

Testing Spelling — Exploring NAPLAN

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Abstract

Being able to spell is critical to writing. Without it, the best writing is rendered unintelligible and useless. Spelling is also the window into students' deep understanding of the orthographic system. Knowledge of spelling also underpins effective reading. In the *National Assessment Program of Literacy and Numeracy*, spelling is one of the two sub-strands that make up the Language Conventions Paper. In this paper, spelling is tested through the use of two item formats — both are proofreading. One item format has the errors identified, the other unidentified. The use of these item formats raises several questions:

- What do these items represent spelling to be?
- How do these proofreading items relate to the broader spelling curriculum?
- What relationship is there between results on these items and students' ability to spell?
- How can teachers use the data to inform their understanding of spelling?

This paper will present the findings from the first year of a longitudinal study that will compare student performance on the NAPLAN items with their performance when asked to spell the words in a dictation activity. The results from approximately 600 students in each cohort have been analysed. From analysis of these data, the comparative facility rates and the errors students make, the study will also explore the possible implications these test results may have for informing curriculum development and the teaching of spelling.

Introduction

In 2008, the first *National Assessment Program of Literacy and Numeracy* (NAPLAN) was administered to Australian school students in Years 3, 5, 7 and 9. A program of standardised, whole-population tests, NAPLAN undertakes to assess the literacy and numeracy skills in these year levels. These tests are promoted as a means of bridging perceived gaps in accountability, and providing the data through which the quality of education can be improved. While these and other claims are made for the value of population tests, one of the few that can be substantiated is the potential use of the data to inform our understanding of student learning and thus to inform curriculum development and pedagogy. If this use is to be made of the NAPLAN data, then clearly we have to understand what those data mean.

The purpose of our research was to examine the extent to which the quantitative and any qualitative data provided by the NAPLAN offered truly useful insights into student knowledge. Our focus was on how well the NAPLAN spelling test reports student knowledge of the English spelling system. Key to the NAPLAN spelling is its use of one particular measure or item format for spelling tasks, namely proofreading.

In the first part of this paper we provide some background and briefly review principles and definitions of spelling and spelling assessment. We contrast the proofreading measure of spelling used in the NAPLAN with other measures, especially with dictation, which had been used as a measure of spelling in most states' testing programs.

In the second part of the paper we present a comparative study of student performance on the NAPLAN proofreading items with that on a dictation measure. Many aspects of the format of the NAPLAN proofreading items confuse the picture of students' spelling ability. This emerges especially in relation to the constructed misspellings associated with NAPLAN items.

We refer to this analysis and data to reflect on the implications of the NAPLAN for curriculum development and the teaching of spelling. Teachers and administrators need to understand the limitations of the NAPLAN in order to make sense of the reported test results.

Background

In literacy, three strands — reading, writing, and language conventions — are assessed in NAPLAN. The *Language conventions* paper consists of two sub-strands — spelling and grammar/punctuation. Prior to the advent of NAPLAN, only some states had a language conventions paper, but all jurisdictions (states and territories) assessed spelling. They assessed it in different ways, however, by using test items that measured separate kinds of spelling behaviour.

As testable behaviour, spelling has two broad aspects — reception or identification and expression or production. The identification aspect of spelling involves monitoring and recognising correct spelling in proofreading tasks. The expressive aspect of spelling is displayed in classroom spelling tasks such as dictation in which spellers are able to focus their cognitive resources on the task at hand. Cloze dictation, for example, involves a text that gives the context for the target words, which appear as blanks in the text and are read aloud by a teacher. In spelling-in-writing tasks, students have to generate correct spelling

while making the other decisions involved in writing. This requires deep, internalised word knowledge. The relation between spelling in the NAPLAN *Language conventions* paper and spelling in the NAPLAN writing task is beyond the scope of this paper.

Table 1 shows the types and mixes of items used as spelling assessment prior to NAPLAN.

Table 1: Spelling assessment prior to NAPLAN

Jurisdiction	Task	Item total	Time
ACT	Oral dictation	20 words	15 minutes
NSW	<ul style="list-style-type: none"> • Identification of misspelt words (6 words) • Correction of 4 nominated errors (Spelling is a component of a language conventions test.)	10 words (from a total of 27 items)	25 minutes for entire language conventions test
NT	<ul style="list-style-type: none"> • Oral dictation (15 words) • Cloze dictation (34 words across 2 passages) 	39 words	35 minutes
QLD	<ul style="list-style-type: none"> • Cloze dictation (20 words) • Correction of identified errors (5 words) • Identification of spelling errors (5 words) 	30 words	20 minutes
SA	<ul style="list-style-type: none"> • Correction of nominated errors (12 across two passages) • Identification of misspelt words (12 across two passages) (Spelling is a component of a language conventions test.)	24 words	25 minutes for the entire language conventions paper
VIC	<ul style="list-style-type: none"> • Cloze dictation (10 words) • Correction of nominated errors (6 words) 	16 words	15 minutes
WA/TAS	<ul style="list-style-type: none"> • Correction of nominated errors (11 words) • Cloze dictation (14 words) 	25 words	20 minutes
* All assessed spelling in writing as part of their writing rubric.			

The table shows three main types of test item: dictation, identification and correction. Four jurisdictions had a dictation and a proofreading task. NSW and SA had no dictation and NT and the ACT used only dictation.

In contrast, the NAPLAN items are all proofreading tasks, of two main types: correct an error in an *identified* word and find and correct an error in an *unidentified* word. In the case of the Year 3 test, for example, the proofreading items were constructed as follows:

Questions 1–14

Questions 15–25

Activity:	Rewrite the misspelled word	Identify and then rewrite the misspelled word
Format:	Target word written in a brief sentence and identified by circling.	Target word written in a long sentence with distracter words in the sentence. <u>No</u> partial credit is given for only identifying the target word.

(These two item sets make different demands, and so they should be scored differently. The second set involves a two-step problem of identification before correction, yet no information is collected about whether or not students can first find the word. Test reports only provide schools with information about whether students get the item correct or not. Given the limited data that the unidentified items provide, they play a questionable role in the overall testing of the spelling construct.)

Because there are no dictation items, the NAPLAN proofreading items must print the target word with spelling errors added. Students are meant to scan the print until they find a word which is recognisable as an intended word but which is not spelled correctly. Much depends on the way the test constructors design the spelling errors that they introduce into target words. In 2008, these errors were formulaic in nature. They often did not represent the kinds of errors that students typically make and they were related to narrow aspects of orthographic knowledge. Items constructed in this way run the risk of being confounded by reading.

The NAPLAN decision to use only proofreading items, together with other apparently technical decisions, has implications for the definition, pedagogy and assessment of spelling in Australia. Those implications must be judged against the state of knowledge about those aspects of spelling.

Spelling defined

In commonsense terms, spelling means correct order of letters to represent a word. But knowledge of a word's spelling, the commonsense notion, is linked to knowledge of its internal structure and how that structure represents sounds. This is internalised knowledge of the system of spelling. Therefore, spelling refers more technically to knowledge of orthography, which is the system of symbols and rules used to represent spoken language in writing. Orthographic knowledge underpins effective writing and reading, especially reading connected text. Orthographic knowledge is closely related to reading fluency and it makes a stronger contribution to reading after the initial stages of reading acquisition (Lipson & Wixson, 1997).

Two major themes are evident in the literature on this subject. The first is that the English orthographic *system* is regular and structured, not arbitrary. It has levels of complexity and layers of coding. The second is that spelling knowledge is one aspect of the larger area of *word knowledge* or vocabulary, which involves meaning and grammar.

Spelling is a system

Contrary to the commonly held belief about English spelling it is a regular system. Modern researchers (Bear, Invernizzi, Templeton, & Johnson 2008, 1998; Henderson, 1990, 1980; Cunningham, 1998; Ehri & Rosenthal, 1997; Ehri, 1984; Ganske, 2008, 2000, 1999; Templeton & Morris, 2000, 1999) have described both the system and the way in which students learn it. This perspective is the coming together of two threads of spelling research. The first is into student error patterns as an insight into orthographic understanding begun by Read (1975a, 1975b, 1971) and developed by Gentry & Gillett (1993). The second thread is the research into the demands of the spelling system (Venezky 1999, 1980, 1970). The critical outcome is that students need to learn orthographic knowledge systematically, progressively and explicitly.

The testing of spelling, therefore, should be focused on knowledge of the orthographic system.

Spelling is word knowledge

The major contribution spelling knowledge makes to vocabulary development is the second theme dominant in the current literature. Vocabulary researchers, Beck, McKeown & Kucan (2008, 2002, Graves (2006), Nagy and Scott (2000) and others join with spelling researchers such as Templeton, Bear et al (2010), Ganske (2008, 2000, 1999) in documenting the importance of linking spelling knowledge, particularly etymological and morphological aspects, with vocabulary development. The etymological and morphological knowledge developed during spelling makes a positive contribution to word decoding skills during reading. This situates spelling within the more general context of word study.

The implication of this spelling research for teaching and also for assessment is that it suggests we should place targeted spelling words in a communication context and make the linguistic demands of the context congruent with those of the target word. Furthermore, it reinforces the critical need to test spelling as a system.

Spelling assessed

Bond and Fox (2001:19) suggest that the assessment instrument used to measure a construct should be:

- sensitive to the ordered acquisition of skills or abilities
- capable of determining whether the general developmental patterns suggested are sufficient for defining and measuring achievement
- capable of showing the development of the skills or the people tested.

In spelling, this would mean identifying and selecting spelling behaviour that demonstrates orthographic knowledge consistent with developmental expectations. Morris (1993) suggests that a student's misspellings reveal his or her progress to orthographic knowledge and hence they show the student's instructional level.

Bear and Templeton (1998) determine the instructional level by noting where a particular feature is sometimes but not always present in a student's spelling. Students who sometimes drop an e before adding –ing, for example, are ready to learn about spelling at the junctures of syllables. Words that are at the relevant instructional level or 'in the teachable slot' typically have only a few error patterns, with many students making the same errors. By contrast, when 'the words presented are outside their instructional or developmental level students ... may regress to random attempts' (Moats, 1995:34). Such random errors tell very little about the student. (We will reflect on this later to explain unusual responses in the spelling data. For example, Year 3 students produced hundreds of different error patterns in spelling the word *oxygen*, thus giving no indication of their knowledge. We learn from this only that the students cannot spell the word.)

Like all assessment, cohort tests must be grounded on sound measurement principles, the first of which is the need to base the test on a framework — a clearly articulated, unambiguous of definition (construct) of the ability to be tested. Such a framework would describe the assessable parameters of the ability. A spelling framework should articulate the relationships between many elements of spelling: recognition and production, simple sound-coding and complex, etymological and morphological effects and so on. For the NAPLAN, however, no such comprehensive framework was developed.* In the absence of a research-based framework, the NAPLAN uses a commonsense approach to the testing of spelling, describing the spelling challenge with words without definitions, such as *simple*, *difficult* or *challenging*. A commonsense approach makes the informed and systematic approach to item development difficult, if not impossible.

