	2.8	The overall rating by successful students was 2.4. The overall rating by unsuccessful students was 3.2.
Score	1	1	1	0	0	1	0	0	1	0	5	
Item 10	1	1	3	4	2	2	3	2	2	2	2.2	Most students rated this item as very easy to easy. One successful student perceived it to be challenging.
Score	1	1	1	1	0	1	1	0	0	1	7	
Item 11	3	4	5	5	4	5	5	5	4	5	4.5	None of the students were able to answer this question correctly and most perceived it to be a challenging to difficult item.
Score	0	0	0	0	0	0	0	0	0	0	0	
2 inter-textual items relating to texts 1 and 2.												
Item 12**	3	3	3	3	2	4	3	3	3	3	3.0	Most successful students rated this item as average in terms of difficulty.
Score	0	1	1	1	0	1	0	1	1	0	6	
Item 13**	3	2	3	3	2	3	3	2	4	3	2.8	Overall successful and unsuccessful students equally perceived this item as easy to average in terms of difficulty.
Score	1	1	0	1	1	0	0	0	1	1	6	

3.5.3 The Year 5 cohort

Data related to Year 5 students' perception of item difficulty compared with their performance are shown on page 30 in Table 9: *Year 5 Items_Perceived level of difficulty compared with student score*. An analysis of this data is summarised below.

Year 5 Text 1

As shown below in Figure 4: *Year 5 All Texts_Average perceived item difficulty compared with correct responses*

- The average perceived level of difficulty for all text 1 items (1-5) is: 3.0 (average).
- The average number of correct responses for all text 1 items (1-5) is: 6 /10.

Year 5 Text 2

As shown below in Figure 4: *Year 5 All Texts_Average perceived item difficulty compared with correct responses*

- The average perceived level of difficulty for all text 2 items (6-8) is: 3 (average).
- The average number of correct responses for all text 2 items (6-8) is: 5 / 10.

Year 5 Text 3

As shown below in Figure 4: *Year 5 All Texts_Average perceived item difficulty compared with correct responses*

- The average perceived level of difficulty for all text 3 items (9-13) is: 3 (average).
- The average number of correct responses for all text 3 items (9-13) is: 6 / 10.

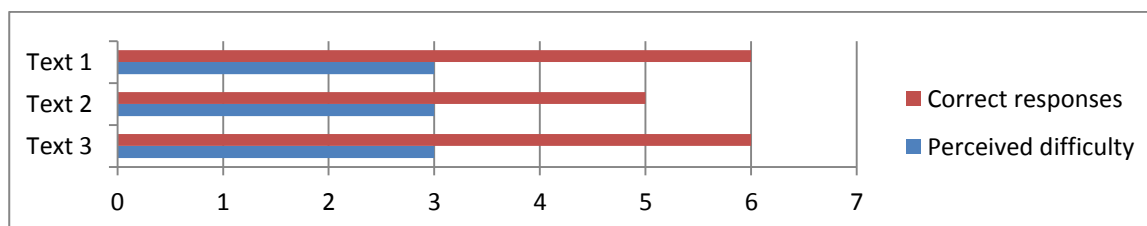


Figure 4: Year 5 All Texts_Average perceived item difficulty compared with correct responses

3.5.3.1 Summary of Year 5 analysis

As shown below in Table 10: *Year 5 items_Average perceived levels of difficulty and number of correct responses*.

- 1 Overall, students rated the Year 5 test items as average in terms of difficulty.
- 2 Although the average student perception of the difficulty of items relating to each of the three texts within the test was evenly distributed, performance data shows that items relating to texts 1 and 3 were easier than those relating to text 2.
- 3 On average, 6 students correctly answered items relating to texts 1 and 3, and 5 students correctly answered items relating to text 2.
- 4 Item 9 was perceived to be the most challenging item with a rating of 3.7 (average to challenging). There were 5 correct responses for this item.
- 5 Item 12 was perceived to be the easiest item with a rating of 1.9 (easy). There were 8 correct responses for this item.

Table 10: Year 5 items_Average perceived levels of difficulty and number of correct responses.

Text	Average perceived level of difficulty	Average number of correct responses
Text 1 (5 Single-text items)	3.0 (average)	6
Text 2 (3 Single-text items)	3.0 (average)	5
Text 3 (5 Single-text items)	3.0 (average)	6
Texts 1,2 and 3 (all items)	3.0 (average) / 50%	5.7 (57%)

Table 9: Year 5 Items_Perceived level of difficulty compared with student score

Student	1	2	3	4	5	6	7	8	9	10	Average perception of difficulty /Score	Summary
Items relating to Text 1 (1-5)												
Item 1	3	4	3	2	3	4	3	4	2	3	3.1	Half of the successful students perceived this item to be of an average level of difficulty while a quarter thought it was easy and a quarter thought it was challenging. The two unsuccessful students perceived it to be average to challenging.
Score	1	1	1	1	1	1	0	0	1	1	8	
Item 2	3	5	2	3	2	3	2	3	2	2	2.7	The perceived level of difficulty among successful students varied widely with most rating it as easy to average and one student rating it as difficult. The student who rated it as difficult did not fully understand the distractors. Unsuccessful students rated this item as easy to average.
Score	1	1	0	1	1	0	1	1	0	1	7	
Item 3	4	2	3	4	2	2	2	2	3	4	2.8	The rating given to this item by successful and unsuccessful students varied between easy to challenging. Half of the students perceived this item to be easy, two rated it as average and three felt it was challenging.
Score	1	1	1	0	1	1	1	1	1	1	9	
Item 4	3	3	4	3	4	3	3	3	3	3	3.2	The rating given to this item by successful and unsuccessful students was average to challenging. Eight of the students perceived this item to be average in terms of difficulty two rated it as challenging.
Score	1	0	1	0	0	0	0	1	0	1	4	
Item 5	3	3	4	2	5	3	3	4	3	4	3.4	The successful student perceived this item as easy despite not understanding the key. The other students rated it as average to difficult in terms of difficulty.
Score	0	0	0	1	0	0	0	0	0	0	1	
Items relating to Text 2 (6-8)												
Item 6	4	2	4	3	2	4	3	4	4	2	3.2	Most successful students perceived this item to be challenging. Unsuccessful students varied widely in their perception of the difficulty level of this item. Most of these students perceived it to be easy to average in terms of difficulty.
Score	1	0	1	0	0	0	0	1	0	1	4	
Item 7	4	3	3	3	3	3	3	4	2	3	3.1	Most students perceived this item to be of average difficulty. One unsuccessful student rated it as easy and 2 rated it as challenging.
Score	1	0	1	0	0	0	0	0	1	1	4	
Item 8	4	4	3	2	2	3	2	2	2	4	2.8	Most successful students perceived this item to be easy. Unsuccessful students generally perceived it to be challenging.
Score	0	0	1	1	1	0	1	1	1	1	7	
Items relating to Text 3 (9-13)												
Item 9	3	4	4	4	5	4	4	4	3	2	3.7	Successful students generally perceived this item to be marginally easier than did the unsuccessful students, who rated it as challenging to difficult. This difference in perception can be attributed to understanding the vocabulary used in the options.
Score	1	0	1	0	0	0	0	1	1	1	5	
Item 10	3	5	4	1	4	3	3	3	3	3	3.2	Most of the students perceived this item to be average in terms of difficulty. One successful student indicated that it was very easy and three unsuccessful students indicated that it was challenging or difficult.
Score	1	0	0	1	0	0	1	1	1	0	5	
Item 11	4	4	3	4	2	3	4	3	2	4	3.3	Most of the students perceived this item to be average to challenging in terms of difficulty.
Score	1	1	1	0	1	1	0	1	1	1	8	
Item 12	2	2	2	1	2	2	2	2	2	2	1.9	All of the students perceived this item to be easy regardless of whether they were successful or not.
Score	1	0	1	1	1	1	1	1	1	0	8	
Item 13	2	3	4	1	2	4	4	2	3	3	2.8	Successful students generally perceived this item to be easy to average in terms of difficulty. Unsuccessful students perceived it to be challenging.
Score	1	1	1	1	1	0	0	1	1	1	8	

