Australian Education Research Organisation

Writing development: What does a decade of NAPLAN data reveal?

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Research ethics

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Overview

This report details the findings and recommendations from one element of the Australian Education Research Organisation's (AERO) 'Literacy and numeracy' project. The research covered in this report was conducted over 2022 and sought to identify the specific areas of literacy and numeracy in which students need the most support. The project will generate practical, evidence-based resources to support teaching and learning in schools. This document reports on analysis of student writing across Years 3 to 9.

The key aim of the 'writing' element of the project has been to gain a greater understanding of how students' writing skills progress over time, by analysing student results from the National Assessment Program – Literacy and Numeracy (NAPLAN). NAPLAN is an annual assessment for students in Years 3, 5, 7 and 9 that measures student learning progress in literacy and numeracy. The dataset analysed in this project included over 10 million NAPLAN writing results from 2011 to 2021[1] and 366 samples of students' NAPLAN writing.

A mixed-methods approach to analysis, drawing on both quantitative and qualitative data, was implemented across 2 stages. During Stage 1, statistical and psychometric techniques were applied to the data to analyse changes in student writing performance over time; factors that might explain the changes; and patterns of strength and weakness in student writing. Stage 2 consisted of a qualitative analysis, which mapped actual student performance to the National Literacy Learning Progression (NLLP), Australian Curriculum General Capabilities, the New South Wales (NSW) Syllabus and Victorian Curriculum.

The analysis of NAPLAN data presented in this report is an Australian first. A large-scale, longitudinal analysis of student writing achievement in specific writing skill areas has not been conducted in Australian research to date. The findings demonstrate the value of NAPLAN data for tracking national performance in specific writing skills and how actual student performance aligns with the expectations of current curriculum documents and learning progressions.

[1] NAPLAN was not held in 2020 due to COVID-19 and thus is not included in this report.

Findings

The key findings of the analysis presented in this report are:

- There has been an overall decline in student achievement of persuasive writing skills. Average (mean) scores for Persuasive writing demonstrate a downward trend since 2011 with the decline more pronounced in the secondary years (Years 7 and 9). This is true for overall writing scores as well as scores for a number of specific writing skills.
- There has been a decline in the writing performance of high-achieving students in Persuasive writing performance over time. Specifically, the percentage of Year 5, 7 and 9 students who achieve a high NAPLAN score for all criteria (except for Spelling), has decreased.
- The gap between low- and high-achieving students widened for overall writing skills and most individual writing criteria[2] as students progressed through year levels.
- Analysis shows some students have uneven skills, with some stronger (or weaker) in mechanical writing skills (that is, word/sentence level) but weaker (or stronger) in authorial writing (whole text level features).
- There are some differences in NAPLAN writing performance when students complete an online assessment compared to a paper assessment. Punctuation is more difficult when writing online, but Paragraphing appears to be easier.

There are misalignments between the expectations of student writing capabilities as indicated in the curriculum documents (such as Australian Curriculum: General Capabilities, NSW Syllabus and Victorian Curriculum) and actual student achievement levels. The misalignment is far more significant for secondary than for primary year levels. The analysis provides detailed insight about students' ability to demonstrate the range of skills that are required to independently construct written texts. It shows that a high proportion of Year 9 students cannot successfully demonstrate some of the writing skills that will be necessary for them to meet the demands of senior secondary writing. These include:

- **Audience:** Over one-third (38%) of Year 9 students achieved a score of 3 or less out of a possible 6 for the criterion addressing **audience**. This indicates the students have not developed a broad understanding of how to support, engage and persuade the reader through writing, a skill required for senior secondary study.
- **Text structure:** Most students in Year 9 (85%) are finding it challenging to score the maximum score of 4 in this criterion. A score of 4 for Text structure

[2] In NAPLAN, writing skills are assessed using a scoring rubric that describes the skills as 'criteria'. The rubric and criteria are described in the Report at pp12-13 and detailed in Section 4.

demonstrates a student's control over text structure and an ability to clearly articulate a position with reasons, supported by evidence and a reinforced conclusion. This is a skill required in many Year 11 and 12 subjects.

- **Sentence structure:** Few students achieve scores of 5 (13%) or 6 (2%) out of 6 in Sentence Structure in Year 9. This indicates that students do not have control over a range of different sentence structures, which affects their ability to express meaning with precision.

Implications

The key considerations for both policymakers and teachers emerging from this research are:

- To address the persistent decline in writing performance over the last 10 years, an increased focus on the teaching and learning of writing across the curriculum is required, particularly in secondary school. The creation and adoption of practical resources focusing on improving instructional strategies in classrooms is one way of supporting this increased focus.
- Students are performing at lower levels than anticipated in curriculum and syllabus documents. This is particularly evident for Year 9 students, however, students in Years 5 and 7 are also achieving at a lower level than curriculum expectations. Teachers need to understand where their students are at to decide what their next teaching steps should be, to respond to student learning needs more effectively. If teachers use syllabus and curriculum documents as their guide, they are at risk of targeting their teaching well beyond what students are ready to learn.
- The performance of high-achieving students has declined over time. Further investigation of the reasons for this decline can support the development of strategies to help schools and systems ensure students are performing to the best of their ability.
- The evidence that students perform differently during online writing tests versus paper tests needs further investigation to understand possible causes. This is particularly important as writing online becomes increasingly expected in both curriculum assessment and post-school.
- The analysis also found evidence that gaps in writing performance are exacerbated as students progress through their learning stages. This reinforces the necessity of providing targeted and intensive support to low-achieving students early on, as without this, they are likely to fall further behind on their learning trajectories.