The study

In the absence of a test framework for understanding the NAPLAN data, the authors decided to conduct a quasi-experimental study. We sought to clarify the relationship, if any, between the NAPLAN data and notions of spelling achievement that have informed previous reports to schools on state spelling tests.

* Although the test constructor produced documents called frameworks for the 2008 and 2009 tests, these are technical test specifications rather than frameworks. The constructors also referred to the national *Statements of Learning*. These documents are not specific enough to bring literacy and numeracy teaching into national uniformity; nor could they act as the basis for valid test items and forms. Most recently, National Minimum Standards have been drafted to replace the old Benchmarks of literacy and numeracy ability.

Method

In this study, students were asked to spell the words from the NAPLAN tests in a dictation test using the sentences from those tests. The dictation tests were administered between 4 and 6 weeks after the test to reduce the impact of any recency effect.

To compare and contrast the outcome of both testing approaches, the following data was collected:

- facility (correct answer) rates for each word on both the NAPLAN and the dictation measures
- facility rates for each student on each measure
- error patterns generated on the dictation task
- error patterns generated by the NAPLAN tasks (retrieved from images).

Sample

A sample of students from each year level was involved in the study. A few students who undertook the dictation task had no relevant NAPLAN data as they were either absent or exempt. These students were deleted from the sample. Where exempt students had test data, their data were matched to the dictation results. The number of students participating at year level is shown in Table 2.

Table 2: Number of participating students

Year 3	591
Year 5	651
Year 7	609
Year 9	443
Year 9 comparative study	75

An attempt was made to construct a sample of students whose NAPLAN results were close to the state NAPLAN performance. While there are differences in performance between the sample and the cohort, for the most part they are not great. The differences in performance are detailed in the data presented in Appendix 2. The relationship of the sample to the cohort has significance for the degree to which findings or questions might be considered pertinent to the cohort. It does not directly impinge on the study as the comparisons were made only within the sample.

Analysis of the data

The facilities and the error patterns produced by the dictation test and the NAPLAN measure were compared. Error analysis identified the type of error, its frequency and the number of students who made it.

The raw scores alone, which tell whether a student got an item right, give relatively little information about that student's level of orthographic growth. A qualitative examination of the error patterns provides data on aspects of orthographic knowledge which students have mastered or not. This is evidence about a student's orthographic knowledge as well as whether or not the chosen target word is developmentally suited to the cohort, that is, whether or not students are able to cope with that particular aspect of orthographic knowledge (Moats 1995; Templeton and Bear 1992). This is significant, as the teaching of spelling needs to be carefully structured for optimum learning of the English spelling system.

What we found

In all year levels, more than 75% of students had more words correct when simply asked to spell dictated words. These comparative data are presented in Figures 1 to 4. Time and again, students misspelled words on the NAPLAN which they could write correctly on dictation. The graphs show such a difference in performance that it almost seems that different constructs are being measured.

It is notable that older students tended to omit the spelling items on the NAPLAN altogether, with omits among the highest occurring responses in Year 9. In contrast, omits are rare on the dictation measure.

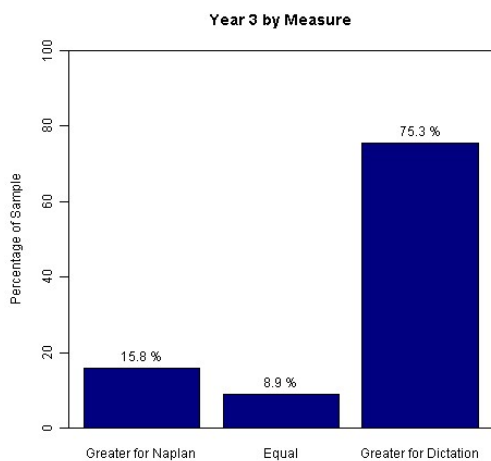


Figure 1: Year 3 results

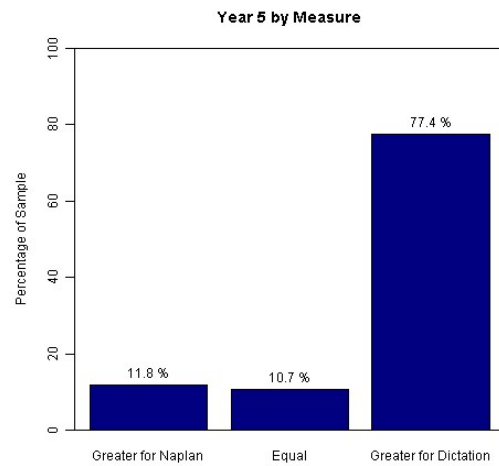


Figure 2: Year 5 results

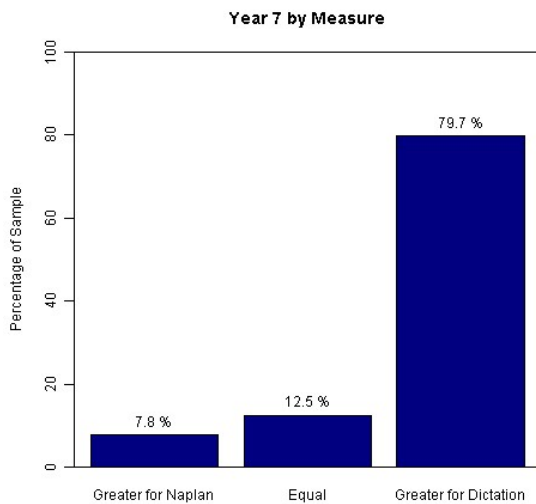


Figure 3: Year 7 results

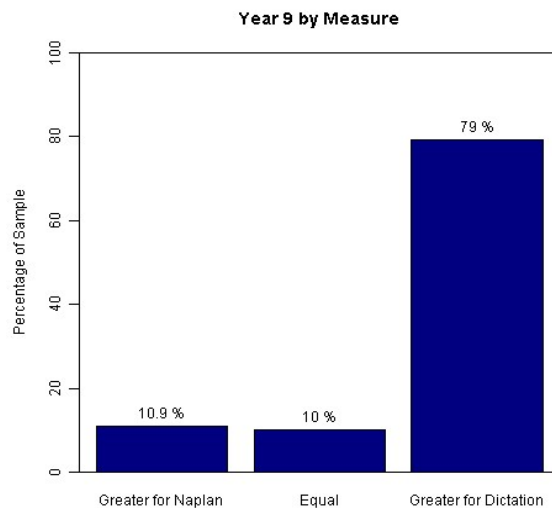


Figure 4: Year 9 results

Where proofreading is easier than dictation

It appears that the misspelling of some of the target words in the set of unidentified error words helped students to spell those words, provided they could correctly identify them as the target words. Some NAPLAN misspellings depart only a little from the correct spelling, e.g. *like* (lik), *community* (comunity), *sufficient* (suficent), *swimming* (swiming). Particularly when the likely errors are at the syllable juncture, students in Years 3, 5 and partly in 9, may be assisted by some NAPLAN target word spellings.

When it does happen that misspellings assist students, they seem to do so because the misspelling supplies the information of which students are unsure. This is an undesirable effect. It follows that such misspelling prevents that item from testing the instructional level that the students have reached. This is the case with the seven words set out in Table 3. These are the only words which the students in our sample spelled better on the NAPLAN proofreading measure than on dictation.

These cases demonstrate the effect on facility rate caused by item design, especially the design of the target word misspelling. In the case of *complained*, for example, the constructed misspelling (cumplained) supported the spelling of the two elements in this word which Year 3 students typically misspell, the long *a* in the second syllable and the inflected ending *-ed*. The same explanation applies in the case of *millions*, which was misspelled with a single *l*. The part that Year 5 students are most likely to misspell, the *-ion*, is provided intact so that the doubling at the syllable juncture becomes an obvious and easily corrected error, as it is in the other items in the table.

Table 3: Words on which students performed better for NAPLAN

	Year 3	Year 5	Year 7	Year 9
Identified	complained (cumplained) +10.38%	vanilla (vanila) +1.56 volume (vollume) +4%	nil	substantial (substaintal) +1.58%
Unidentified	millions (milions) + 1.69%	millions (millions) + 5.36%	disappointed (disapointed) +0.33%	nil

How do the subsets of identified and unidentified items compare?

In Figures 5 to 8, the comparison between dictation and NAPLAN is teased out to show the relative performance within NAPLAN on the two types of proofreading item — identified-word and unidentified-word.

Within the NAPLAN itself, students should be expected to perform better on the identified-word items. It is the case that in the test fewer students omit the identified-word items than the unidentified-word items. Students know which word is being targeted and the task is a one-step problem with much of the spelling solution presented to them, e.g. they need only change *frend* to *friend*. However, results suggest that more students were assisted by the format of the unidentified-word items. That is, *if they could identify the misspelt word*, the error-construction method seemed to help some students to spell some words correctly. This is further shown by cases where the unidentified word was actually easier to get correct as a proofreading test than as a dictation test.

As we saw, students found the words easier to spell as dictation than as proofreading but this pattern is shaken up at Year 5 (Figure 6). In Year 5, words from the identified set are very much easier to spell as dictation but the unidentified words are not notably easier as dictation. There was something about the construction of the Year 5 unidentified-word

proofreading items that gave some students assistance. This difference in the construction of difficulty has implications for those jurisdictions that measure distance travelled.