3.5.4 The Year 7 cohort

Data related to Year 7 students' perception of item difficulty compared with their performance are shown on page 33 in Table 11: *Year 7 Items_Perceived level of difficulty compared with student score*. An analysis of this data is summarised below.

Year 7 Text 1

As shown below in Figure 5: *Year 7 Text 1_Average perceived item difficulty compared with correct responses*

- The average perceived level of difficulty for all text 1 items (1-5) was: 2.8 (slightly below average).
- The average number of correct responses for all text 1 items (1-5) was: 7.8 / 10.

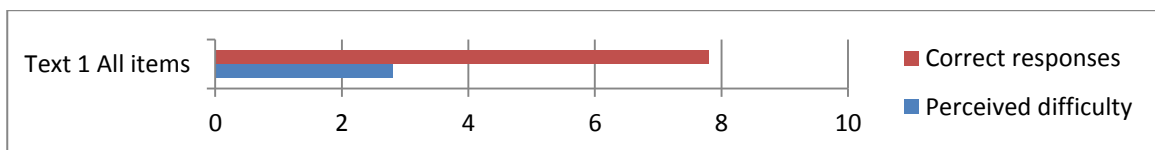


Figure 5: Year 7 Text 1_Average perceived item difficulty compared with correct responses

Year 7 Text 2

As shown below in Figure 6: *Year 7 Text 2_Average perceived item difficulty compared with correct responses*.

- The average perceived level of difficulty for all text 2 items (6-11) is: 2.6 (easy to average).
- The average number of correct responses for all text 2 items (6-11) is: 7.8 / 10.
- The average perceived level of difficulty for the text 2 single-text items (6, 8, 9, 10, 11) is: 2.4 (easy to average).
- The average number of correct responses for the text 2 single-text items (6, 8, 9, 10, 11) is: 8 / 10.
- The average perceived level of difficulty for the one inter-textual item (7) is: 4 (challenging but doable).
- The average number of correct responses for the one inter-textual item (7) is: 7 / 10.

Year 7 Texts 1 and 2

- The average perceived overall level of difficulty for text 1 and 2 single-text items is: 2.5 (easy to average).
- The average overall number of correct responses for text 1 and 2 single-text items is: 7.9 / 10.

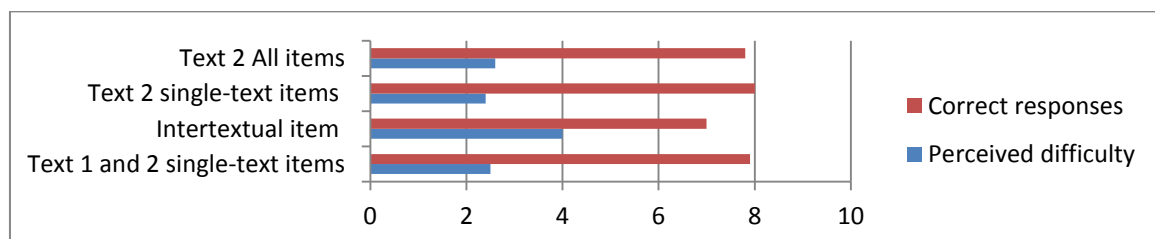


Figure 6 Year 7 Text 2_Average perceived item difficulty compared with correct responses.

Year 7 Text 3

As shown below in Figure 7: *Year 7 Text 3_Average perceived item difficulty compared with correct responses*:

- The average perceived level of difficulty for all text 3 items (12, 13, 14, 15, 16) is: 3 (average).
- The average number of correct responses for all text 3 items (12, 13, 14, 15, 16) is: 5.4 / 10.
- The average perceived level of difficulty for the text 3 single-text items (12, 13, 14) is: 2.8 (slightly below average).
- The average number of correct responses for the text 3 single-text items (12, 13, 14) is: 6 / 10.
- The average perceived level of difficulty for the 2 inter-textual items (15, 16) is: 3.4 (above average).
- The average number of correct responses for the 2 inter-textual items (15, 16) is: 4.5 / 10.

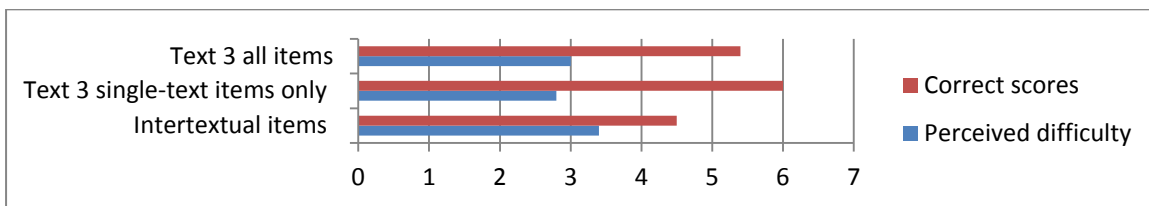


Figure7: Year 7 Text 3 _Average perceived item difficulty compared with correct responses.

3.5.4.1 Summary of Year 7 analysis

As shown below in Table 12: *Year 7 items_Average perceived levels of difficulty and number of correct responses*

1. Overall, students rated the Year 7 test items as below average in terms of difficulty.
2. The three inter-textual items were perceived to be more challenging than the single-text items in this test.
3. Despite item 7, (the inter-textual relating to texts 1 and 2) being perceived as a challenging item, there were 7 correct responses.
4. Items 10 and 11 were perceived to be the easiest item with a rating of 1.9 (easy). All students answered these items correctly.

Table 12: Year 7 items_Average perceived levels of difficulty and number of correct responses.