Recommendations

The following recommendations have been drawn from the findings of this project and are offered as a suite of proposed actions for practice, policy and research, with the goal to improve student writing. The recommendations are structured under 3 headings according to their focus and are intended to be succinct and direct. Further detail about how each of these can be progressed, and by whom, should be explored in consultation with federal, state and territory agencies.

Policy recommendations

Recommendation 1

Acknowledge, at a national level, the importance of writing and increase the focus on the teaching and learning of writing across the curriculum.

1a. Initiate a national conversation involving curriculum developers, policymakers, teaching representatives and writing experts.

1b. Increase access to high-quality and systematic professional learning resources about writing for school leaders and teachers.

Recommendation 2

Re-examine the National Literacy Learning Progression and various state and territory curriculum documents with evidence from current students' actual writing development and achievements.

2a. Apply the evidence from this research to re-examine the progression levels within each sub-element in the National Literacy Learning Progression with specific focus on re-examining the levels within the 'Creating Text', 'Grammar', 'Punctuation' and 'Spelling' sub-elements.

2b. Apply the evidence from this research to re-examine the alignment between expected outcomes as indicated in the Australian Curriculum – general capabilities and states and territories curriculum documents and demonstrated student achievement.

Teaching practice recommendations

Recommendation 3

Elevate the importance of the teaching and learning of writing across the curriculum in schools.

3a. Initiate a whole-school approach to writing so that the explicit teaching of writing skills across all subject areas is prioritised. A whole-school approach emphasises the importance of incorporating the explicit teaching of writing throughout all learning areas.

3b. Prioritise 'time to write' across the whole school to provide more opportunities for sustained writing time in the classroom.

Recommendation 4

Increase teacher access to evidence-based resources on best practice writing pedagogies.

4a. Create, collate and disseminate evidence-based resources on writing instruction for teachers.

Research recommendations

Recommendation 5

Further analyse NAPLAN writing data for information about specific student groups, genres and modes of writing, to maximise its instructional value.

5a. Analyse patterns of strength and weakness in student writing for students of different backgrounds (inclusive of socioeconomic status, Aboriginal or Torres Strait Islander background, students learning English as an additional language or dialect and coming from a regional, rural or remote area).

5b. Further investigate the impact of the mode of the writing through a more detailed comparative analysis of writing features between texts generated online and on paper to understand any implications for the teaching of writing.

5c. Analyse NAPLAN writing data for the Narrative genre as more data become available, starting with the 2022 assessment data.

5d. Examine the impact of keyboard skills on writing in the context of NAPLAN, which is an online writing assessment. Handwriting and Keyboarding appear in curriculum documents and have the potential to impact on writing performance.

Recommendation 6

Conduct qualitative research with key stakeholders to explore and better understand the quantitative analysis findings, particularly regarding the potential reasons for and solutions to the decline in student persuasive writing performance, overall and for higher-achieving students.

6a. Apply qualitative research methods to explore and unpack the factors which may have contributed to the findings of this study, such as why high achieving students' results are falling. This work could also uncover any effective strategies already implemented in schools.

6b. Conduct further research to co-design and evaluate appropriate supports for the teaching of writing. Pilot teacher professional development and initial teacher training to support explicit teaching of writing strategies for areas of potential concern identified by this research.

1. Introduction

This report is a key 2022 output of the 'Literacy and numeracy' project, which was conducted to support the Australian Research Organisation's (AERO) vision for Australia to achieve excellence and equity in education outcomes for all children and young people through effective use of evidence. The 'Literacy and numeracy' project aims to identify the specific areas of literacy and numeracy where children and young people need the most support and to generate practical, evidence-based resources to support the teaching and learning of those skills. This report describes research related to student writing achievement. Reports and resources from across the entire project are available from AERO's website.

This section of the report introduces the project with a discussion of its context, aims and research design, as well as the outputs of the project.

1.1 Context

Technology has changed and will continue to change the nature of writing in all facets of endeavour, however, an ability to write effectively remains fundamental to engaging with and producing knowledge throughout lives. Indeed, the importance of functional literacy skills for all young people is acknowledged by its inclusion as a global target of the United Nations' Sustainable Development Goals (SDGs). The SDGs are a set of goals 'for peace and prosperity for people and the planet, now and into the future' (United Nations, 2022). On a global, local and individual level, being able to write – and write well – is crucial to school success with implications for the further education and careers of today's school students.