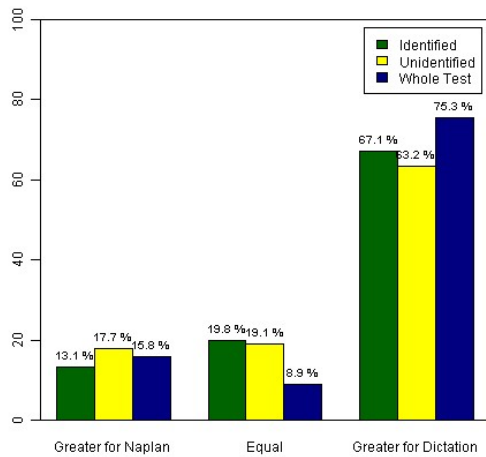


Figure 5: Year 3 results

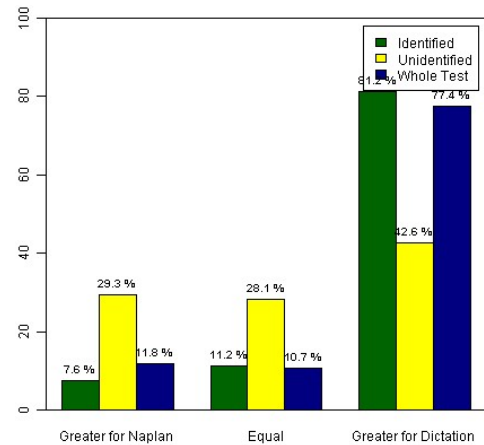


Figure 6: Year 5 results

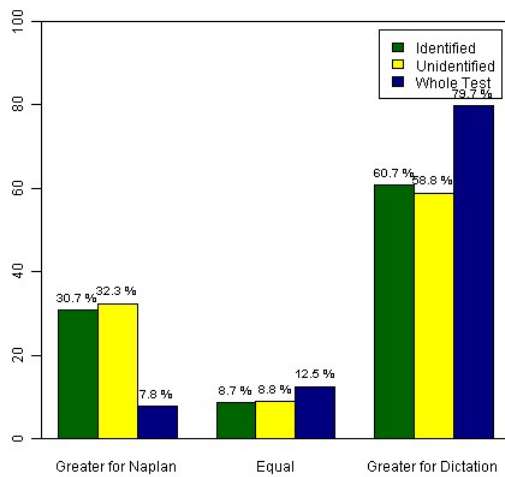


Figure 7: Year 7 results

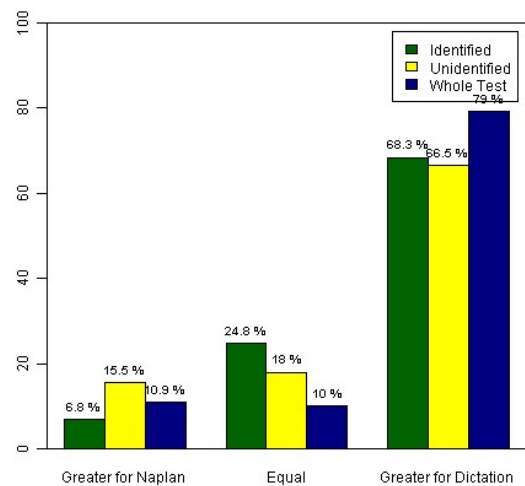


Figure 8: Year 9 results

Another anomaly occurs at Year 7, and it also has implications for testing student growth. In Year 7, and only at this year level, the 'unidentified' item words were presented first in the testbook, an acknowledgment on the part of the test constructor that these items were easier than the 'identified' item words. This was confirmed by our study, because in dictation, where students are just asked to spell them, these Year 7 unidentified-error target words do indeed have higher facility than the identified ones. This change in the relative difficulty of the two NAPLAN item sets is a consequence of a particular combination of confounding factors. Here, these unidentified-error items have high-facility target words embedded in sentences that have significantly lower reading demands than other papers. In contrast, the identified word items used on the Year 7 test have lower facilities than those chosen for the unidentified. There are issues of item and test construction that need to be explored further in another paper.

Error analysis

Prior to 2008, in constructing proofreading errors for state-based tests, authentic student errors were used. Student errors were ranked and selected by the frequency with which they occurred. As students approximate correct spelling more and more students cluster on fewer errors. Analysis of these errors shows teachers, and test constructors, the one or two orthographic elements that require explicit teaching. For example, the Year 9 misspellings of *imagination* involve 32 different error patterns but most students who have the word incorrect make only one error – *immagination*. Twenty-four of the other error patterns are made by only one student, in other words by 0.2% of the sample. Errors made at this rate are relevant only to the individuals that make them and have little relevance to a testing program. Similarly, selecting an error that few students make has the potential to make a word unexpectedly easy. This explains the performance of *complained*, the word with the most positive bias for the NAPLAN measure — 10.38%. In this error-identified item, when asked to spell the word in dictation, only 3 students made the targeted error, that is, 0.5% of the sample. Indeed, 77% of the sample had this orthographical element (*com-*) correct.

Constructing proofreading items that have the potential to show the acquisition of orthographic understanding and student growth need to be focused on the use of the identified critical elements that commonly challenge students at each of the tested year levels. The implication in using these errors — closest to correct and made by most students — in proofreading items is that they are more difficult for students to find but easier for them to correct. This is demonstrated by the performance on items constructed to test knowledge of doubling at the syllable juncture as in *vanilla*, *volume*, *disappointed* where the error choice, that of doubling or not doubling at the syllable juncture appears to marginally assist students in getting the word right.

As an aside, we suggest that further study of the group of students who were aided by the error structure of the NAPLAN measure has potential to help us understand issues such as how students use their orthographic knowledge in proofreading and how proofreading errors influence performance. By asking students about the choices they made when attempting these items further insights into the construction of proofreading items and ultimately of proofreading as a literate activity may be achieved.

Comparison of error patterns on identified-word items

Error patterns for the unidentified-word items for Year 3 show that, for target words at the margins (where almost all students are able to spell the word or else are almost all *unable* to spell the word), the constructed NAPLAN misspellings are most similar to the authentic student-generated error patterns. See for example the error patterns for *like* in Table 4.

However, words like *open*, *brown* or *cracked* generate quite different kinds and frequencies of error patterns. In an example such as *open*, the NAPLAN error is not common — only one student in approximately 600 made this error in the dictation test. In responding to the NAPLAN item, students still tended to produce the common, authentic error *opin* but under the influence of the NAPLAN misspelling then produce error patterns that do not commonly occur in dictation. Students tend to modify the provided misspelling, e.g. by attaching final e (*opune*), changing the vowel (*opon*) or the sequence (*opnu*). Then there are cases where the students simply reproduce the provided misspelling. Similar patterns can be seen in the other words shown in Table 4.

Where the provided misspelling is the most common authentic error, not only do students tend to modify the provided misspelling, they also either reproduce the error or, faced with a word they believe to be correct, they begin to omit the item. This can be seen in the error patterns for the word *cracked* shown in Table 4. In dictation, students find two elements of that word difficult — the /k/ and the *-ed*. Faced with a NAPLAN error featuring the element we know they found most challenging in dictation, the students responded by modifying the part they knew to be wrong by changing the *k* to *c* or they reproduced the common dictation error they were given, or they omitted the word.

Table 4: Frequency of error patterns for Year 3 identified items

WORD	NAPLAN ERROR	DICTATION ERROR
like (lik)	lick 8 licke 5 lick 4 lik 3 skipped 3	lick 6 licke 4 look 2 lik 2
open (opun)	opin 18 opune 10 opon 10 opne 9 upon 8 opun 7 opnu 6	opin 14 opne 7 opine 4 onpe 3 oupn 3 opn 2 opon 2
brown (broun)	broune 14 bruon 14 bron 11 brone 10 broun 9 brouwn 8	broun 27 bran 12 bron 9 brawn 8 broned 6 bronw 4
cracked (craked)	craced 34 craked 24 skipped 13 crakede 8 creaked 7 crakked 7	craked 53 cract 22 craced 14 crackt 12 crakt 11 crat 11
special (speshal)	speshel 37 speshal 34 speshall 19 spashal 17 speshale 14 speashal 14	speshel 37 specil 24 speical 22 speshal 14 specail 11 speshle 11

A further dimension to these response patterns can be seen in the most difficult Year 3 error-identified item — *special*. Here two of the most frequently occurring errors show the students close to mastery of that word’s most difficult elements — the medial spelling of the *sh=ci* sound and the representation of the vowelised *l* (*al*). The two error patterns that feature awareness of the pattern *sh=ci* are not present in the NAPLAN generated errors. Instead, under the influence of the provided misspelling, which models very simple sound mapping strategies, the spelling of this blend is confirmed, that is *sh* instead of *ci*. Students consequently focus on spelling the other troublesome aspect of this word — choices of *le*, *el* or *al*. They also introduce errors previously not seen in the most common dictation error patterns, thus confirming the observations of Moats (1995), Morris (1993) and others about students’ tendencies to regress to less sophisticated spelling knowledge when they are presented with words that are beyond their current level of knowledge.

In a pattern similar to Year 3, the Year 5 students also reproduced or modified the provided error to produce a different and larger set of error patterns than they did on dictation, thus diluting the information available to teachers. For example, in dictation, misspellings of the word *completed* clustered around two error patterns, *compeated* (made by 56 students) and *compited* (made by 14 students). Errors from the NAPLAN item featuring this word show five error patterns — *compeated*, *completed*, *competed*, *compeated*, *compaeted* — as frequently occurring. It is no longer clear what the teaching focus should be. Not only did students make different errors on this word, more students made more errors.

Even when the performance of our sample was very similar for both measures, as for example on the word *friend/s*, which had facility rates of 84.65% on the NAPLAN items and 85.41% on dictation, the error patterns for NAPLAN are no longer as grouped. Thus what needs to be taught is no longer as clear. The dictation error patterns for *friend/s* show large numbers of students making only two errors, thus demonstrating that the word is in the ‘teachable slot’. It is clear that teaching focused on one aspect of this word will overcome the last major problem to improve performance. This is useful information for teachers.

Table 5: Frequency of error patterns for Year 5 identified errors

WORD	NAPLAN ERROR	DICTIONATION ERROR
swimming (swiming)	swiming 12 simming 3 sweing 2 siwmming 2 skipped 2	swiming 12 simming 3 sweing 2 siwmming 2 simwwing 1
number (numba)	nummber 11 numbar 9 nummba 7 numbe 2 numba 1	nuber 4 nummber 4 naber 2 nabumber 1 nomber 1
friends + friend (frends)	freinds 25 firends 5 frendes 5 freands 5 frends 4 frands 3	freinds 33 frends 19 frens 3 frinds 3 friendes 2 friens 2

Just as in Year 3, some Year 5 items lead students to erroneously confirm spelling patterns or to introduce new errors. The Year 5 students’ responses to *number* show the same patterns of modifying or reproducing the given error as well as introducing new forms of error. The error patterns for *number* show that although errors in spelling the final syllable were rarely made by Year 5 students in dictation, such errors were shaped by their response to the NAPLAN items because of the provided misspelling.

Yet again, the attempt to spell *swimming* in the NAPLAN shows the effect of the provided misspelling. In this case, the provided misspelling of *swimming* is identical to the most common genuine error, namely a failure to double at the syllable juncture. Testwiseness should have stopped the students from reproducing a given error as an answer, but it failed to do so. The image of the word written on the paper seems to prevent students from using their internal spelling knowledge.

Even some Year 9 students appear to be influenced by the NAPLAN error patterns. While slightly in excess of 95% of the Year 9 students were able to spell *community*, 42 of them simply reproduced the given error, an error they had not made in dictation. The dictation errors suggest that those few students who could not spell this word were having difficulty with the ending *-ty* and the vowel in the second syllable. They had control of the doublet at the syllable juncture. Control over this feature was also shown in the NAPLAN error pattern but now an added error, failure to produce the doublet, appears.

One of the telling features about the Year 9 NAPLAN performance is that students are more likely to omit items. We suggest that this is because they have a better sense of the parts they typically get wrong and those that they rarely get wrong such as the *-ty* in *community*. When they are faced with an error such as that in *community*, they fail to notice the doublet error and are unable to identify what it is about the word they have to change. As a result they omit the item. This becomes even more problematic in the two-error items.