Text	Average perceived level of difficulty	Average number of correct responses
Text 1 (5 Single-text items)	2.8 (below average)	7.8
Text 1 and 2 (1 inter-textual item)	4.0 (challenging)	7.0
Text 2 (5 Single-text items)	2.4 (easy to average)	8.0
Text 2 (all items)	2.6 (easy to average)	7.8
Text 1,2,3 (2 inter-textual items)	3.4 (average to challenging)	4.5
Text 3 (3 Single-text items)	2.8 (below average)	6.0
Text 3 (all items)	3.0 (average)	5.4
Inter-textual items (3)	3.6 (average to challenging)	5.3
Texts 1,2,3 (all items)	2.8 (below average) / 47%	7.0 (70%)

Table 11: Year 7 Items_Perceived level of difficulty compared with student score

Student	1	2	3	4	5	6	7	8	9	10	Average perception of difficulty /Score	Summary
Items relating to Text 1 (Items 1-5) 1 of 3 multi-texts												
Item 1	3	4	4	3	3	2	4	4	4	3	3.4	Most students perceived this item to be average to challenging in terms of difficulty. The student who found it easy understood the synonyms and quickly eliminated those options which were not mentioned in the text.
Score	1	1	0	1	1	1	1	1	0	1	8	
Item 2	4	2	3	1	2	1	2	3	2	2	2.2	Unsuccessful students perceived this item to be very easy to easy. Most successful students perceived it to be easy to challenging.
Score	1	0	1	0	1	1	1	1	0	0	6	
Item 3	3	3	3	1	3	3	3	3	3	3	2.8	Almost all students perceived this item to be of an average level of difficulty. The student who perceived the item as very easy was confident of his choices despite not being sure what option C meant.
Score	0	1	1	1	1	1	1	0	1	1	8	
Item 4	3	3	4	3	2	4	3	3	3	4	3.2	Most students perceived this item to be average to challenging.
Score	0	1	1	1	1	1	1	1	0	1	8	
Item 5	3	1	2	1	4	1	4	2	2	2	2.2	Most students perceived this item to be very easy to easy. The unsuccessful student focused on some but not all of the key words in the stem and this impacted on her approach and answers.
Score	1	1	1	1	0	1	1	1	1	1	9	
Items relating to Text 2 (items 6-11) 2 of 3 multi-texts												
Item 6	3	4	4	4	3	2	2	2	4	4	3.2	Half of the students perceived this item as challenging.
Score	0	1	0	1	1	0	1	0	0	0	4	
Item 7**	4	2	3	5	5	4	4	4	2	3	4	**Inter-textual item relating to texts 1 and 2. Unsuccessful students perceived this item to be challenging to difficult. Successful students mostly perceived it as challenging.
Score	1	1	1	0	0	0	1	1	1	1	7	
Item 8	4	2	3	1	1	3	2	2	3	2	2.3	Successful students rated this item as very easy to average. One of the unsuccessful students perceived the item to be easy while the others perceived it as average to challenging.
Score	0	1	1	1	1	1	1	1	0	0	7	
Item 9	3	1	2	3	2	3	2	3	3	1	2.3	Most students answered this item correctly and perceived it as very easy to average in terms of difficulty.
Score	1	1	1	1	1	1	1	1	0	1	9	
Item 10	3	1	3	2	1	2	1	2	3	1	1.9	The ratings for this item were evenly spread from very easy to average. All students answered this item correctly.
Score	1	1	1	1	1	1	1	1	1	1	10	
Item 11	3	2	3	1	1	3	2	1	3	2	2.1	The ratings for this item were evenly spread from very easy to average. All students answered this item correctly.
Score	1	1	1	1	1	1	1	1	1	1	10	
Items relating to text 3. 3 of 3 multi-texts												
Item 12	3	3	3	4	2	2	3	3	4	3	3.0	Most students perceived this item to be of average difficulty.
Score	1	1	1	0	1	0	0	1	1	0	6	
Item 13	4	3	3	3	3	2	3	1	3	2	2.7	Most students perceived this item to be of average difficulty.
Score	1	1	0	1	0	1	1	1	1	1	8	
Item 14	D N A	3	4	4	4	3	2	1	1	3	2.8	Although most students perceived this item to be average to challenging some students also perceived it as very easy to easy. One student did not complete the test and did not answer this item.
Score	D N A	0	0	0	1	0	1	1	0	0	3	
Item 15**	D N A	2	3	2	3	2	4	2	3	3	2.7	**Inter-textual item relating to texts 1, 2 and 3. Most students perceived this item as easy to average in terms of difficulty.
Score	D N A	1	1	1	1	0	1	1	0	1	7	
Item 16**	D N A	4	5	4	4	3	4	4	5	3	4	**Inter-textual item relating to texts 1, 2 and 3. Most students perceived this item as challenging to difficult.
Score	D N A	0	0	0	0	0	1	0	1	0	2	

3.5.5 The Year 9 cohort

Data related to Year 9 students' perception of item difficulty compared with their performance are shown on page 36 in Table 13: *Year 9 Items_Perceived level of difficulty compared with student score*. An analysis of this data is summarised below.

Year 9 Text 1

As shown below in Figure 8: *Year 9 texts 1 and 2_Average perceived item difficulty compared with correct responses*

- The average perceived level of difficulty for all text 1 items (1-5) is: 2.9 (slightly below average)
- The average number of correct responses for all text 1 items (1-5) is: 8 / 10

Year 9 Text 2

As shown below in Figure 8: *Year 9 texts 1 and 2_Average perceived item difficulty compared with correct responses*

- The average perceived level of difficulty for all text 2 items (6-10) is: 3 (average)
- The average number of correct responses for all text 2 items (6-10) is: 6.8 / 10
- The average perceived level of difficulty for the text 2 single-text items (6-9) is: 3.1 (slightly above average)
- The average number of correct responses for the text 2 single-text items (6-9) is: 6.3 / 10

Year 9 Texts 1 and 2

As shown below in Figure 8: *Year 9 texts 1 and 2_Average perceived item difficulty compared with correct responses*

- The average perceived level of difficulty for the one inter-textual item (10) is: 2.6 (easy to average)
- The average number of correct responses for the one inter-textual item (10) is: 9 / 10
- The average perceived overall level of difficulty for text 1 and 2 Single-text items is: 3 (average)
- The average overall number of correct responses for text 1 and 2 Single-text items is: 7.4 / 10

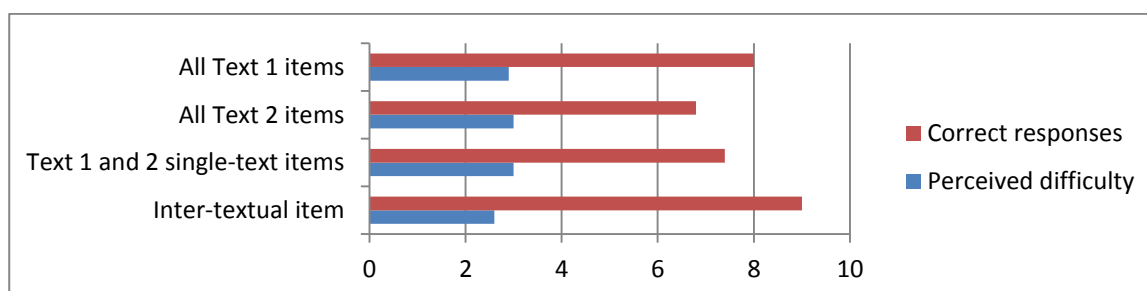


Figure 8: *Year 9 texts 1 and 2_Average perceived item difficulty compared with correct responses*

Year 9 Text 3

As shown in Figure 9: *Year 9 text 3_Average perceived item difficulty compared with correct responses*