Despite the importance of writing for schooling and beyond, a concerning number of students still write at levels lower than what is expected for their age. For example, in the 2021 National Assessment Program – Literacy and Numeracy (NAPLAN) writing test, 18% of Year 9 students achieved below the National Minimum Standard (NMS) with an additional 20% achieving only the minimum standard (ACARA, 2021a). Statistics such as these indicate that many students are not learning and developing their writing skills at the rate that is expected. Further information is required to understand why students continue to perform below minimum standards and why many students appear not to develop their writing skills at an expected rate so that interventions via policy and practice might be implemented.

1.2 Research aims

AERO's literacy and numeracy project is a targeted response to the significant knowledge gap in Australian research, practice and policy about how to address the persistently large numbers of students achieving at or below the national minimum standard in NAPLAN writing (Years 3 to 9) in each Australian State or Territory (McGaw et al. 2020). The research outlined in this report seeks to understand with greater specificity than before, how students' writing skills progress over time including which skills are being developed and when.

Specifically, the research investigates:

- trends in students' writing performance over time
- development of students' writing achievement between year levels
- strengths and weaknesses of student writing
- differences between student writing performance on paper and online
- alignment of expected standards of writing between the National Literacy Learning Progressions (NLLP) and actual student writing achievement.

1.3 Research design

AERO's literacy and numeracy project analysed student writing achievement using a large-scale, Australia-wide, longitudinal dataset of student results from NAPLAN. NAPLAN is an annual assessment for students in Years 3, 5, 7 and 9 which measures student learning progress in literacy and numeracy (ACARA, 2016).

The NAPLAN dataset analysed in this research included over 10 million writing assessments (n = 10,185,311) completed by Australian children between 2011 and 2021. It also included 366 samples of their writing. The analysis was carried out over2 stages. In Stage 1, a range of statistical and psychometric techniques were applied to the data to analyse changes in student writing performance over time, factors that might explain the changes, and patterns of strength and weakness in student writing. Stage 2 consisted of a qualitative analysis, which used test results and mapped student performance to the NLLP (ACARA n.d.). Student writing samples were also utilised for accuracy in aligning performance to the NLLP and to further clarify writing achievement and development.

1.4 Project contribution

These analyses fill a significant knowledge gap about Australian writing education. The research examines the consistency of expectations of student

writing nationally and the extent to which standards align with student performance levels demonstrated in NAPLAN writing assessments. The analysis also provides information about trends in the specific writing skills of Australian students and patterns of progression in these specific skills across year levels. This work has the potential to inform and impact curriculum, policy, and teaching to support the writing development of all students Australia-wide.

This document is a final report on the project, providing details on the methodology and findings. Where necessary, further information is provided in appendices or via links to associated documents. The research findings will be translated in a variety of ways so that the learnings from it are made meaningful and valuable for teachers and leaders. All reports and resources are available from the AERO website.

2. Background

> [Writing is a] foundational skill required for communication, future learning and full participation in economic, political and social life as well as in many aspects of daily life. In a digital age and in the context of a knowledge economy, personal and social communication is increasingly conducted in written text, including through mobile phones and social media.
>
> – United Nations Educational Scientific and Cultural Organisation (UNESCO) 2019:42.

As this quote from UNESCO highlights, writing is a critical skill for full participation in life, for communication and for future learning. Young people's acquisition of writing and other functional literacy skills is a global target of the United Nations' Sustainable Development Goals (SDGs), and also a focus of national and state education systems in Australia. The teaching and learning of writing are, therefore, areas of global, national and local significance.

This section provides a brief[3] background to the research, commencing with an overview of the teaching and learning of writing in Australia and how it is situated within policy and curriculum. This section also contextualises the dataset used in the research by providing a brief summary of the National Assessment Program – Literacy and Numeracy (NAPLAN) assessment and how it is marked.

2.1 Teaching and learning writing

How writing is taught in Australia is influenced by theories of teaching, learning and human development. Over time, different frameworks and approaches have affected the curricula which guide the teaching of writing in schools and the pedagogies applied within classrooms.

'Writing as a product' was the approach to teaching writing in the 1960s and 1970s, and was largely focused on teaching linguistic knowledge in isolation from composing texts. The weakness of this separation was that students often lacked the capacity to apply linguistic knowledge while writing texts. Emerging from the 1970s onwards was a focus on 'Writing as a process' which considered writing in terms of stages that students go through from ideation to publication. This approach suffered from not attending to the teaching of linguistic knowledge, grammar and text structures used in texts (Tribble 1996; Badger and White 2000).

Since the 1980s, genre pedagogy has been the dominant approach to writing instruction in Australia. The genre approach was informed by internationally

[3] A full literature review on this topic is available at: https://www.edresearch.edu.au/resources/writing-and-writing-instruction

respected genre-based language theory (Halliday and Hasan 1985) and involves developing linguistic knowledge within distinct social writing contexts. A genre approach takes a functional approach to literacy learning (Cope and Kalantzis 1993; Cope et al., 1993). There has been considerable success in this approach to teaching writing, with research demonstrating the significant benefit of explicit instruction, modelling and discussion of different genres on student writing achievement (Graham et al. 2015). The variety of approaches to teaching writing over the years highlights the efforts of Australian teachers in their commitment to implementing purposeful instruction.