Table 6: Frequency of error patterns for Year 9 identified errors

WORD	NAPLAN ERROR	DICTIONATION ERROR
community (comunity)	comunity 42 skipped 5 community 4 communty 4 communitiy 1	communittee 2 commnity 2 communittee 1 commity 1 communitie 1
surgery (sergary)	sergery 71 surgary 45 sergury 16 skipped 10 surgury 9 sergary 5 sergarey 2 surgarey 2	surgury 19 sergery 13 surgary 8 surgey 4 sergury 4 sergary 3 surgry 2 surgeory 2
achievement (acheivment)	achievment 130 acheivement 31 acheivment 19 achevement 10 achivment 7 achivement 7 skipped 7	achievment 48 acheivement 25 achivement 19 acheivment 17 achivment 6 archievement 4 achevement 3

The inclusion of two errors to make the item more difficult seems to be successful in doing just that, but we question the construct validity of doing so. For example, in spelling *achievement*, most students make two very common errors. One is focused on the spelling of the long e in the second syllable and the other is the *-ve* pattern. They tend to make one or other of these errors, not both. Therefore they tend to find and repair one or the other of the errors, as the NAPLAN error patterns show. What is not clear is whether this is a result of faulty orthographic knowledge or the fact that students had been primed by the test to look for only one error. This an avoidable confounding effect created by item design.

It is not necessary to create difficult items in this way. Hard items should be created by choosing low facility words where most students make only a few error patterns. An example of this is a word such as *beginning*, which in previous state tests 20.5% of Year 5 students could spell. Two major and related groups of error patterns were made by these

students. They either failed to double anything* — *beginning* — or they double something — *beginning* — or even everything — *beginning*. There are then a number of errors that only one or two students make. By Year 7, 41.2% of students can spell this word. The major error patterns are similar but the minor errors all but disappear. Selecting words such as these will provide authentic diagnostic information that teachers can use to tailor their spelling programs.

Comparison of error patterns on identified-word items

On all but three of the unidentified-word items used on the test, the top three error patterns for Year 3 students are either variants of a distracter or the item is omitted (see Table 7). Even for these three words, *could*, *animal* and *oxygen*, omission and variants of non-targeted, distracter words are still two of the top three error patterns. In other words, for most items we have little or no information about how students performed.

Table 7: Frequency of error patterns for Year 3 unidentified items

WORD	NAPLAN ERROR		DICTATION ERROR	
could (coud)	<i>know variants</i>	55	cood	38
	<i>(new</i>	16)	code	29
	<i>after variants</i>	18	coud	16
	skipped	14	cod	10
	coude	10	cold	7
	cloud	6	cord	6
animal (animel)	<i>baby variants</i>	23	anamal	14
	<i>very variants</i>	22	anamel	10
	skipped	19	animale	9
	animle	10	animel	9
	anamel	10	anamble	8
	animil	10	anamil	7
	anamal	8	anmle	6
oxygen (oxegen)	<i>carries variants</i>	116	oxegen	87
	<i>blood variants</i>	68	oxigen	49
	oxagen	41	oxgen	18
	oxigen	29	oxigin	18
	oxgen	19	oxegon	11
	oxegan	18	oxagen	9
	oxegen	18	oxigon	7

In Year 3 in particular, both the readability and the difficulty of the words used for these items are confounding factors. Test provided misspellings of unidentified words were of less assistance to Year 3 students, because these students had more difficulty in identifying the target words. In addition, difficult target words requiring orthographic knowledge beyond the level of these students were chosen. Evidence that this was so is seen in the number of different error patterns Year 3 students made in spelling these words:

- *oxygen* — 259 error patterns
- *special* — 209 error patterns
- *millions* — 205 error patterns.

* When asked to double a final consonant before adding an affix, this is an error pattern common across all year levels.

This suggests that these are words that Year 3 students find so difficult that they are not in the teachable slot. Considerable teaching effort will be needed for students to learn to spell these words.

The tendency to select other distracters from the items decreased with age. Year 5 students were better able to find the target words than other students, though for all but three words, *properly*, *disappointed* and *fitness*, variants of another word were one of the top two error patterns. In Years 5 and 7, students selected still fewer distracter words but were more likely to omit items. In both year levels, one of the top five choices made by students was to omit the items.

As was the case with the identified items, the propensity for the item construction to influence student responses is still evident as the responses to *fitness* in Years 5 and 7 attest. Instead of fewer students making the common errors, more do, possibly influenced by the fact that there are two errors in the given misspelling.

Table 8: Comparison of Year 5 and 7 error patterns

WORD	NAPLAN ERROR		DICTATION ERROR	
fitness — Year 5 (fittnes)	fitness	109	fittness	81
	fitnes	107	fitnes	27
	<i>exercise</i> variants	99	fittnes	13
	<i>improve</i> variants	19	fitnis	5
	skipped	10	fiteness	4
	fittines	3	fitniss	2
fitness — Year 7 (fittnes)	fitness	100	fittness	73
	<i>exercise</i> variants	57	fitnes	8
	fitnes	31	fittnes	4
	skipped	4	fitnise	3
	fitnes	2	fiteness	1

Discussion

The two measures, proofreading and dictation perform differently, thus providing quite different information about spelling. On face value, it seems the dictation task is a better test of orthographic knowledge. Certainly, dictation, as a measure of production knowledge, has fewer confounding variables than the receptive proofreading items. Dictation allows students to focus all their cognitive resources on the activity of spelling a single word at a time. In addition, the activity becomes teacher-guided and paced, thus minimising the likelihood of a student omitting an item. Variables confounding the proofreading items include readability and aspects of item construction such as the selection of the misspelling cues.

Students not only have higher facility rates on the dictation measure, they produce errors that give insight into their own orthographic knowledge rather than provide information shaped by the measure itself. Because error patterns from NAPLAN are not generally available for teachers to judge how this is happening and what this means for their classrooms, it is imperative that whatever measure or measures are used, they report an authentic picture of student performance that can inform teaching and curriculum.

We assert that the proofreading format used in the NAPLAN tests does not accurately reflect student capability. In fact we suggest that the data may be seriously misleading. For example, the item descriptor for *loudly* describes the item demand as *identifies an error and then spells a word where the incorrect letter pattern has been used to represent the ou/ow*

diphthong. The data show that most Year 3 students identified *supporters* as the incorrectly spelt word. The most likely explanation for this is that it results from an item construction fault. *Supporters* is the longest word in the line *All our supporters were cheering loudly ...* as well as being the first option. Year 3 students often believe they can't spell 'big words'. However, examination of the dictation error patterns shows that the suffix *-ly* caused students more difficulty in spelling *loudly* than the vowel pattern used as the unidentified error. On NAPLAN, students appear to be showing the same difficulties with this aspect of the word, but are also including the modelled error in their responses. This is a concern for two reasons. First, because students are being influenced to produce a less correct error, and second because teachers may be influenced to misdirect their teaching focus — in this case to teach the *ou* rather than the *-ly*.

Table 9: Error patterns for *loudly*

WORD	NAPLAN ERROR		DICTATION ERROR	
loudly (lowdly)	<i>supporters</i> variants	163	loudley	31
	(suporters)	44)	loudly	16
	skipped	48	lowdly	10
	<i>yelling</i> variants	47	lodly	10
	(yeling)	21)	ladley	9
	lowdley	20	ladly	8
	lowdly	10	ladle	8
	<i>where</i>	10		

The unidentified-word items should be developed with distracters that are the same length and which have some plausible similarity to the target word. In contrast to the *loudly* example, in other examples the stand-out word is the key. These items might well have been constructed as identified items. Construction issues such as these call into question the use that some states make of the data to measure 'distance travelled'.

Related to this is the construction of difficulty in the tests. Difficult words are often words outside the optimum teaching slot. True to the observations of Moats (1995) and others, students regress to random strategies producing large numbers of errors with many different representations of pronunciation. Few, if any, errors approximate the correct spelling sequence. Indeed, students may abandon letter patterns that represent the correct orthography as they did with *special*. Random attempts tell us nothing about student knowledge and model an outdated understanding of spelling as knowledge of words rather than of a system.

The construction of items to represent a traditional or 'commonsense' model of spelling, one that constructs spelling as the learning of words rather than learning of a system, conflicts with current understanding about spelling. It risks adverse curriculum effects that are likely to arise from item-construction practices such as constructing error patterns at the letter level even though this is only relevant to Year 3-level spelling challenges. This practice is at odds with research that suggests students must process words in larger chunks if they are to become better spellers (Bear, Invernizzi, Templeton, et al 2008, 1998; Ehri and Rosenthal, 2007; Ganske, 2008, 2000, 1999). While the number of words featuring syllable juncture errors suggests that the writers have a sense of spelling as a system, there is no clear systematic exploration of the system. This failure to construct items that test the derivational and etymological aspects of the words adversely affects not only spelling but also vocabulary development. To improve the NAPLAN measure, we advocate that a research-based framework be developed to inform the development of all spelling items and assist the interpretation of data.

We further argue for the inclusion of a dictation task to provide for a balance for the proofreading items. A well-constructed dictation task provides more authentic information

about students' orthographic knowledge. Two major arguments have been made by the test constructors against the use of dictation passages. The first has been that dictation opens the door for cheating. The concern is that some teachers will advantage their students by pronouncing the words in a way that is seen to be advantageous. While there is no doubt that some teachers would do this, the degree to which this is helpful is overrated. We have some evidence from the error analysis of previous state testing that indicates that this practice may in fact be damaging, creating errors.

It seems likely that when teachers tell students to spell **spa-lash**, they do, as evidenced below in the most common error patterns. When they tell students to spell **mo-tel**, carefully enunciating and stressing both syllables, they do as evidenced below.

- splash — spash, **spalash**, splas
- motel — motle, motiel, **motelle**

There are other examples. Strategic feedback from test authorities will quickly stop this practice when teachers know that it is potentially damaging to their students' results.

Another argument against using dictation has been that dictation introduces the variable of a teacher's voice and pronunciation. The assumption that this is intrinsically bad seems to be based on perception rather than on hard evidence. Much of the orthographic system is about coding the sound and the pronunciation of words — the sounds and the cadence. Much of the English spelling system is about the coding of pronunciation, e.g. long and short vowels, soft and hard consonants, stressed and unstressed syllables. This is certainly the dimension of spelling that takes most time to master.

Given the better performance on the dictation measure it is, therefore, difficult to sustain the argument that the teacher variable disadvantages students. The gap may be explained by the relationship between the teacher and their class. Students are likely to be more sensitive to teacher expectation, such as the expectation that they use particular spelling strategies or persist to produce their best result, but there are other explanations.

It is more likely that hearing the word allows spellers with more developed orthographic knowledge to make the link from the articulated to the written form. Ehri's study (1984) of better and poorer spellers found that better spellers segmented words in a way suggested by their spellings where poor spellers produced spellings that reflected conflated pronunciations. Analysis of the dictation errors supports this finding. Where the words are within the 'teachable slot' for the age cohort, the divide between the error patterns that approximate the letter patterns of the correct spelling and those that record particular pronunciations is easily seen. It is more difficult to detect in NAPLAN errors which, shaped by the given error, tend to be representations of pronunciation. It seems, therefore, that having students hear the word is more likely to have a positive effect than a confounding influence. At the very least, dictation has fewer confounding effects than the current measures.