- The average perceived level of difficulty for all items (11, 12, 13, 14, 15, 16) is: 3.2 (above average).
 - The average number of correct responses for all items (11, 12, 13, 14, 15, 16) is: 6.3 / 10.
 - The average perceived level of difficulty for single-text items (13, 14, 15) is: 3.5 (average to challenging)
 - The average number of correct responses for single-text items (13, 14, 15) is: 3.7 / 10.
 - The average perceived level of difficulty for the 3 inter-textual items* (11, 12, 16) is: 2.8 (below average).
 - The average number of correct responses for the 3 inter-textual items* (11, 12, 16) is: 9 / 10.
- (*Each of these inter-textual items relate to Text 3 (multi-text))

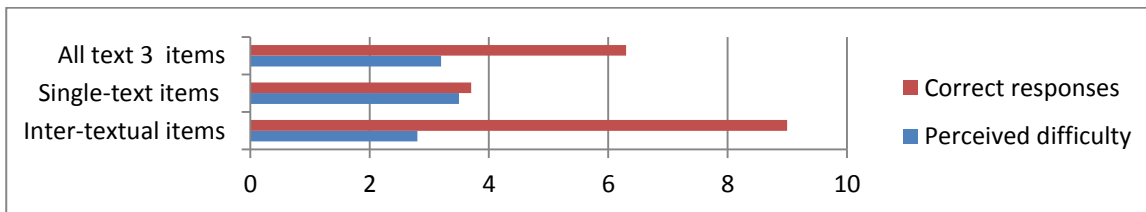


Figure 9: Year 9 text 3_ Average perceived item difficulty compared with correct responses

3.5.5.1 Summary of Year 9 analysis

As shown below in Table 14: *Year 9 items_Average perceived levels of difficulty and number of correct responses*

1. Overall, students rated the Year 9 test items as average in terms of difficulty.
2. The inter-textual item relating to texts 1 and 2 (item 10) was perceived to be easier than the average item and significantly easier than the two inter-textual items relating to text 3.
3. Item 14 was perceived to be the most challenging item with a rating of 4.5 (challenging to difficult).
4. Item 3 was perceived to be the easiest item with a rating of 2.3 (easy+).

Table 14: Year 9 items_Average perceived levels of difficulty and number of correct responses

Text	Average perceived level of difficulty	Average number of correct responses
Text 1 (5 Single-text items)	2.9 (slightly below average)	8.0
Text 1 and 2 (1 inter-textual item)	2.6 (easy to average)	9.0
Text 2 (4 Single-text items)	3.1 (slightly above average)	6.3
Text 3 (3 Single-text items)	3.5 (average to challenging)	3.7
Inter-textual items (3)	2.8 (below average)	9.0
Texts 1,2,3 (all items)	3 (average) / 50%	7.0 (70%)

Table 13: Year 9 Items_Perceived level of difficulty compared with student score

Student	1	2	3	4	5	6	7	8	9	10	Average perception of difficulty /Score	Summary
Items relating to Text 1 (Items 1-5)												
Item 1	3	4	4	1	2	2	4	4	3	3	3.0	Ratings for this item generally ranged from easy to challenging, with most students rating is as challenging.
Score	1	1	1	1	1	0	1	1	1	1	9	
Item 2	4	2	3	2	4	3	3	3	2	2	2.8	Ratings for this item generally ranged from easy to challenging, with most students rating is as average.
Score	1	1	0	1	0	1	1	1	1	0	7	
Item 3	3	3	2	2	1	3	2	2	2	3	2.3	Ratings for this item generally ranged from easy to average with most students rating is as easy.
Score	1	0	1	1	1	1	1	1	1	1	9	
Item 4	5	4	4	2	3	4	3	3	3	5	3.6	Successful and unsuccessful students perceived this is item as ranging between average to difficult.
Score	0	0	1	1	1	1	1	1	1	1	8	
Item 5	3	2	3	3	1	2	2	4	3	4	2.7	Successful students perceived this item as more challenging than unsuccessful students did. Perceptions generally ranged from easy to challenging with most students perceiving it as average.
Score	0	1	1	1	0	1	1	1	0	1	7	
Items relating to Text 2 (items 6-10)												
Item 6	3	3	3	3	3	2	2	4	2	2	2.7	Generally students perceived this item as easy to average.
Score	1	0	1	1	1	1	1	0	1	0	7	
Item 7	2	3	4	2	3	2	3	4	2	4	2.9	Ratings for this item were evenly spread from easy to challenging. Unsuccessful students perceived the item as being slightly more difficult than did the successful students.
Score	1	0	0	1	1	1	1	1	1	0	7	
Item 8	4	3	4	2	4	4	4	4	2	4	3.5	Most successful students perceived this item as challenging with two seeing it as easy. Likewise unsuccessful students generally perceived it as challenging.
Score	1	0	0	1	1	1	1	1	1	0	7	
Item 9	4	2	3	4	5	5	3	4	3	1	3.4	Successful students rated this item from very easy to challenging. Unsuccessful students rated the item from average to difficult.
Score	1	1	0	1	0	0	0	0	0	1	4	
Item 10**	3	3	2	3	3	3	2	2	3	2	2.6	**Inter-textual item relating to texts 1 and 2.
Score	0	1	1	1	1	1	1	1	1	1	9	This item was rated as easy to average by all students.
Items relating to text 3. (4 Multi-texts)												
Item 11**	2	4	5	3	2	1	3	2	2	1	2.5	**Inter-textual item relating to each of the 4 multi-texts. Student 3 who perceived the item as difficult laboured over it and was unsure of whether she had chosen correctly. She found the styles complex and found it hard to make sense of the texts.
Score	1	0	1	1	1	1	1	1	1	1	9	
Item 12**	5	3	4	1	1	4	1	2	2	1	2.4	**Inter-textual item relating to each of the 4 multi-texts. Student 1 who perceived the item as difficult laboured over the item and struggled to find the meaning behind the saying and made an educated guess.
Score	1	1	1	1	1	1	1	1	1	1	10	
Item 13	3	4	3	4	3	3	3	3	4	4	3.4	Most students perceived this item as average to challenging.
Score	0	1	0	0	0	1	1	1	1	0	5	
Item 14	5	5	5	4	5	5	4	3	4	5	4.5	Most students, including those who successfully answered it, perceived this item as challenging and struggled with the vocabulary presented in the options. Successful student were able to relate their understandings of these words with the concepts in the text.
Score	0	0	D N A	0	1	0	0	0	1	1	3	
Item 15	2	3	3	3	1	2	2	4	4	3	2.7	Successful students perceived this item as more challenging than did unsuccessful students.
Score	0	0	0	0	0	0	1	1	1	0	3	
Item 16**	2	4	4	4	2	4	3	4	5	2	3.4	**Inter-textual item relating to each of the 4 multi-texts. Most students perceived this item to be challenging. Three successful student perceived it to be easy. There were only 3 options in this item as B and C were repeated.
Score	1	0	1	1	1	1	1	0	0	1	7	

3.5.6 Successful and unsuccessful student perception

- Of the 80 students who unsuccessfully answered a Year 3 item, 27 (34%) said that they had found the item challenging or difficult.
- Of the 50 students who successfully answered a Year 3 item, 18 (36%) said that they had found the item very easy or easy.
- Of the 52 students who unsuccessfully answered a Year 5 item, 24 (46%) said that they had found the item challenging or difficult.
- Of the 78 students who successfully answered a Year 5 item, 33 (42%) said that they had found the item very easy or easy.
- Of the 45 students who unsuccessfully answered a Year 7 item, 18 (40%) said that they had found the item challenging or difficult.
- Of the 112 students who successfully answered a Year 7 item, 47 (42%) said that they had found the item very easy or easy.
- Of the 49 students who unsuccessfully answered a Year 9 item, 23 (47%) said that they had found the item challenging or difficult.
- Of the 111 students who successfully answered a Year 9 item, 48 (43%) said that they had found the item very easy or easy.