Yet despite these efforts, there is evidence to suggest that many students' writing skills have not developed as expected. A recent review of the NAPLAN assessment conducted in 2020 by McGaw and colleagues found that there had been no improvement in the writing abilities of students in Years 3 and 5, and a moderate decline in the writing abilities of students in Years 7 and 9 over the last 10 years (McGaw et al. 2020; Thomas 2019). Indeed, many students' writing achievement still falls below national expectations. For example, in 2021, 18% of Year 9 students achieved below the National Minimum Standard in NAPLAN and another 20% achieved only just the minimum standard (ACARA 2021a). This low achievement in writing must be addressed to short-circuit the otherwise inevitable flow-on effects of poor writing skills for future schooling success and students' post-school opportunities. Addressing reasons for low achievement is also vital to ensuring equity in educational outcomes for all Australians.

Clearly, despite theory-informed practice, there is a gap in our knowledge about how teaching practice translates to student achievement in writing. There are a number of suggested reasons for the decline in student writing skills [4]. Preservice preparation and professional development in writing instruction have been criticised as inadequate (Brindle et al. 2016). When teachers are knowledgeable about and confident in writing instruction, they are more likely to dedicate time and attention to it, but if they are not adequately trained, then it has been suggested that writing instruction may be inadequate (Brindle et al. 2016; Troia and Graham 2016). This feeds into another proposed reason for weaknesses in student writing – the amount, frequency and quality of instruction. The amount of time allocated to writing has been highlighted as insufficient with claims that students do not write frequently enough, and teachers do not spend enough time teaching writing skills and strategies (Brindle et al. 2016, Wyatt-Smith et al. 2018).

The quality of teaching instruction has also been questioned, and while quality teaching is not a universal problem, approaches to teaching writing do vary across classrooms, schools and contexts. It has been suggested that a

[4] For a full discussion, see AERO (2022).

contributing factor to this may be the competing approaches to the teaching of writing which are presented during initial teacher training and ongoing professional development. Clary and Mueller (2021:2) criticised literacy education as being a 'parade of methodologies including learning styles, multiple intelligences, critical literacy, constructivism, whole language, process writing, genre theory, text types, balanced literacy and learning progressions.' Thus, competing approaches to the teaching of writing need to be considered as a potential contributing factor to the decline in student achievement.

Slow student attainment of early skills required to write well, including handwriting and spelling, might also contribute to poor writing outcomes (Graham et al. 1997; Christensen 2004). Underemphasis of the importance of foundational skills for reading (in the case of spelling) and writing has been suggested as a cause for weaker student writing skills (Santangelo and Graham 2016; Graham et al. 1997).

The ability of teachers to assess student development and provide feedback on it might also impact teaching and learning and therefore writing achievement (Parr and Timperley, 2010). Students require formative assessment, which is assessment and feedback that occurs during the learning process, to maximise learning as it takes place. However, making accurate inferences about students' strengths and weaknesses and adjusting instruction accordingly is challenging, often subjective and time-consuming.

Another contributor to the decline in student writing achievement may relate to the policy environment. The following section provides an overview of the writing curriculum policy context.

2.2 Writing policy, curriculum and progression documents

The current policy context has been described as 'the curriculum document maze' (Wyatt-Smith et al. 2018:8) highlighting a lack of coherent policy about the expected standards for student writing in Australia. A recent literature review into the teaching of writing (AERO 2022) claims that there is not yet agreement among writing experts about what constitutes an exemplary writing curriculum or progression model in Australia. The standards designed to guide the teaching of writing across the school years are contained in multiple curriculum documents including the Australian Curriculum, individual state and territory syllabi and supporting documents such as learning progressions and student samples.

Nationally, the recently developed Australian Curriculum (ACARA 2022a) and supporting National Literacy Learning Progression (NLLP) (ACARA n.d.) are available to guide the teaching of writing. Clary and Mueller (2021) claim that

these national documents lack coherence and precision regarding the content to be taught and the appropriate pedagogies to implement. However, since this claim was made, the Australian Curriculum has been updated, potentially improving its coherence and precision.

A key reason for a shortcoming related to precision is a lack of understanding of the developmental sequences in writing and writing instruction. A 2018 report by the NSW Education Standards Authority (NESA 2018) recommended the development of a detailed scope and sequence to better support writing instruction. The current project responds to these identified gaps in knowledge to support teachers' development of student writing through policy, training and resourcing.

The following section describes how writing development is presented within the NLLP – the most recent, wide-reaching, and empirically grounded learning progression in Australia.