Data from both proofreading and dictation would be enhanced by the collection and reporting of the error patterns for systems and schools to undertake a qualitative examination of the error patterns to inform optimum learning sequences for students.

We do not argue for the replacement of proofreading items. It is important that the recognition dimension of spelling, proofreading, is properly constructed. Further research into the relationship between proofreading and the other dimensions of spelling together with how students acquire this knowledge is needed.

Conclusion

The development of a sound research-based foundation national curriculum will provide the basis from which a framework can be developed for the construction of test items. Good assessment is linked to good curriculum and testing is a form of assessment. Quality assessment approaches are focused on the quality of the task, the validity of the data, as well as the strategic and metacognitive knowledge. All assessment instruments are developed for defined purposes and their data used only within those parameters. NAPLAN tests can be developed to provide teachers with useful information about how students acquire and use their orthographic knowledge, but this is possible only if the items are technically sound so that they do not provide misleading information and are framed to explore all the orthographic knowledge used as spelling.

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Appendix 1: Dictation tasks

Year 3 Spelling

**Write the words on your sheet as I say them.
I will say them 3 times.**

(Say the word, read the sentence, say the word)

1. Simon doesn't **like** eating carrots.
2. Please **open** the door.
3. Anna has **brown** hair and blue eyes.
4. Many dogs are good at **swimming**.
5. We ran **around** the oval.
6. I am visiting my **friends**.
7. The ball **cracked** the glass.
8. My brother thinks he is **great** on a skateboard.
9. The dog was noisy and **barked** a lot.
10. Jessica's bike needs a new front **wheel**.
11. Always wear a safety **helmet**.
12. My bike has a padded **seat**.
13. Jack has **special** tyres on his car.
14. Peter knew he **could** be trusted
15. to look after a baby **animal**.
16. He was very happy with his birthday **present**.
17. The football **match** was about to start.
18. All our supporters were yelling **loudly**.
19. They were **hoping** our team would win.
20. Before half time the rain started to **pour** down.
21. It was a cute fluffy **little** puppy.
22. Your body is made up of **millions** of tiny cells.
23. Blood carries **oxygen** to the cells.
24. This makes them work **properly**.
25. My Mum **complained** about the noise.

Year 5 Spelling

**Write the words on your sheet as I say them.
I will say them 3 times.**

(Say the word, read the sentence, say the word)

1. Many dogs are good at **swimming**.
2. Seven is my lucky **number**.
3. I am visiting my **friends**.
4. My brother thinks he is **great** on a skateboard.
5. It's been raining **since** Monday.
6. There are many members of the **lizard** family.
7. I'd like to **climb** mountains.
8. I don't like the **taste** of strawberries.
9. I heard a different **version** of the story.
10. My Mum is training to run in a **marathon**.
11. I need to do some exercise to improve my **fitness**
12. My Mum **competed** in the Olympic Games.
13. Mr Jones is a **popular** teacher.
14. I like **vanilla** ice cream the best.
15. We have sent **astronauts** to explore the moon.
16. We saw him going in the **opposite** direction.
17. My bag has a **shoulder** strap.
18. We press the power **button** to turn off the television
19. My guitar has a special **effects** control.
20. I use the **volume** control to turn up my music.
21. Your body is made up of **millions** of tiny cells.
22. Blood carries **oxygen** to the cells.
23. It keeps them working **properly**.
24. Your heart is a **muscle** that pumps blood.
25. We were **disappointed** when we had to leave early.

Year 7 Spelling

**Write the words on your sheet as I say them.
I will say them 3 times.**

(Say the word, read the sentence, say the word)

1. It's been raining **since** Monday.
2. There are many members of the **lizard** family.
3. I don't like the **taste** of strawberries.
4. I'd like to **climb** mountains.
5. I heard a different **version** of the story.
6. The guests at the party **consumed** all the food.
7. My Mum is training to run in a **marathon**.
8. I need to do some exercise to improve my **fitness**.
9. The boy gave a perfect **description** of the lost dog.
10. Some types of wild mushrooms are **poisonous**.
11. He was **overwhelmed** by the amount of work.
12. The clock was **antique** and very valuable.
13. We were **disappointed** when we had to leave early.
14. The **announcement** was made over the radio.
15. Our new **community** hospital is
16. **equipped** with an operating theatre.
17. **Previous** patients had to travel
18. to the city for **surgery**.
19. Sam gets into all sorts of **mischief** at my house.
20. When our cats **recognise** his voice,
21. they **immediately** head
22. for their most **secluded** hiding place.
23. Many **athletes** have found that
24. regular training can make a **substantial** difference
25. to their level of **performance**.

Year 9 Spelling

**Write the words on your sheet as I say them.
I will say them 3 times.**

(Say the word, read the sentence, say the word)

1. Jupiter is the largest planet in our solar **system**.
2. Unfortunately the space mission ended in **failure**.
3. Our new **community** hospital is equipped with an operating theatre.
4. **Previously**, patients had to travel
5. to the city for **surgery**.
6. Marcia's trip to Africa was an **achievement**.
7. She had saved **sufficient** money for the trip.
8. Africa had seemed so **exotic**.
9. In her **imagination** it had seemed different.
10. Many **athletes** have found that regular training
11. can make a **substantial** difference
12. to their level of **performance**.
13. The guests at the party **consumed** all the food.
14. The siren sounded and we had to **evacuate** the building.
15. The natural environment is a great place for **recreational** activities.
16. He was **overwhelmed** by the amount of work.
17. The clock was **antique** and very valuable.
18. The audience **applauded** at the end of the show.
19. The **recipients** waited to be handed their trophies.
20. Rabbits are **vulnerable** to attack from predators.
21. The **announcement** was made over the radio.
22. The accident was caused by my **negligence**.
23. The **satellite** is in orbit around Earth.
24. Zebras have stripes for **camouflage**.
25. The correspondence was so **faint** it was barely visible.
26. The **government** is responsible for funding various service.

Year 3 Spelling

Name: _____ D.O.B: / /

School: _____ School code: _____ EQ ID: _____

	WORD		WORD
1		14	
2		15	
3		16	
4		17	
5		18	
6		19	
7		20	
8		21	
9		22	
10		23	
11		24	
12		25	
13			

Appendix 2: Comparison of the sample students' performance with that of the state cohort

Year 3

WORD	STATE % NAPLAN	SAMPLE % NAPLAN	Sample % Dictation
like	90	89.97	96.22
open	73	75.66	89.80
brown	64	65.79	80.92
swimming	67	72.04	76.15
around	55	57.24	70.72
friend/s	54	59.05	60.36
cracked	48	51.15	57.07
great	38	42.43	59.54
barked (barking)	41	46.05	57.24
complained	26	31.09	21.71
wheel	37	44.90	64.14
helmet	40	41.45	51.15
seat	56	57.24	60.36
special	8	10.36	24.18
could	57	63.16	65.30
animal	40	44.08	60.20
present	46	51.64	54.77
little	64	68.26	83.88
millions	29	32.89	31.25
oxygen	3	4.28	14.14
properly	7	7.07	30.76
match	32	34.05	54.28
loudly	20	25.49	57.24

WORD	STATE % NAPLAN	SAMPLE % NAPLAN	Sample % Dictation
hoping	35	37.66	54.77
pour	11	13.16	35.86

Key	Shaded cells are unidentified items
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Year 5

WORD	STATE % NAPLAN	SAMPLE % NAPLAN	Sample % Dictation
swimming	92	94.14	95.85
number	90	88.69	96.47
friend/s	81	84.65	85.41
great	78	83.84	92.01
competed	49	53.74	75.58
popular	46	56.57	73.43
vanilla	48	57.17	55.61
muscle	21	26.87	44.70
astronauts	17	27.47	34.25
opposite	18	24.24	38.40
shoulder	56	65.66	68.97
button	52	60.40	78.80
effect/s	32	40.61	60.52
volume	81	84.04	80.03
millions	74	77.98	78.79
oxygen	15	25.86	45.62
properly	30	38.38	54.07
since	62	62.63	81.57
lizard	57	66.87	79.57
climb	61	68.69	84.79
taste	56	66.26	82.18
version	41	48.89	67.74
marathon	37	43.64	74.19
fitness	36	39.39	71.74
disappointed	8	14.95	17.82

Year 7

WORD	STATE % NAPLAN	SAMPLE % NAPLAN	Sample % Dictation
since	85	84.18	91.35
lizard	80	82.22	88.09
taste	77	79.12	89.23
climb	80	82.06	90.05
version	72	78.79	82.54
consumed	73	78.79	81.24
marathon	68	69.82	84.18
fitness	61	61.01	80.26
description	58	60.20	66.39
poisonous	38	43.07	44.70
overwhelmed	35	43.39	53.02
antique	30	41.44	65.42
disappointed	27	33.12	32.79
announcement	18	20.07	40.95
community	68	71.13	81.40
equipped	9	10.60	20.88
previously	56	61.50	75.69
surgery	31	36.87	65.91
mischief	30	29.20	40.95
recognise/-ize	26	26.43	40.62
immediately	13	20.07	42.90
secluded	19	20.72	41.27
athletes	36	38.99	60.03
substantial	28	35.40	37.85
performance	61	63.46	77.00

Year 9

WORD	STATE % NAPLAN	SAMPLE % NAPLAN	Sample % Dictation
community	80	83.30	95.03
previously	74	80.36	86.23
surgery	49	49.59	56.66
achievement	32	32.25	45.37
sufficient	29	35.25	41.08
exotic	64	67.24	67.95
imagination	71	77.88	84.65
substantial	49	59.59	58.01
performance	79	88.26	91.65
system	91	93.00	97.74
consumed	83	87.58	88.26
evacuate	73	77.20	91.65
failure	72	77.88	88.49
recreational	63	71.78	86.46
overwhelmed	52	65.46	73.59
antique	48	48.76	82.17
applauded	32	37.25	68.62
recipients	35	42.21	44.24
vulnerable	25	35.89	41.76
announcement	29	37.25	61.63
negligence	15	18.74	26.19
satellite	5	7.00	18.51
camouflage	10	11.51	20.77
faint	50	56.21	70.20*
government	74	81.72	90.97

* only *faint* has been scored correct: the figure will inflate with the inclusion of *feint* – 85.4%

Appendix 3: Error patterns on NAPLAN and dictation items

Year 3: Error identified

WORD	NAPLAN ERROR		DICTATION ERROR	
like (lik)	lick	8	lick	6
	licke	5	licke	4
	lick	4	look	2
	lik	3	lik	2
	skipped	3	likee	1
	litk	1	lile	1
open (opun)	opin	18	opin	14
	opune	10	opne	7
	opon	10	opine	4
	opne	9	onpe	3
	upon	8	oupn	3
	opun	7	opn	2
	opnu	6	Opein	2
Brown (broun)	broune	14	broun	27
	bruon	14	bran	12
	bron	11	bron	9
	brone	10	brawn	8
	broun	9	broned	6
	brouwn	8	bronw	4
swimming (swiming)	swiming	15	swiming	70
	sweming	13	simming	14
	swming	10	siming	6
	swimeing	6	swemming	4
	swing	4	swmming	4
	swiminge	3	siwmming	3
around (arownd)	arownd	15	arand	21
	arond	14	arond	15