It would be reasonable to expect that unsuccessful students would rate items that they had answered incorrectly as challenging or difficult, and conversely successful students would rate items they had answered correctly as very easy or easy.

The information above shows that there is no such correlation.

In addition to the possibility that some students may have felt confident that they had answered correctly when in fact they had not, some may have been unsure whether they had answered correctly and some may have believed that they had answered incorrectly when in fact they had provided the correct response, researchers noted that:

- successful students who appeared to answer an item relatively easily often rated it at higher level of difficulty than it appeared to the researcher.
- unsuccessful students, particularly in years 3 and 5, sometimes rated an item that had challenged them at a lower level of difficulty than it appeared to the researcher.
- students who generally discounted options which contained unknown vocabulary seemed not to increase their perceived level of difficulty to compensate for this unknown vocabulary.
- the process of justifying their choices appeared to make some students feel more confident than they otherwise might be that they had answered correctly.
- other students, who in a normal testing environment would have quickly answered an item and moved on to the next, confident that they had answered correctly, may have been influenced to rate the item as more difficult than it was for them to answer it due to the time taken to explain their choice.
- successful students sometimes noticed a level of complexity within the item which unsuccessful students did not.

3.5.7 As shown below in Table 15, *Year 3, 5, 7 and 9 Tests_ Average perceived level of item difficulty compared with average number of correct responses* overall the Year 7 test was perceived by students to be slightly harder than the other three tests. However, the average number of correct responses for this test shows that it was equal to the Year 9 test in terms of difficulty and significantly easier than the Year 3 and Year 5 tests.

Table 15: Year 3, 5, 7 and 9 Tests_ Average perceived level of item difficulty compared with average number of correct responses

Test	Average perceived level of item difficulty	Average number of correct responses per item
Year 3		
Text 1	2.9 (slightly below average)	3.3
Text 2	3.0 (average)	4.8
Overall	3.0 (average) / 50%	4.1 (41%)
Year 5		
Text 1	3.0 (average)	6
Text 2	3.0 (average)	5
Text 3	3.0 (average)	6
Overall	3.0 (average) / 50%	5.7 (57%)
Year 7		
Text 1	2.8 (below average)	7.8
Text 2	2.6 (easy to average)	7.8
Text 3	3 (average)	5.4
Overall	2.8 (below average) / 47%	7.0 (70%)
Year 9		
Text 1	2.9 (slightly below average)	6.8
Text 2	3 (average)	6.8 (68%)

3.5.8 Key Findings

- 3.5.8.1** *Perceptions of the difficulty of an item sometimes varied significantly and it did not always follow that successful students perceived an item to be easier than unsuccessful students did.*
- 3.5.8.2** *There is no clear correlation between the individual ratings that students gave each of the items and correct responses.*
- 3.5.8.3** *There is no overall clear correlation between the averaged perceived difficulty of each item and the number of correct responses for that item.*

TEXT- RELATED RESEARCH QUESTIONS

3.6 How did students engage with the longer, denser stimulus texts and the units with paired, multi texts?

3.6.1 A list of the texts used in each year level's Testlet F is presented below in Table 16: *Details of texts and associated items*.

A description relating to each text type is presented within this table. The longer, denser texts and multi-texts are highlighted.

These are:

- Year 3 – 'Tiny Houses' and 'Under the tree'
- Year 5 - 'A Poison Tree' and 'Semaphore'
- Year 7 - 'Black swans'
- Year 9 – 'Four comments on literature'

An analysis of student comments relating to each of the texts used in Testlet F at each of the 4 year levels is provided in Appendix 5: *Testlet F texts_Summary of student comments*.

Table 16: Details of texts and associated items

Year Level	Text	Name of text	Description of text	Associated items	Item type
3	1	Tiny Houses	<ul style="list-style-type: none"> • Informative text • One of two multi-texts 	1-8	Single text
	2	Under the tree	<ul style="list-style-type: none"> • Excerpt from a narrative • Longer, denser and more complex than text 1 • Second of two multi texts 	9-11	Single text
				12-13	Inter-textual (texts 1 and 2)
5	1	Sloths	<ul style="list-style-type: none"> • Informative text 	1-5	Single text
	2	A Poison Tree	<ul style="list-style-type: none"> • Complex poem • Includes vocabulary that is not generally in current use 	6-8	Single text
	3	Semaphore	<ul style="list-style-type: none"> • Informative text • Longer and more complex than text 1 • Contains figures 	9-13	Single text
7	1	Black swans Passage 1	<ul style="list-style-type: none"> • Informative text • One of three multi-texts 	1-5	Single text
	2	Black swans Passage 2	<ul style="list-style-type: none"> • Informative text which adds to text 1 • Second of three multi-texts 	6, 8-11	Single text
				7	Inter-textual (passages 1 and 2)
	3	Black swans Passage 3	<ul style="list-style-type: none"> • Five-line poem with footnote explaining word which is not in general / current use • Third of three multi-texts 	12-14	Single text
				15	Inter-textual (passages 1 and 3)
			16	Inter-textual (passages 1,2,3)	
9	1	North Dormer	<ul style="list-style-type: none"> • Excerpt from a narrative set in the early 1900s 	1-5	Single text
	2	People and possessions	<ul style="list-style-type: none"> • Informative / persuasive text 	6-9	Single text
				10	Inter-textual (text 1 and 2)
	3	Four comments on literature	<ul style="list-style-type: none"> • Multi-text • 4 related poems • Written by Oscar Wilde, Emily Dickson, Alexander Pope, and Lord Byron. 	11-12	Inter-textual (texts 1,2,3,4)
				13-15	Single text
			16	Inter-textual (texts 1,2,3,4)	

3.6.2 Appendix 5: *Testlet F texts_Summary of student comments*, Appendix 6: *Reading Skills Summary*, and Table 17: *Ways in which students engaged with the complex texts, paired texts and multi-texts* below provide details of how the ways in which students approached the single and less complex texts and the more complex, paired and multi texts differ.

These data showed that:

- All of the students could read the more complex texts albeit, at Year 3 and Year 5, with some mispronunciation and the occasional substitution of unknown words with known words.
- Most of the students in each cohort demonstrated an understanding of these texts despite some having difficulties with unfamiliar vocabulary.
- Successful students used their ability to work around denser, longer texts and the items where information was unfamiliar or vocabulary was unknown. They knew when to return to the text for information and took time to re-read, internalise and consolidate information.
- Students were sometimes unaware that texts were paired until they encountered an item which required them to consider both texts. Hence they approached them as single texts E.g. Year 3 texts.
- Students often demonstrated that they were accumulating knowledge when reading related texts by drawing attention to the links they were making between the texts and their own viewpoints or knowledge of the topic or issue.
- Students were more engaged with texts and items they could relate to. In these situations they internalised and identified with the information and were more animated. It was noticeable that they enjoyed doing sections of the test that had personal meaning for them. Some students also commented on the fact that they engaged with the texts that they learned something from.
- When working with multi-texts, successful students displayed the ability to hold main and more complex ideas in their heads as they read, and described, each text. Through analysis of individual texts these students were able to qualify their interpretations and summarise meanings, E.g. in Year 9 'all these texts are about books and writing and are peoples' opinion about books, all are positive about books; none would be anti-book people, they are supportive of writing and literature in general'.