2.2.1 The National Literacy Learning Progressions (NLLP)

The NLLP is a document developed out of research evidence that sought to accurately reflect the progression of student literacy skills. Published by the Australian Curriculum, Assessment and Reporting Authority (ACARA n.d.), the NLLP is for use in supporting 'students to successfully engage with the literacy demands of the Foundation to Year 10 Australian Curriculum' (ACARA n.d.:3). The NLLP was designed based on extensive foundational research in writing development (Knapp 2022), however, the use of the NLLP is not mandated which means that it may not be implemented in the teaching and assessment of *all* students.

Also, the documents have been criticised as not functioning in ways familiar to most Australian teachers (Clary and Mueller 2021). Engagement with the NLLP requires time and a level of understanding of the document. The Writing 'element' of the NLLP consists of 5 'sub-elements': Creating Texts, Grammar, Punctuation, Spelling, and Handwriting and Keyboarding. Figure 1 shows the features of the Grammar sub-element to illustrate the presentation of the NLLP.

Figure 1: Features of the NLLP

National Literacy Learning Progression

Sub-element title → **Grammar**

Sub-element description →

This sub-element describes how a student becomes increasingly proficient at creating written texts with higher levels of grammatical accuracy. Students display an increasing ability to compose coherent and cohesive texts across all areas of the curriculum for a wide range of purposes, making choices at the level of the whole text, the sentence and the word group level.

Grammatical inaccuracies often appear in students' work in response to increasing text and task complexity. These inaccuracies provide evidence of developing proficiency from informal spoken language to more formal written texts.

Some students will demonstrate the skills of the *Grammar* sub-element using augmentative and alternative communication, including digital technologies, sign language, Braille, real objects, photographs and pictorial representations.

Table explanation →

Each sub-element level has been identified by upper-case initials and, in some cases, lower-case letters of the sub-element name followed by ascending numbers. The abbreviation for this sub-element is GrA.

The listing of indicators within each level is non-hierarchical. Subheadings have been included to group related indicators. Where appropriate, examples have been provided in brackets following an indicator.

Table of progression →

Level	Indicators
GrA1	**Group and word level** • represents people, animals, places and things using words or phrases such as nouns or basic noun groups as labels (e.g. my house)
GrA2	**Whole text level** • writes sentence fragments or short, simple sentences using subject-verb and subject-verb-object structure (e.g. I play soccer) **Group and word level** • uses regular plural nouns correctly (e.g. dog, dogs) • represents processes using a small range of verbs (e.g. relating verbs – is, are; action verbs – ran) • writes common prepositional phrases to indicate time and place (e.g. in the morning, to the shops) **Grammatical accuracy** • writes sentence fragments (e.g. me and my dog) with inconsistencies in subject-verb agreement (e.g. he play)
GrA3	**Whole text level** • sequences sentences to reflect a logical flow of ideas • uses common cohesive devices such as simple pronoun reference when the referent is close to the pronoun (e.g. I have a bird. It can talk.) • uses basic text connectives repetitively (e.g. and, then)

As can be seen in Figure 1, each sub-element in the NLLP (in this case, Grammar) is presented with a short description and explanation, and then a table of 'indicators' of student progression. Indicators are statements that describe what a student says, does or produces and begin with 'A student…'

Where curriculum outcomes have traditionally been aspirational, the NLLP describes how students transition from novice to expert writers. The NLLP does this by describing the development of skills that are not age or grade specific. Instead, indicators of student skill are grouped together to form developmental levels. The levels within each sub-element are named with a letter and number code that indicates the abbreviated name of the sub-element and the developmental level. For example, GrA2 (in Figure 1) indicates the sub-element of Grammar at level 2. In the Grammar sub-element, there are 7 levels of progression. Table 1 shows the possible levels for each of the sub-elements.

Table 1: Sub-elements of the Writing NLLP: abbreviation and levels of progression

Sub-element	Abbreviation	Levels of progression
Creating text	CrT	1–11
Grammar	GrA	1–7
Punctuation	PuN	1–8
Spelling	SpK	1–14
Handwriting and keyboarding	HwK	1–8

The NLLP is Australia's national guide to clarifying students' literacy development and, in this context, writing development. To optimise the effectiveness of NLLP as part of classroom practice and formative assessment, it is necessary that it reflects students' actual writing abilities at each stage of learning and the progression from one stage to the next. Andrews, Hoffman and Wyse (2010) recognised the need for longitudinal studies of writing development specifically in the secondary years to understand learning progression. Freebody (2007:10) also highlighted a need for longitudinal research to help identify students who are not progressing and help develop resources to support their learning. In Australia, longitudinal data which points to student writing achievement over time exists through the NAPLAN. AERO's research was designed to take advantage of this longitudinal dataset to address many of the issues identified in section 2.2.1 above to enable improved teachers' use of NLLP in classrooms for formative assessment purposes.

The following section describes the dataset used in this research: national records of student writing achievement.