WORD	NAPLAN ERROR		DICTATION ERROR	
	aroud	14	arownd	15
	arawnd	14	aroud	11
	arand	10	arund	8
	arund	9	orond	5
friends (friends)	freinds	43	freinds	42
	frinds	22	frends	40
	frends	19	friend	22
	frens	12	frinds	22
	frendes	9	frens	8
	frenids	6	frendes	6
cracked (craked)	craced	34	craked	53
	craked	24	cract	22
	skipped	13	craced	14
	crakede	8	crackt	12
	creaked	7	crakt	11
	crakked	7	crat	11
great (grate)	grat	71	grate	107
	graet	47	grat	54
	grate	39	graet	25
	greate	22	gat	7
	grait	14	greate	4
	skipped	13	grant	4
barked + barking (barkt)	barket	35	barcked	53
	barckt	28	baked	10
	barcked	28	barkt	9
	bark	20	backed	8
	barkt	10	barct	6
	skipped	9	braked	6
complained (cumplained)	complaned	34	complaned	98
	cumplaned	32	compland	90
	skipped	28	complaind	24

WORD	NAPLAN ERROR		DICTATION ERROR	
	cumplained	18	conpland	13
	complained	15	copland	8
	comeplained	12	compained	7
	cumpland	11	complande	7
wheel (weel)	weal	98	weel	92
	weel	32	well	10
	well	19	wheele	7
	weele	18	wile	6
	wele	18	welle	6
	weels	11	wel	6
	weell	10	weell	5
helmet (helmat)	hellmat	37	hellmet	34
	helmit	28	helment	26
	hellmet	25	helmit	16
	helmate	23	helmat	14
	helment	20	hemet	11
	helmat	14	helmate	10
	skipped	9	halmet	9
seat (seet)	set	78	seet	84
	seet	21	set	63
	sete	17	sit	29
	seete	15	sete	9
	skipped	11	site	8
	sett	8	sat	4
special (speshal)	speshel	37	speshel	37
	speshal	34	specil	24
	speshall	19	speical	22
	spashal	17	speshal	14
	speshale	14	specail	11
	speashal	14	speshle	11

Year 3: Word unidentified

WORD	NAPLAN ERROR		DICTATION ERROR	
could (coud)	<i>know</i> variants	55	cood	38
	(new	16)	code	29
	<i>after</i> variants	18	coud	16
	skipped	14	cod	10
	coude	10	cold	7
	cloud	6	cord	6
animal (animel)	<i>baby</i> variants	23	anamal	14
	<i>very</i> variants	22	anamel	10
	skipped	19	animale	9
	animle	10	animel	9
	anamel	10	anamle	8
	animil	10	anamil	7
	anamal	8	anmle	6
	animele	7	anmle	6
present (prescent)	skipped	23	presint	28
	<i>birthday</i> variants	20	presant	26
	presint	21	presnt	20
	pressent	13	preasent	12
	presnt	11	pesent	9
	precent	11	prest	7
little (litle)	<i>Fluffy</i> variants	38	litte	18
	(fluffy	21)	littel	10
	<i>cute</i> variants	35	litle	6
	skipped	19	littil	6
	littell	9	littl	4
	little	8	littol	3
	litte	3	lettle	3
millions (milions)	skipped	36	millons	64
	<i>tiny</i> varients	40	milions	21
	<i>body</i> variants	35	millyens	11

WORD	NAPLAN ERROR	DICTATION ERROR
	milons 26 millons 21 milions 16 mileons 15	melens 10 milens 10 milyins 9 millins 9
oxygen (oxegen)	<i>carries</i> variants 116 <i>blood</i> variants 68 oxagen 41 oxigen 29 oxgen 19 oxegan 18 oxegen 18 oxegon 18	oxygen 87 oxigen 49 oxgen 18 oxigin 18 oxegon 11 oxagen 9 oxigon 7 oxegin 6
properly (propley)	proply 98 <i>working</i> variants 46 skipped 44 propely 35 propley 29 proppey 21 prople 16 properley 15	proply 75 propely 38 propley 37 prople 31 propaly 24 propoly 22 propily 11 propaley 6
match (mach)	skipped 51 mache 40 mach 23 march 20 <i>football</i> 13 maech 13 much 11	mach 201 mache 11 macth 7 mack 6 march 5 macht 4 math 3
loudly (lowdly)	skipped 48 <i>supporters</i> variants 163 (suporters 44) <i>yelling</i> variants 47 (yeling 21)	loudley 31 louldly 16 lowdly 10 lodly 10 ladley 9

WORD	NAPLAN ERROR	DICTATION ERROR
	lowdley 20 louwdly 10 <i>where</i> 10 lowdly 8 louldly 5	ladly 8 ladle 8 londly 7 loundly 6 lawdle 5
hoping (hopping)	hopeing 59 skipped 55 <i>team</i> variants 48 (teem 18) <i>would</i> variants 40 hopping 16 <i>wine</i> 15 hoppeing 15 hoepping 6 <i>helping</i> 4	hopeing 111 hopping 108 howping 5 houping 5 hopen 5 hoppeing 4 hooping 4 hoppy 2 hopen 1 homing 1
pour (pore)	skipped 63 por 56 <i>before</i> variants 40 (befor 21) <i>started</i> variants 40 poor 31 pore 23 poure 18 pare 14 pure 12	pore 138 poor 77 por 40 paw 15 powr 6 pure 5 poar 4 powe 4 pare 4 pall 3

Year 5: Error Identified

WORD	NAPLAN ERROR	DICTATION ERROR
swimming (swiming)	swiming 12 simming 3 sweing 2 siwmming 2 skipped 2	swiming 12 simming 3 sweing 2 siwmming 2 simwwing 1
number (numba)	nummber 11 numbar 9 nummba 7 numbe 2 numba 1	nuber 4 nummber 4 naber 2 nabumber 1 nomber 1
friends + friend frends	freinds 25 firends 5 frendes 5 freands 5 friends 4 frends 4	freinds 33 frends 19 friend 8 frens 3 frinds 3 friendes 2
great grate	greate 14 grat 11 grate 11 graet 9 graete 5 gratte 3	grate 28 grat 8 graet 4 girte 1 gat 1 geat 1
competed compeated	compleated 37 completed 34 compeeted 31 compeated 31 compaeted 12 commpeated 9 compeated 9	compeated 56 compited 14 compatted 7 competied 5 completed 4 compieted 3 compeeted 2
popular	populer 85	populer 26

WORD	NAPLAN ERROR	DICTATION ERROR
populor	populur 15 populour 12 poppular 8 popluor 7 poppulor 7 populor 6	popula 15 populor 9 populur 8 populare 7 pouplare 6 popler 5
vanilla vanila	vannila 30 vinila 26 vanila 23 vanilar 19 vaniler 19 vanlia 15 vanilia 14	vanila 94 vinilla 20 vinila 17 vanilar 11 vannila 9 vinilar 8 vaniler 5
muscle mussel	mucsel 52 muscell 45 musel 38 mussel 25 mucel 24 muscal 22 muscel 20	musle 60 muscel 37 musel 28 mucle 26 mussle 15 mussel 13 musal 12
astronauts astronots	astronorts 149 astronouts 32 astronaughts 26 astronotes 15 astranots 13 astronuts 11	astronorts 97 astronaughts 37 astronots 23 astronouts 21 astranauts 9 astronaut 8
opposite oposite	oposite 126 opisit 53 opposit 26 opasit 26 oppisite 20 opisite 16	oppisite 79 oposite 58 opisite 39 opisit 15 oppsite 11 opersite 9

WORD	NAPLAN ERROR	DICTATION ERROR
shoulder (sholder)	sholder 38	sholder 117
	shollder 31	shoder 8
	sholdar 21	shouder 7
	skipped 11	soulder 4
	shoder 9	soder 4
	shulder 8	solder 4
	sholdre 5	shouldar 4
button (butten)	buten 53	butten 49
	botten 51	botton 18
	botton 20	buton 11
	butten 17	buten 9
	buttern 13	botten 5
	batten 8	buttin 4
	skipped 6	buttern 4
effects (effects)	efeks 49	efects 74
	effecks 48	affects 17
	efects 47	effect 11
	effecs 31	efex 10
	efecks 26	effets 9
	effets 11	efecs 7
	skipped 11	skipped 3
volume (vollume)	vollum 13	volum 18
	vollume 12	vollume 18
	voulume 5	vollum 7
	voloume 4	voulume 6
	vollumme 3	voloum 5
	vollmue 3	skipped 4

Year 5: Error Unidentified

WORD	NAPLAN ERROR	DICTATION ERROR
millions (millions)	millions 28 <i>tiny variants</i> milons 7 million 6 milions 5 milinos 3 mileons 3	millions 70 millions 9 millones 5 millins 4 milleons 4 millyons 4 milonses 3
oxygen (oxegen)	oxagen 85 <i>carries variant 2</i> (caries 50) oxogen 49 oxegon 36 oxigen 27 oxegan 26	oxegen 96 oxigen 21 oxegon 17 oxogen 16 oxagen 14 oxeygen 9 oxigon 8
properly (propley)	propely 63 propley 57 properley 31 propley 21 propoley 17 proppley 12	propely 47 propaly 31 propoly 24 propley 20 propley 16 properley 8
since (sinse)	<i>raining variants</i> (raining) 66 sines 16 sense 11 sinse 9 raning 7 cinse 7	scince 18 sinse 15 sins 12 sence 9 sines 6 sints 4 scence 3
lizard (lizerd)	<i>members variants</i> lizzerd 20 lized 10	lizerd 25 lizzard 24 lized 13

WORD	NAPLAN ERROR		DICTATION ERROR	
	lizered	9	lizzed	8
	lizerd	9	lizid	4
	lizred	7		
	skipped	6		
	meny	5		
	<i>their</i>	5		
climb (clime)	<i>mountains</i> variants	64	clime	48
	clim	21	clim	11
	climbe	19	climbe	5
	skipped	12	clame	4
	climed	4	climd	3
	cliame	4	clam	2
taste (taiste)	tast	69	tast	50
	<i>strawberries</i> variants	41	tate	12
	taiste	15	taist	8
	skipped	11	teast	7
	taest	6	taest	4
	taset	6	testas	3
	taist	6	tasted	3
	taiest	5	taset	3
	tasit	4	tast	2
version (vershion)	vertion	51	vertion	30
	vershon	30	vershon	13
	<i>heard</i> variants	17	vershion	13
	(herd}	9)	verson	9
	vershion	15	verion	8
	<i>different</i> variants	15	vershen	8
	vershtion	13	virshion	6
	verion	11	verstion	5
	verstion	11	virgin	5
marathon (marothon)	marothon	167	marothon	36
	<i>Training</i> variants	46	marthon	17