The Year 9 set of texts

- '4 Comments on literature'
Successful Year 9 students visualised, inferred, and compared ideas as they read and re-read the '4 Comment on literature' texts to interpret summarise and confirm meaning. This ability was not evident with those students who described an inability to fully understand the texts or those citing metaphor as confusing. Although this particular set of texts was limited in its capacity to test the comprehension of the cohort generally, it challenged the more proficient students.
The structure of the set was suitable for this year level.
- 'North Dormer'
Generally Year 9 students were confused by the 'North Dormer' text. Students did not fully understand the context and the text presented too many unanswered questions. This seemed to unsettle students who said that their answers were based on assumptions because they found it too difficult to accurately infer from the text.
Some students cited the lack of any clear message within this text as a reason for not feeling engaged with it, and said that it seemed pointless reading it.
The level of complexity of the text was suitable for this Year 9 cohort. However, if similar texts are to be used in future tests, it would be useful for students to be presented with a more comprehensive preamble, for contextual inferences to be clearer, and for the text to contain a more obvious purpose.

- 'People and possessions'
The 'People and possessions' text was engaging and suitable for the year 9 cohort. Students could relate to the point of view being presented and enjoyed learning about new perspectives on this topic.
The level of complexity was generally well pitched for this cohort.
Given that Year 3, 5 and 7 students also said that they were engaged by texts that presented them with new information it would be fair to assume that similar texts would be suitable for these cohorts also. E.g. 'Tiny houses' was cited by Year 3 students as being persuasive and informative.

The Year 7 set of texts.

- 'Black swans' passages 1, 2 and 3
There was a logical connection between the three Year 7 texts and the 'nesting' or 'cumulative' nature of this set seemed to put students at ease.
Successful Year 7 students were able to link related information and clarify the differences in the texts i.e. re passage 11, 'This text is more about culture'.
The poem presented students with a slightly higher and appropriate level of complexity. The poem seemed to 'add value' to the set.
The structure of this set of texts was suitable for this cohort.
Given the level of engagement with this set of texts, and the fact that students were not stressed or confused by the structure, the development of similar sets for the other year levels is suggested.

The Year 5 set of texts

- 'Sloths'
Students engaged with the 'Sloths' text which was generally well pitched in terms of presenting students with a moderate reading challenge. Similar informative texts would be suitable for use with this cohort.
- 'A poison tree'
The 'A poison tree' poem was too complex for the cohort being tested. Very few students understood the metaphor and nuances within the poem and the items failed to accurately test students' comprehension of the poem. The theme of the poem generated discussion of personal issues which seemed inappropriate within the testing context. Poems selected for future testlets should not be open to multiple interpretations and be aligned to each cohort's positive life experiences.
- 'Semaphore'
The multi-text nature of the 'Semaphore' text was suitable for the cohort. However, the text itself seemed to contain too many layers of information. Students found it difficult to retain all of the information in the text and to return to relevant sections when necessary.
The historical nature of some of the information and the fact that to the students the Semaphore system seemed technologically outdated and hence not really relevant in this day and age, added to students' frustration with the text. These issues in themselves added an unnecessary layer of complexity to the task.
A simplified version of this text would be more suitable for this cohort.

The Year 3 set of texts

- 'Tiny houses'
Most Year 3 students found the 'Tiny houses' challenging in terms of concepts and unfamiliar vocabulary. Although most students had a general idea of its contents, the text was generally not fully understood and some students were confused as to whether the text was about real or imaginary houses. This was compounded by the associated illustrations.
Although the text was short, it was too dense for this cohort and contained a lot of inferences which some students challenged. This text highlighted the fact that students are being taught higher order thinking strategies in schools and when these were applied to the 'Tiny houses' texts, they did not always stand up to scrutiny. While reading these texts, students' thinking sometimes took unexpected directions and highlighted valid, alternative interpretations.
The items containing multiple keys highlighted this cohorts' general inability to retain the question,

analyse each option, refer back to the text as required and to select keys from a list of often complex choices. This format was not appropriate for this cohort but is likely to be suitable for the Year 7 and 9 cohorts.

- 'Under the tree'

Although students found the narrative nature of the 'Under the tree' text more engaging than 'Tiny houses', this cohort was also challenged by the concepts and unfamiliar vocabulary within this text. Most students opted to infer meaning and their comments showed that their understanding of the text was fragmented.

Both 'Under the tree' and 'Tiny houses' were difficult texts for the cohort generally but were suitable for the higher performing students in the group.

Although the themes of both texts were suitable, the level of complexity of the texts was too high and it is suggested that slightly simplified versions of similar text types be used in future tests.

Table 17: Ways in which students engaged with the complex texts, paired texts and multi-texts.

Year Level	Text	Name of text	Description of text	Ways in which students engaged with these texts
3	1	Tiny Houses	<ul style="list-style-type: none"> • Informative text • One of two multi-texts 	<ul style="list-style-type: none"> • Reading /re-reading text • Identifying key ideas in paragraphs • Identifying key words/vocab • Inferring meaning • Looking for contextual clues • Linking text to own experiences • Making use of prior knowledge • Guessing vocabulary • Making use of lead sentences, heading and illustration
	2	Under the tree	<ul style="list-style-type: none"> • Excerpt from a narrative • Longer, denser and more complex than text 1 • Second of two multi texts 	<ul style="list-style-type: none"> • Reading of pre-amble, heading and text • Looking for key ideas/ context clues/ images • Identification and paraphrasing of unknown words • Ignoring unknown words • Forming a visual connection /use of imagination.
5	1	Sloths	<ul style="list-style-type: none"> • Informative text 	<ul style="list-style-type: none"> • Expressive reading • Use of prior knowledge • Construction of meaning using imagery(hanging) • Internalising information • Relating known information to text • Summarising main points • Locating words that sound similar to unknown words. • Committing to memory
	2	A Poison Tree	<ul style="list-style-type: none"> • Complex poem • Includes vocabulary that is not generally in current use 	<ul style="list-style-type: none"> • Best guess approach to understanding vocabulary • Word association • Looking for synonyms • Inferring meaning • Construction of concepts • Visualisation/imagery • Use of footnotes/headings • Interpretation of information • Re-reading
	3	Semaphore	<ul style="list-style-type: none"> • Informative text • Longer and more complex than text 1 • Contains figures 	<ul style="list-style-type: none"> • Word substitution • Logical thinking • Identification of key ideas/concepts/words. • Linking ideas with own knowledge • Identification of contexts emerging throughout text • Use of memory and recall • Re-reading to consolidate • Making connections bet ween the text and own experience
7	1	Black swans Passage 1	<ul style="list-style-type: none"> • Informative text • One of three multi-texts 	<ul style="list-style-type: none"> • Skimming of text • Reading to identify and understand facts • Identification of key words/ideas • Confirmation of understanding • Use of contextual clues • Use of visualisation • Looking for synonyms • Re-reading establishing facts