2.3 Data on student writing achievement: NAPLAN

The NAPLAN writing assessment is an assessment that is administered to all Year 3, 5, 7 and 9 students across Australia every year as a part of the Australian National Assessment Program. The National Assessment Program measures student learning progress in literacy and numeracy and is managed by the Australian Curriculum, Assessment and Reporting Authority (ACARA) in collaboration with representatives from all states and territories and non-government school sectors. The NAPLAN assessment consists of 4 to 5 tests taken by students over a period of 3 days each year. The first NAPLAN tests were administered in 2008 and have continued every year apart from 2020 when they were cancelled due to the COVID-19 pandemic.

Although NAPLAN is a national test designed to be taken by every eligible student, not all students sit the tests, meaning not all students receive an assessment of their learning. The reasons that students might not sit the tests are:

1. Official exemption from the test (for example, for newly arrived students with limited English skills). The rate exemption was 1% to 2% for each year level in 2021.
2. Withdrawal by parents (for example, for philosophical or religious reasons). The rate of withdrawal ranged from 2% to 4% across year levels in 2021.
3. Absence from school on the test day. The rate of absence ranged from 2% to 7% across year levels in 2021 (ACARA 2021b).

In 2021, the rate of participation in writing assessments varied from 94.6% for Year 3 to 89.6% for Year 9, with the Year 9 participation rate falling slightly below the participation rate (90%) required by ACARA for aggregated results to be deemed reliable. There has been a consistent decline in the participation rate of secondary students (Years 7 and 9) over the last 10 years, resulting in the lowest participation rates on record in 2021. This is of concern because research (CESE 2016) has shown that 'at risk' students are much more likely to disengage and not participate in tests than their peers. Thus, the students that could benefit from thorough assessment of their skill level across numeracy and literacy, and specific learning and teaching interventions, are missing out on this opportunity. Test disengagement poses a problem for policymakers and leaders seeking to make evidence-based decisions about educational policy and practice. If the declining participation trend and disengagement continue, information about a certain group of students may not be accurate, meaning ensuing responses may not be appropriate. At the same time, it means that any performance trends observed are likely to underestimate real underlying trends, due to inability to account for the performance of non-participating students.

The first NAPLAN writing tests took place in 2008 with students completing the assessments on paper. From 2018 a move was made to transition to computer-based assessments (for all Years except for Year 3), with 12% of students completing the writing tests online in 2018[5]. In 2019 over 50% of students completed NAPLAN online and in 2022 almost all of the students who sat the test (except for Year 3) did so online.

The NAPLAN writing assessment aligns with the Australian Curriculum: English (ACARA 2017) and includes assessment of the types of texts that are essential for students to master if they are to be successful learners, confident and creative individuals, and active and informed citizens. In the NAPLAN writing assessment, students are required to write in response to a stimulus or prompt. The text of the prompt is read to all students and students are asked to write a response in a set genre. A genre is a type of text characterised by certain features such as subject matter, form, function and audience. In each calendar year, all students sitting NAPLAN (Years 3, 5, 7 and 9) write in the same genre. As of 2021, students have been asked to write a Persuasive text on 7 occasions and a Narrative text 3 times. In 2022, students were required to write in a Narrative genre. Table 2 details which genres have been used in which years.

Table 2: Writing genres by year

Year	Genre
2011–2015	Persuasive
2016	Narrative
2017–2018	Persuasive
2019	Narrative
2020	n/a[6]
2021	Narrative

It is important to acknowledge that writing in NAPLAN is not necessarily the same thing as writing under natural conditions for authentic purposes. The nature of NAPLAN as a standardised assessment means that Persuasive and Narrative writing are constrained, and only certain aspects of the texts are measured. For example, there is more emphasis on the mechanical aspects of writing rather than the authorial (Perelman 2018; Carey et al. 2022). Carey et al., (2022) found that the NAPLAN Narrative test criteria did not adequately account for creative choices in student writing and as such did not reflect high-quality real-world writing. It has been suggested that NAPLAN works well as a test of the mechanics of writing but does not adequately judge the nuances of storytelling

[5] Based on the researchers' analysis of the data received from ACARA. See Methodology section for further information.
[6] 2020 test cancelled due to COVID-19 disruption.

and argumentation. Despite these weaknesses, NAPLAN *does* provide a lot of information about writing according to genre and student writing development which can be used to inform teaching practice.

Similarly to the NLLP, the NAPLAN writing assessment recognises that the development of thought and sophistication in written language is independent of year level. As such, students are given the same writing prompts across Years 3 and 5, and across Years 7 and 9[7]; they are assessed on the same criteria, and have their results reported on a single scale across all Years. The following section discusses in more detail the specific criteria on which students are assessed in NAPLAN writing assessments.

2.4 Marking of NAPLAN writing

Students' NAPLAN writing responses are scored by experienced NAPLAN markers using a rubric. A rubric is an evaluation tool consisting of, in the case of NAPLAN writing, 10 criteria. Each criterion represents a key writing skill area (ACARA 2012) and describes the standard for evaluating the extent to which students have demonstrated specific writing skills. The rubrics are genre-specific; that is, there are different rubrics for Persuasive writing tasks and Narrative tasks. However, the 2 genres share 9 of the same marking criteria – only one criterion differs. For the Narrative genre, 'Character and setting' is used and in the Persuasive genre use of 'Persuasive devices' is assessed. Table 3 is an example of a rubric used for marking Persuasive student writing.