WORD	NAPLAN ERROR	DICTATION ERROR
	(training) 32)	marithon 13
	marothen 11	marrathon 9
	skipped 10	mathon 5
	marthon 6	maration 4
	marathan 5	marethon 4
	marithon 5	marathone 3
fitness	fitness 109	fitness 81
(fitness)	fitnes 107	fitnes 27
	<i>exercise</i> variants 99	fittnes 13
	(exersize) 26	fitnis 5
	exersise 18)	fiteness 4
	<i>improve</i> variants 19	fitniss 2
	skipped 10	fitnese 2
	fittines 3	fittnis 2
disappointed	dissapointed 120	dissapointed 126
(disapointed)	disapointed 70	disappointed 116
	diserpointed 32	disaponted 23
	skipped 31	disopointed 14
	disopointed 25	disapionted 10
	disipointed 22	diserpointed 9
	dispointed 20	disserpointed 8

Year 7: Word identified

WORD	NAPLAN ERROR		DICTATION ERROR	
community (community)	community	53	comunity	24
	communuty	21	commuity	6
	communty	13	comunaty	5
	skipped	5	communitte	4
	comunety	4	comunite	3
equipped (equipted)	equiped	141	equiped	141
	equipt	94	equipped	128
	equipted	57	equipted	42
	equippted	31	equip	14
	equiptted	23	equited	6
	skipped	16	equipte	5
previously (previously)	previosly	31		
	previsly	23		
	previously	13		
	skipped	11		
	preveusly	9		
	preveously	7		
	prevesly	6		
	previesly	6		
surgery (sergary)	sergery	145	sergery	32
	surgary	40	surgury	24
	sergury	20	surgary	18
	sergary	20	sergury	11
	surgury	11	sergary	10
	skipped	11	sugery	6
	serggary	5	surgurey	4
mischief (misscheif)	mischeif	87	mischeif	87
	mischef	19	mischef	19
	misscheif	14	misscheif	14
	mischif	13	mischif	13

WORD	NAPLAN ERROR		DICTATION ERROR	
	misschief	11	misschief	11
	mischife	9	mischife	9
	skipped	7	skipped	7
	mistchief	6	mistchief	6
recognise –ize (recanise)	reconise	163	reconise	79
	recanise	24	reconised	20
	recenise	20	recognised	17
	skipped	14	reconized	17
	recinise	9	recignise	10
	recanse	7	reckonise	6
	recanised	7	recodnise	5
	recignise	7	regonise	4
immediately (imediatley)	immediatly	129	immediatly	53
	immediatley	55	immedietly	18
	imediately	31	immeditly	9
	immediately	17	immediatley	9
	imediately	14	imediately	9
	imediantly	12	emediatly	6
	immediantly	11	emedietly	5
	skipped	10	immediantly	5
secluded (sicluded)	sucluded	52	sucluded	74
	Skipped	43	sicluded	28
	sicluded	40	surcluded	19
	sicluded	29	sucluded	16
	secured	25	sercluded	15
	cicluded	21	sacluded	9
	sicluded	15	cecluded	8
	sickluded	13	Skipped	7
	sacluded	12	socluded	6
athletes (athleats)	athlets	79	athlets	62
	athleets	40	athleats	38
	athleats	22	atheletes	25

WORD	NAPLAN ERROR	DICTATION ERROR
	atheletes 22 skipped 18 athleats 17 athleates 17 athelets 12 atheleats 10	athelets 6 Skipped 4 athleates 4 athleets 4 athlits 3 athliets 3
substantial (substaintal)	substantal 49 substancial 25 substainal 22 substaintial 20 skipped 12 substaintual 9 substancial 9 substaintual 9 substaintel 8	substancial 66 substansial 17 substaintual 16 substancal 10 substanchal 9 substansal 9 substanshal 9 substancual 8 substaintional 7
performance (performence)	performence 23 performense 14 performance 13 preformance 12 peformance 11 skipped 10 preformance 9 performence 8 proformance 7	performence 29 peformance 8 performs 7 proformance 6 performence 4 skipped 3 preformance 3 performans 3 performace 3

Year 7: Error Unidentified

WORD	NAPLAN ERROR	DICTIONARY ERROR
since (sinse)	raining 16 sines 9 sence 8 skipped 6 sinse 5 sense 4 scince 2	scince 5 sence 4 sinse 4 seens 3 sinces 2 sins 2 sience 2
lizard (lizerd)	lizzard 17 lizzerd 7 skipped 7 <i>their variants</i> 5 lizerd 6 lizeard 6	lizzard 29 lizerd 7 lisard 3 lizide 2 lizzed 2 lized 1
taste (taist)	tast 33 taiste 14 <i>strawberries variants</i> 8 teast 5 taest 5 skipped 5 tiast 3	tast 30 tate 11 taset 2 taiste 2 taest 2 taist 2 tarest 1
climb (clime)	<i>mountains variants</i> 26 skipped 12 climbe 10 clim 5 / 5 <i>l'd variants</i> 2 climed 2 clime 2	clime 26 climb 6 climbe 5 clim 4 clumb 2 climb 1 clam 1 clibme 1
version (vershion)	vertion 16 vershon 13	virsion 15 verson 13

WORD	NAPLAN ERROR	DICTATION ERROR
	<i>heard</i> variants 6 skipped 8 verstion 7 different variants 7 vershion 5 vesion 3	vertion 7 verion 6 vershion 4 verison 3 verision 3 virgin 3
consumed (consummed)	<i>guest</i> variants 27 skipped 12 consummed 10 consummed 7 conshummed 6 consommed 5 conssumed 5 comsumed 4	comsumed 17 consummed 10 conshumed 5 consume 4 consuemed 4 cosummed 3 consumd 3
marathon (marothan)	marothon 89 marthon 7 marathan 6 skipped 5 <i>Training</i> variants 4 marrathon 3 maruthon 3	marothon 17 marthon 9 marrathon 7 marithon 5 maraton 4 marathone 3 marethon 3
fitness (fittnes)	fitness 100 <i>Exercise</i> variants 57 fitnes 31 skipped 4	fitness 73 fitnes 8 fittnes 4 fitnise 3 fitness 1
description (descripshun)	discription 72 descriptions 37 descripshon 9 descriphion 9 skipped 7 <i>Perfect</i> variants 7	discription 97 description 7 descriptions 6 desription 5 describtion 5 description 3

WORD	NAPLAN ERROR	DICTATION ERROR
	description 5	discreption 2
poisonous (poisonus)	poisones 37 poisonis 31 poisoness 26 poisonious 14 poisinous 11 poisonos 10	poisoness 52 poiseness 21 poisonus 21 poisinous 16 poisenous 14 poisones 13
overwhelmed (overwelmed)	overwellmed 94 overwelmed 33 overwelmmmed 21 skipped 16 <i>amount</i> variants 16 overwealmed 13 overwelmd 13	overwelmed 131 overwellmed 30 overwelmd 8 overwelled 6 overwhemed 5 overwhelm 4 overwhelmd 4
antique (anteak)	anteek 75 <i>valuable</i> variants (48) anteack 25 anteake 24 valuble 21 anteke 16 skipped 13 anteck 11	antic 25 anteak 11 antick 10 anteck 9 anteque 8 antice 6 antec 5 antique 5
disappointed (disapointed)	dissapointed 189 disapointed 30 disopointed 17 skipped 16 dissappointed 12 disepointed 12 disipointed 12 <i>Where</i> variants 10	disapointed 165 dissapointed 134 dissappointed 15 disapointed 5 disaponited 4 diserpointed 3 desapointed 3 disipointed 3
announcement	anouncement 187	anouncement 78

WORD	NAPLAN ERROR		DICTATION ERROR	
(announcement)	announcement	87	annoucement	41
	anounsment	28	announcment	33
	anouncment	21	anouncment	19
	anoucement	16	annoucment	18
	skipped	11	anousment	14
	<i>radio variants</i>	10	anoucement	12

Year 9: Error identified

Word N = 443	NAPLAN ERROR	DICTATION ERROR
community (community)	comunity 42 skipped 5 communituty 4 communtiy 4 community 3 communitiy 1	communittee 2 commnity 2 communittee 1 commity 1 communitie 1 cnmutid 1
previously (previously)	previosly 14 previsly 10 previously 9 skipped 8 preveusly 5 previesly 3 prevesly 2	previosly 6 prevesly 6 previously 6 previsly 4 preversley 2 previesly 2 preaviously 2
surgery (sergary)	sergery 71 surgary 45 sergury 16 skipped 10 surgury 9 sergary 5 sergarey 2 surgarey 2	surgury 19 sergery 13 surgary 8 surgey 4 sergury 4 sergary 3 surgry 2 surgery 2
achievement (acheivment)	achievment 130 acheivment 31 acheivment 19 acheivement 10 achivment 7 achivement 7 skipped 7	achievment 48 acheivement 25 achivement 19 acheivment 17 achivment 6 archievement 4 acheivement 3
sufficient (suficient)	sufficent 110 suficient 22	sufficent 30 suficient 12

Word N = 443	NAPLAN ERROR	DICTATION ERROR
	skipped 17 sufficient 13 surficient 9 suficient 7 surficient 6 sufficant 6	sufficiant 7 suficiant 5 suffiecent 5 suffient 5 sufficant 5 surfishment 3
exotic (exsotic)	excotic 33 exsotic 17 skipped 17 exzotic 7 egsotic 5 excstotic 3 exsottic 3	excotic 10 exoitic 6 egsotic 5 exsotic 5 egzotic 4 agsotic 2 exioic 2
imagination (imaganation)	imaganation 24 immagination 16 skipped 9 imagenation 8 imagnation 5 imagination 3 immigration 2	immagination 16 imagenation 8 imaganation 4 emagination 4 imageration 3 imagnation 2 amagination 2
substantial (substaintal)	substantal 29 substancial 19 skipped 12 substansial 9 substainal 9 substansal 8 substaintial 8	substancial 68 substantual 13 substantal 4 substatial 4 substaintial 3 substancual 3 substansual 3
performance (performence)	performance 12 skipped 9 preformance 8 peformance 3	preformance 6 performents 4 performence 3 proformance 3

Word N = 443	NAPLAN ERROR	DICTATION ERROR
	preformance 2	preformance 2
	performace 1	peformance 2
	performents 1	perfrmance 1