	2	Black swans Passage 2	<ul style="list-style-type: none"> Information text which adds to text 1 Second of three multi-texts 	<ul style="list-style-type: none"> Identifying the addition of the contrasting human element in this passage Use of memory of passage 1 Making connections identifying new information Identifying new vocabulary Looking for synonyms/key words/ideas Use of contextual clues Linking ideas within both passages to provide scaffolding for understanding
	3	Black swans Passage 3	<ul style="list-style-type: none"> Five-line poem with footnote explaining word which is not in general / current use Third of three multi-texts 	<ul style="list-style-type: none"> See relationship with passages 1 & 11 Use of familiar context and accumulated knowledge Visualisation / use of imagery Interpreting vocabulary Re-reading of poem
9	1	North Dormer	<ul style="list-style-type: none"> Excerpt from a narrative set in the early 1900s 	<ul style="list-style-type: none"> Expressive reading Identification of key words/ideas Analysis of characters, events Paraphrasing story Identifying unfamiliar words and their impact on their understanding of the text. Visualisation Skimming text Forming impressions Self-correcting
	2	People and possessions	<ul style="list-style-type: none"> Informative / persuasive text 	<ul style="list-style-type: none"> Identifying key ideas Drawing conclusions Identifying argument Paraphrasing Substitution for unknown words Finding closest meaning Connecting with own experiences Comparing themes T1 ,T2 Reading/re-reading Focusing on questions Committing facts/ideas to memory
	3	Four comments on literature	<ul style="list-style-type: none"> Multi-text 4 related poems Written by Oscar Wilde, Emily Dickson, Alexander Pope, and Lord Byron. 	<ul style="list-style-type: none"> Use of 'best guess' approach to vocabulary Identification of themes Identification of related key ideas in each text Comparing, contrasting and analysing texts Confirmation of understanding Paraphrasing key words and concepts Attempts at understanding use of metaphor Use of memory of complex ideas

3.6.3 Towards the end of each unit students were asked to rate their perceived level of difficulty of the text they had just engaged with.

The same rating scale used to rate perceived item difficulty (as shown on page 26 in Table 6: *Level of difficulty rating scale*) was used to rate each text.

This study considered 'Under the Tree', 'A Poison Tree', 'Semaphore', the third Black Swans passage, and the '4 Comments on literature' as denser, more complex texts than the other texts. These texts are highlighted below in Table 18: *Perceived level of difficulty of each text*.

In terms of perceived level of difficulty:

- Year 3, 5, and 7 students generally rated the denser, more complex texts as being more difficult than the simple, less complex texts.
- Year 9 students generally rated the second text within the '4 Comments on literature' as being harder than each of the other texts and also harder than the other complex '4 Comment on literature' texts.

Table 18: Perceived level of difficulty of each text													
YEAR 3													
	Students	1	2	3	4	5	6	7	8	9	10		
Text	Theme												Av.
1 Informative text - One of two multi- texts	Houses	3	3	3	4	3	3	3	3	2	3		3.0
2 Informative text - Second of two multi texts. (Longer, denser text.)	Houses	3	3	3	4	3	3	4	3	3	4		3.3
YEAR 5													
1 Informative	Sloths	2	4	3	3	4	4	3	3	2	2		3.0
2 (poem-denser than text 1)	Conflict	4	3	4	3	1	3	4	4	4	4		3.4
3 Informative multi- text (with diagrams)	Signalling system	4	4	3	3	4	4	4	3	2	3		3.4
YEAR 7													
1 Informative text	Black swans	2	3	3	2	3	3	3	4	3	3		2.9
2 Informative text	Black swans	3	3	5	2	3	2	3	2	3	3		2.9
3 Poem	Swans	3	4	5	3	3	2	4	5	4	3		3.6
YEAR 9													
1 Excerpt from 1900s narrative	Character study	4	4	4	3	3	2	3	3	2	2		3.0
2 Informative/ persuasive text	Excess	3	4	5	3	2	2	4	2	3	3		3.1
3a OW Text	Literature	3	4	5	3	2	2	4	2	3	3		3.1
3b ED Poem	Literature	5	3	5	4	3	4	3	2	2	4		3.5
3c AP Poem	Literature	2	3	5	3	4	2	1	3	3	4		3.0
3d LB Poem	Literature	2	3	5	2	1	2	2	3	3	1		2.4

3.7 Which texts did the students find most engaging and stimulating and why did they find them engaging?

- 3.7.1 After reading each text and completing each related set of items students were asked to rate the text they had just read using a rating scale of 1-5 where 1 is boring and 5 is very interesting. Table 19: *Level of interest rating scale* below shows the scale against which students rated their level of interest and engagement in each of the texts and the descriptors allocated to these ratings for data analysis and reporting purposes.

Table 19: Level of interest rating scale		
	Terminology used with students	Terminology used for analysis and reporting purposes
1	Boring	Not interesting
2		Low level of interest
3		Moderate level of interest
4		Moderately high level of interest
5	Very interesting	High level of interest

A list of the texts used in each year level's Testlet F and each student's rating in terms of their level of interest in the text together with summarised student comments about what they thought of each text are presented below in Table 20: *Level of engagement with each text*.

This table and the data presented in Appendix 5: *Testlet F Texts _ Summary of student comments* show that:

- Year 3 students perceived the second text as more engaging than the first text. This second text was rated as having a moderately high to high level of interest.
- Year 5 students perceived their third text to be slightly more engaging than the other two. This text was rated as having a slightly more than moderate level of interest.
- Year 7 students perceived the second text to be slightly more engaging than the other two. This text was rated as having a more than moderate level of interest.
- Year 9 students perceived the second text to be slightly more engaging than the other two. This text was rated as having a slightly more than moderate level of interest.
- Overall, the second year 3 text was rated as the most engaging.
- Overall, the first year 9 text was rated as the least engaging.
- Most students found the poems difficult to understand.
- Students who understood the poems generally commented favourably about them.

3.7.2 Key Findings

- 3.7.2.1 ***Students engaged with a text when they were learning something new, could relate to the topic and the text was not too difficult for them to understand.***
- 3.7.2.2 ***Overall, the second year 3 text was rated as the most engaging.***
- 3.7.2.3 ***Overall, the first year 9 text was rated as the least engaging.***

Table 19: Level of engagement with each text

YEAR 3													
Text	Students	1	2	3	4	5	6	7	8	9	10	Av.	Student comments
Text	Theme												
1 Informative text - One of two multi- texts	Houses	3	5	3	3	5	4	5	2	4	5	3.9	<ul style="list-style-type: none"> Related to some of the information in the text. Knew people who lived in small houses Knew of old settler houses in their town which were very small Text provided new information
2 Informative text - Second of two multi texts. (Longer, denser text.)	Houses	4	4	4	4	5	4	5	4	5	4	4.3	<ul style="list-style-type: none"> Learnt new words Has a tree house so related this to text
YEAR 5													
1 Informative	Sloths	4	3	2	4	2	3	2	3	4	4	3.1	<ul style="list-style-type: none"> Knew something about sloths before so familiar with topic Would prefer reading about other animals Learnt new information Quite interesting
2 (poem-denser than text 1)	Conflict	2	4	3	4	2	3	3	3	2	2	2.8	<ul style="list-style-type: none"> Topic studied at school Knew lots about the topic Found poem difficult to understand Not being able to refer to a dictionary or look up unknown words was frustrating Busy trying to understand it A poem for adults, not kids
3 Informative text (with diagrams)	Signalling system	3	3	3	3	3	3	4	3	3	4	3.2	<ul style="list-style-type: none"> Text provided new information Not really interesting Would not read about this at home
YEAR 7													
1 Informative text	Black swans	4	2	3	2	2	2	3	4	4	3	2.9	<ul style="list-style-type: none"> I like birds Didn't know much about this topic so I learnt a lot
2 Informative text	Black swans	4	2	3	4	3	4	3	5	2	4	3.4	<ul style="list-style-type: none"> First passage was a bit more interesting I like my history [his professed love]
3 Poem	Swans	3	3	3	3	3	3	2	5	4	3	3.2	<ul style="list-style-type: none"> Swans are cool and they can attack people.