Table 3: Example Persuasive writing rubric

Marking criterion	Score Range	Description
Audience	0–6	The writer's capacity to orient, engage and persuade the reader.
Text structure	0–4	The organisation of the structural components of a persuasive text (introduction, body and conclusion) into an appropriate and effective text structure.
Ideas	0–5	The selection, relevance and elaboration of ideas for a persuasive argument.
Persuasive Devices	0–4	The use of a range of persuasive devices to enhance the writer's position and persuade the reader.
Vocabulary	0–5	The range and precision of contextually appropriate language choices.

[7] Providing 2 prompts (one for primary and one for secondary) in an individual year's assessment commenced in 2015. Prior to this the NAPLAN assessment used one prompt for all students Years 3 to 9.

Marking criterion	Score Range	Description
Cohesion	0–4	The control of multiple threads and relationships across the text, achieved through the use of grammatical elements (referring words, text connectives, conjunctions) and lexical elements (substitutions, repetitions, word associations).
Paragraphing	0–3	The segmenting of text into paragraphs that assists the reader to follow the line of argument.
Sentence structure	0–6	The production of grammatically correct, structurally sound and meaningful sentences.
Punctuation	0–5	The use of correct and appropriate punctuation to aid the reading of the text.
Spelling	0–6	The accuracy of spelling and the difficulty of the words used.

Source: ACARA (2012:6)

Each marking criterion has a rating scale specific to the identifiable range of achievement in that criterion. For example, Table 3 shows that Audience is scored from 0 to 6 whereas Paragraphing is scored from 0 to 3. For each student writing response, scores on the 10 criteria are summed to create a total raw score that ranges from 0 to 48 (for Persuasive genre) or 47 (for Narrative genre).

The amount of assessment information generated from NAPLAN since 2008 for all participating students makes NAPLAN uniquely positioned as 'big data' (Cope & Kalantzis, 2016). The opportunities afforded by such 'big data' are significant for policy making, program evaluation and informing teaching practices. For example, this dataset is highly valuable for creating new and deeper understanding of the development of student writing, which can in turn inform the development of targeted teaching resources.

The following section (Methodology) describes how the NAPLAN dataset was analysed in this project to understand trends in national writing achievement and to build an understanding of how Australian students develop their writing skills.

3. Methodology

3.1 Introduction

This section describes the methodology undertaken in the project. The first section describes the acquisition of the data, followed by the methods by which the data were analysed.

3.2 Data collection

The data used in this project consisted of over **10 million student results** (N = 10,185,311) **from National Assessment Program – Literacy and Numeracy (NAPLAN) writing tests** from 2011 to 2021. This includes all available student responses, as the writing assessment, in its current form, started in 2011. The dataset for this project was also made up of **366 samples of student writing**, which are further described below.

A request was made to ACARA for the NAPLAN writing data, and the data was received in February 2022. Some issues with the data were identified and a revised dataset was received by the researchers in March 2022. Data were received as a single data file managed in the SAS statistical software by the Australian Curriculum, Assessment and Reporting Authority (ACARA) which was then converted for use in the STATA program.

The STATA file contained thirteen pieces of information for every student who participated in a writing test from 2011 to 2019 and 2021[8]. The thirteen pieces of information for each student test record were:

- calendar year when the test was taken
- schooling year level
- test mode (paper or online)
- raw scores for each of the 10 marking criteria.

Data cleaning was performed in STATA in consultation with ACARA and the cleaned data file was analysed using the programs STATA, R and Winsteps. Each data cleaning or analysis task was performed by at least 2 researchers who cross-checked each other's work.

Over 1 million students participated in NAPLAN writing in each calendar year. Table 4 details how many student records were received and analysed in each calendar year for each year level.

[8] NAPLAN was not conducted in 2020 due to COVID-19.

Table 4: Number of writing results by calendar year and year level

Calendar year	Genre	Year 3	Year 5 paper	Year 5 online	Year 7 paper	Year 7 online	Year 9 paper	Year 9 online	TOTAL
2011	Persuasive	252,935	258,583		261,772		245,416		1,018,706
2012	Persuasive	258,575	239,588		263,019		252,649		1,013,831
2013	Persuasive	261,844	258,006		260,736		253,113		1,033,699
2014	Persuasive	272,656	262,941		240,914		253,755		1,030,266
2015	Persuasive	285,043	267,169		258,214		251,814		1,062,240
2016	Narrative	291,686	278,959		264,101		233,705		1,068,451
2017	Persuasive	290,104	290,303		267,083		250,008		1,097,498
2018	Persuasive	312,329	251,071	46,405	235,399	44,053	212,777	42,655	1,144,689
2019	Narrative	292,489	137,384	159,248	145,564	142,659	126,697	129,518	1,133,559
2021	Narrative	291,686	n/a[9]	209,330	n/a[9]	192,385	n/a[9]	180,657	582,372
TOTAL									**10,185,311**

[9] The 2021 paper-based writing data contained some inconsistencies which cannot be reconciled by ACARA. This data was therefore excluded from all analyses in this report.