Year 9: Error unidentified

WORD N = 443	NAPLAN ERROR	DICTATION ERROR
system (sistem)	skipped 9 sestem 4 <i>Jupiter variants</i> 3 plannet 1 sistum 1 system 1 sistem 1	sistem 1 sistym 1 systum 1 syste 1 siztem 1 system 1
consumed (consummed)	skipped 13 consumned 8 consummed 5 consommed 2 conshummed 2 <i>guests variants</i> 2	comsumed 10 consummed 8 consumend 4 concumed 3 consumned 2 conshumed 2
evacuate (avacuate)	avacuate 19 skipped 16 <i>siren variants</i> 31 advacuate 2 avuate 2 evacueate 1	evauate 4 evaquate 4 evacuuate 3 evacute 3 evacate 1 ifacuwait 1
failure (falure)	<i>unfortunately variants</i> 46 skipped 16 faliure 11 fallure 2 faluare 2 failiure 1 falure 1	failer 14 failier 9 faliure 5 failour 3 failuar 2 failiure 2
recreational (recreasional)	skipped 26 recreasional 21 <i>environment variants</i> 20 (enviroment 17)	recriational 11 recreational 5 recerational 2

WORD N = 443	NAPLAN ERROR	DICTATION ERROR
	recesional 6 recreasonal 4 recreacional 4 recreastional 2 recreassional 2 recriational 2	reacrecational 2 recretional 1 recreation 1 recqreational 1
overwhelmed (overwelmed)	overwellmed 41 skipped 20 overwelmed 18 overwealmed 12 overwelmd 9 overwelmmmed 7 ammount 4	overwelmed 55 overwellmed 9 overwealmed 8 overwhealmed 3 overwhelemed 2 overwelmd 2 overwehlmed 2
antique (anteek)	anteek 39 antic 17 skipped 18 anteack 14 antick 9 anteck 8	antic 11 antice 7 anteak 3 antick 3 anteque 3 entic 2
applauded (aplorded)	aplauded 68 aplorded 58 skipped 21 aplorded 14 aplored 9 applauded 7	aplorded 23 aplauded 19 applauded 10 aplorded 9 appluded 9 aplouded 4
recipients (recipiants)	skipped 31 <i>trophies</i> variants 25 (trophys 11) recipants 23 recipitants 22 recipiants 18	recipiants 95 recipients 15 resipiants 8 recipeants 6 resipients 6 recipants 6

WORD N = 443	NAPLAN ERROR	DICTATION ERROR
	recipeants 17 recepiants 13 receipiants 12	recipients 5
vulnerable (vulnerable)	vonerable 44 skipped 32 vunrable 25 preditors 20 vunerable 19 <i>predators</i> variants 18 vunarable 11 vunurable 8	vunerable 39 vonerable 23 volnerable 16 vonrable 14 vunrable 14 volnurable 8 vaulnerable 6
announcement (anouncement)	anouncement 125 announcment 63 skipped 20 annoucment 9 annoucement 9 anoucment 6 anounsment 5 announcment 5	anouncement 51 announcment 23 annoucement 17 annoucment 15 annoucement 6 anoucment 4 annocement 3
negligence (neglegence)	neglegance 117 skipped 36 neglagence 55 neglegence 30 neglectance 19 neglectence 8	neglegence 121 neglegance 38 neglagence 26 negligance 25 neglegents 23 negligents 17 neglagance 3
satellite (satalite)	satelite 140 satilite 74 satalight 45 sattelite 26 skipped 23	satelite 93 satalite 82 satilite 44 sattelite 34 satalight 19

WORD N = 443	NAPLAN ERROR	DICTATION ERROR
	satalite 15	satillite 9
	satallite 13	saterlight 9
camouflage (camiflarge)	camoflage 66	camoflage 101
	camoflarge 66	camoflaugue 78
	camoflaugue 37	camoflague 32
	camaflarge 33	camoflarge 25
	camiflage 25	camaflage 8
	skipped 19	camoflouge 6
faint + feint (feignt)	<i>correspondence</i> variants 54	feignt 11
	skipped 40	fient 10
	fient 13	fant 8
	fiegnt 15	fante 3
	feighnt 11	feighnt 3
	feignt 8	fiant 1
government (goverment)	<i>responsible</i> variants 16	goverment 20
	<i>various</i> variants 9	goevrnment 2
	goverment 6	govement 2
	<i>funding</i> variants 5	govoment 1
	<i>services</i> variants 3	govournment 1
	govnment 2	governement 1
	government 1	gurerment 1
	govement 1	conerment 1
	government 1	

Appendix 4: Number of error patterns

Year 3: Error identified

WORD	NAPLAN		DICTATION	
	% correct	# Error patterns	% correct	# Error patterns
like (lik)	89.97%	16	96.22%	12
open (opun)	75.66%	44	89.80%	32
Brown (broun)	65.79%	69	80.92%	47
swimming (swiming)	72.04%	60	76.15%	44
around (arownd)	57.24%	86	70.72%	80
friends (frends)	59.05%	77	60.36%	79
cracked (craked)	51.15%	108	57.07%	90
great (grate)	42.43%	76	59.54%	40
barked + barking (barkt)	46.05%	98	57.24%	114
complained (cumplained)	31.09%	192	21.71%	162
wheel (weel)	44.90%	68	64.14%	64

WORD	NAPLAN		DICTATION	
	% correct	# Error patterns	% correct	# Error patterns
helmet (helmat)	41.45%	101	51.15%	112
seat (seet)	57.24%	50	60.36%	36
special (speshal)	10.36%	206	24.18%	208

Year 3: Word unidentified

WORD	NAPLAN		DICTATION	
	% correct	# Error patterns	% correct	# Error patterns
could (coud)	63.16%	95	65.30%	78
animal (animel)	44.08%	145	60.20%	136
present (prescent)	51.64%	128	54.77%	113
little (litle)	68.26%	77	83.88%	43
millions (milions)	32.89%	162	31.25%	205
oxygen (oxegen)	4.28%	143	14.14%	257
properly (propley)	7.07%	143	30.76%	136
match (mach)	34.05%	109	54.28%	43
loudly (lowdly)	25.49%	181	57.24%	129
hoping (hopping)	37.66%	104	54.77%	37
pour (pore)	13.16%	148	35.86%	85

Year 5: Error Identified

WORD	NAPLAN ERROR		DICTATION ERROR	
	% correct	# Errors	% correct	# Errors
swimming (swimming)	94.14%	15	95.35%	11
number (numba)	88.69%	22	96.16%	15
friends + friend (frends)	84.65%	25	84.24%	31
(great (grate)	83.84%	29	90.10%	14
competed (compeated)	53.74%	78	73.54%	65
popular (populor)	56.57%	85	71.52%	89
vanilla (vanila)	57.17%	75	55.96%	91
muscle (mussel)	26.87%	102	42.83%	105
astronauts (astronots)	27.47%	139	34.75%	173
opposite (oposite)	24.24%	92	41.01%	95
shoulder (sholder)	65.66%	52	66.67%	51
button (butten)	60.40%	44	79.19%	40

WORD	NAPLAN ERROR		DICTATION ERROR	
	% correct	# Errors	% correct	# Errors
effects (effects)	40.61%	81	59.39%	88
volume (vollume)	84.04%	38	77.98%	68

Year 5: Error Unidentified

WORD	NAPLAN ERROR		DICTATION ERROR	
	% correct	# Errors	% correct	# Errors
millions (milions)	78.79%	52	73.33%	63
oxygen (oxegen)	25.86%	102	49.49%	134
properly (propley)	38.38%	92	54.34%	93
since (sinse)	62.63%	51	79.80%	51
lizard (lizerd)	66.87%	90	79.60%	49
climb (clime)	68.69%	73	83.43%	30
taste (taiste)	66.26%	55	80.00%	30
version (vershion)	48.89%	102	65.66%	94
marathon (marothon)	43.64%	86	73.33%	68
fitness (fitness)	39.39%	78	71.11%	50
disappointed (disapointed)	14.95%	102	17.37%	113

Year 7: Error Unidentified

WORD	NAPLAN ERROR		DICTATION ERROR	
	% correct	# Errors	% correct	# Errors
since (sinse)	84.18%	20	91.35%	27
lizard (lizerd)	82.22%	25	88.09%	27
taste (taist)	79.12%	28	89.23%	15
climb (clime)	82.06%	36	90.05%	15
version (vershion)	78.79%	42	82.54%	50
consumed (consummed)	74.23%	58	81.24%	61
marathon (marothan)	69.82%	35	84.18%	44
fitness (fittnes)	61.01%	33	80.26%	28
description (descripshun)	60.20%	56	66.39%	74
poisonous (poisonus)	43.07%	110	44.70%	126
overwhelmed (overwelmed)	43.39%	71	53.02%	77
antique (anteak)	41.44%	84	65.42%	94

WORD	NAPLAN ERROR		DICTATION ERROR	
disappointed (disapointed)	33.12%	53	32.79%	66
announcement (anouncement)	20.07%	67	40.95%	84

Year 7: Word identified

WORD	NAPLAN ERROR		DICTATION ERROR	
	% correct	# Errors	% correct	# Errors
community (community)	71.13%	48	81.40%	62
equipped (equipted)	10.60%	76	20.88%	76
previously (previously)	61.50%	83	75.69%	85
surgery (sergary)	36.87%	72	65.91%	83
mischief (misscheif)	29.20%	62	40.95%	149
recognise –ize (recanise)	26.43%	111	40.62%	128
immediately (imediatley)	20.07%	107	42.90%	180
secluded (sicluded)	20.72%	122	41.27%	145
athletes (athleats)	38.99%	73	60.03%	83
substantial (substaintal)	35.40%	140	37.85%	182
performance (performence)	63.46%	65	77.00%	69

Year 9: Error identified

WORD	NAPLAN		DICTATION	
	% correct	# errors	% correct	# errors
community (comunity)	83.30%	13	95.03%	16
previously (previusly)	80.36%	32	86.23%	34
surgery (sergary)	56.66%	28	80.81%	33
achievement (acheivment)	45.37%	21	63.21%	36
sufficient (suficent)	41.08%	56	62.08%	79
exotic (exsotic)	67.95%	42	82.62%	38
imagination (imaganation)	77.88%	29	92.1%	32
substantial (substaintal)	59.59%	54	58.01%	78
performance (performance)	88.26%	25	91.65%	18

Year 9: Error unidentified

WORD	NAPLAN		DICTATION	
	% correct	# of Error patterns	% correct	# of Error patterns
system (sistem)	93.00%	12	97.74%	6
consumed (consummed)	87.58%	21	88.26%	21
evacuate (avacuate)	77.20%	45	91.65%	21
failure (falure)	77.88%	43	88.49%	5
recreational (recreasional)	72.01%	37	86.46%	37
overwhelmed (overwelmed)	65.24%	34	73.59%	33
antique (anteek)	48.76%	66	82.17%	43
applauded (aplorded)	34.99%	64	68.62%	51
recipients (recipiants)	42.21%	69	44.24%	81
vulnerable (vunerable)	35.89%	65	41.76%	93
announcement (anouncment)	37.25%	30	61.63%	42
negligence (neglegence)	18.51%	68	26.19%	63

WORD	NAPLAN		DICTATION	
	% correct	# of Error patterns	% correct	# of Error patterns
satellite (satalite)	7.00%	47	18.51%	49
camouflage (camiflarge)	11.51%	76	20.77%	72
faint + feint (feigt)	56.21%	56	70.20% + 18%	15
government (goverment)	81.72%	12	90.97%	19

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