YEAR 9

<p align="center">1 Excerpt from 1900s narrative</p>	<p align="center">Character study</p>	2	1	4	2	4	3	3	2	3	2	2.6	<ul style="list-style-type: none"> • Story did not develop much • Lots of description • Confesses she has read some books with this type of character as a feature • Straight forward subject. 'old fashioned?' language. Reasonably interesting. • Liked the way writer described town and people in the town. • Not boring but would not go out of my way to read this. It is descriptive. • Text caught my attention but not exciting. • Don't know what's going to happen. Not predictable. • Not really interested in the story - fairly everyday setting and most is about scenery - prefer factual
<p align="center">2 Informative/ persuasive text</p>	<p align="center">Excess</p>	4	1	4	4	4	4	2	3	2	4	3.2	<ul style="list-style-type: none"> • Better text than 'North Dormer'. Not sure why. Not extremely interesting. Perhaps I like it because it is teaching something whereas the previous one was about a girl who was depressed. • Interesting - human nature and its negative side, but <u>not</u> surprising or amazing. • Knew what it was about, the problems. • Interested in this topic.
<p align="center">3 4 Comments (3 poems)</p>	<p align="center">Literature</p>	3	1	1	1	3	3	4	4	4	4	2.8	<ul style="list-style-type: none"> • Might be interesting if I knew what they meant. • Not into this type of literature-opinions and language puts me off. • Did not really appeal to me and did not learn anything from reading the 4 comments. • Interesting to see people's opinions in writing and human messages in quotes • I am interested in poetry. • I like the way words flow and how people explore things and have hidden meanings • Not really one for poetry. • Interesting ideas

TESTLET-RELATED RESEARCH QUESTION

3.8 In terms of difficulty, how did this test rate compared to any other reading tests or activities this group of students has done in the past? For example, is this test harder than the NAPLAN tests they have done in the past?

3.8.1 At the end of each interview, students were asked to compare the testlet they had just completed to the NAPLAN test they had sat earlier in the year and to say whether they thought that the testlet was easier than NAPLAN, the same as NAPLAN or harder than NAPLAN.

3.8.2 The data relating to these ratings are presented below in Table 21: *Perceived level of difficulty of Testlet F compared with 2014 NAPLAN*. These show that:

- Most Year 9 students perceived their testlet to be more difficult than NAPLAN and none of them perceived it to be easier than NAPLAN.
- More students at Year 9 perceived their testlet to be more difficult than NAPLAN than did students at the other year levels, in particular those at year 3.
- Half of the students at years 3 and 5 perceived their testlet to be at the same level of difficulty as NAPLAN.
- More Year 3 and 5 students perceived their testlet to be at the same level of difficulty as NAPLAN than those in Years 7 and 9.
- An equal number of Year 7 students (almost half) perceived their testlet to be either easier or harder than NAPLAN.
- The overall average perceived level of difficulty for the testlets is 2.3. i.e. slightly harder than NAPLAN. (Equal to NAPLAN was rated 2 and harder than NAPLAN was rated 3.)

Table 21: Perceived level of difficulty of Testlet F compared with 2014 NAPLAN

Year level	Easier than NAPLAN	About the same as NAPLAN	Harder than NAPLAN	Student comments
3	4	5	1	Technology helps Ticking more than one box is easier Questions were easier
Score*	4 x 1	5 x 2	1 x 3	Average 1.7
5	1	5	4	Answers confusing Easier because of less time pressures Some words in the poem were hard Harder to read it all on screen
Score*	1 x 1	5 x 2	4 x 3	Average 2.3
7	4	2	4	Having text alongside helped (2) Required effort Some questions were difficult, others were at a year 7 level Vocabulary was harder It seemed longer Paper test enables you to make notes
Score*	4 x 1	2 x 2	4 x 3	Average 2.0
9	0	4	6	Some questions were harder (4) Some words were intricate More thinking required 100x harder Harder but still easy Prefer hard copy so I can make notes
Score*	0 x 1	4 x 2	6 x 3	Average 2.6
To establish a score to the 3 qualitative ratings 'Easier than NAPLAN' has been allocated a rating of 1, 'The same as NAPLAN' has been allocated a rating of 2, and 'Harder than NAPLAN' has been allocated a rating of 3.				

3.8.2 Key Finding

3.8.2.1 *The overall average perceived level of the difficulty of the testlets is 2.3 (slightly harder than NAPLAN).*

4 Recommendations

Based on the results from the Cognitive Interviews Research into the perceived difficulty of challenging Reading items the following recommendations are made:

1. **That the results and findings of the Cognitive Interviews Research into the perceived difficulty of challenging Reading items be used to inform the development of texts and items for NAPLAN Testlets F.**

Namely that:

- **the listed reading skills, demonstrated as being within the capabilities of the research cohort, be used as a basis for future Testlet F item development.**
 - **simplified versions of the Year 3 Testlet F text types be used.**
 - **informative texts and poems be more in line with the interests and abilities of Year 5 students.**
 - **the structure of the Year 7 text set be used across all year levels as appropriate.**
 - **the structure and complexity of the informative Year 9 text and a modified version of the multi-text set be used as a basis for Year 9 testlets.**
2. **That the issues listed in Appendix 3: *Out of scope issues* be examined in terms of their impact on the validity of any Testlet F items being considered for testing purposes and the development of future NAPLAN testlets.**

5. References

THE THINK ALOUD METHOD- A practical guide to modelling cognitive processes

Maarten W. van Someren, Yvonne F. Barnard, Jacobijn A.C. Sandberg

Department of Social Science Informatics, University of Amsterdam

Published by Academic Press, London, 1994

ISBN 0-12-714270-3 Copyright M.W. van Someren, Y.F. Barnard and J.A.C. Barnard

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ISBN 1556-1623 Metacognition Learning DOI 10.1007/s11409-012-9091-2

6. Appendices

Appendix 1: Example of Cognitive Interview Notebook.

Appendix 2: Year 3, 5, 7 and 9 CIR spreadsheets (Collated data of cognitive interviews with individual year 3, 5, 7 and 9 students presented in an Excel file.)

Appendix 3: Summary of strategies used by students to answer each item

Appendix 4: Out of Scope Issues

Appendix 5: Testlet F Texts_Summary of student comments

Appendix 6: Reading Skills Summary