In addition to student results, the dataset also contained 366 student writing samples. These scored online samples were received from ACARA in April 2022 in an Excel spreadsheet. Table 5 below outlines the number of samples received by raw score and genre.

Table 5: Count of student writing samples in the dataset by genre and score

Raw Score	Persuasive	Narrative	Total
8	10	10	20
9	10	10	20
12	10	10	20
13	10	10	20
16	10	10	20
17	10	10	20
19	10	10	20
20	10	10	20
24	10	10	20
25	10	10	20
28	10	10	20
29	10	10	20
32	10	10	20
33	10	10	20
37	10	10	20
38	10	10	20
42	7	8	15
43	6	6	12
45	0	4	4
46	7	2	9
47	1	0	1
48	5	0	5
Total	**186**	**180**	**366**

3.3 Analysis

The NAPLAN writing data were analysed initially using quantitative techniques. A qualitative analysis was also applied to complement the quantitative findings. The following key Research Questions (RQs) were developed to focus the analysis:

1. Are there any discernible trends of student performance on each writing criterion over time?
2. What is the evidence of the growth in writing across learning stages, for example, from mid primary (Year 3) to upper primary (Year 5), to secondary (Years 7 and 9)?
3. What are the strengths and weaknesses in student writing across criteria?
4. Is there evidence of students performing differently on each criterion when writing on paper or online?
5. What is the degree of alignment between expected standards of writing from curriculum documents, ACARA's National Literacy Learning Progressions (NLLP) and NAPLAN student writing achievement?

The analysis of the data was conducted in 2 stages. The analysis in Stage 1 sought to answer RQs 1 to 4 and Stage 2 analysis responded to RQs 1 and 5. **Stage 1** used a range of statistical and psychometric techniques to understand changes in student writing performance over time, factors that may explain these changes and any patterns of strength and weakness in student writing that might be useful to guide teaching focus and Stage 2 analysis. **Stage 2** included a qualitative analysis of student performance at the criterion level over time and mapped actual performance to the NLLP and curriculum documents.

The next section describes the analysis conducted during Stage 1.

3.4 Stage 1 analysis

This section documents the data analysis undertaken in Stage 1: a) descriptive data analyses and b) measurement modelling.

3.4.1 Descriptive data analysis

To explore RQ1, trends in writing scores reported in the NAPLAN National Report (ACARA, 2021a) were analysed as a first step. Then, a more granular analysis was conducted on changes in the raw scores for each criterion over time using descriptive statistics (such as means, standard deviations, medians, percentiles, minimums and maximums), and percentages of scores in each score category over time. Trends of the mean criterion scores were visualised using time series graphs, and trends of the percentages of score categories were visualised using

stacked bar graphs. The results of this analysis contributed to understandings for **RQ1**, trends in writing over time.

The second descriptive analysis was to examine the trend data of high-achieving students in Years 3, 5, 7 and 9 to expand our understanding of **RQ1**. ACARA categorises students' writing performance into 6 bands based on the overall writing score every year, where higher bands refer to higher writing performance. Each NAPLAN writing band is associated with a set of achievement descriptors that remain consistent across calendar years. For this analysis, we first examined the trend in the proportion of students in the top 2 bands over time. Next, the proportions of scores in each criterion score category were presented using a series of stacked bar graphs to visualize the trends in Persuasive writing from 2011 to 2018 (excluding 2016). Criteria that demonstrated a significant change (9 percentage points or more) in the proportion of students achieving the top 2 score points over the period 2011 to 2018 were examined to better understand the changes in the performance of high-achieving students, in different aspects of writing skills. This provided insightful information for Stage 2 analysis to explore whether there were particular writing skills that students were performing better or worse in over time.

The third analysis contributed to answering **RQ2**: writing development between learning stages. This involved first tracking the performance of the 2011 Year 3 cohort (at a cohort level[10]) over time. Specifically, the average performance, as well as the spread, of the Year 3 2011 cohort was examined together with the average performance and the spread of this cohort when they were in Year 5 2013, in Year 7 2015, and in Year 9 2017.

The progression in the average performance of this cohort from Year 3 to Year 9 was investigated for each criterion, using 2 different approaches: (1) simple growth and (2) effect size. Simple growth was calculated as the increase in the mean criterion score between 2 time points (for example, Year 3 mean in 2011 and Year 5 in 2013). It provided a simple representation of the average progression within a criterion over a 2-year period. However, as criteria are assessed on different rating scales and scores also have different spreads across year levels and criteria, a second approach (effect size) was adopted. Effect size was essentially a standardised version of simple growth which expressed the growth in standardised (standard deviation) units. It was defined as the difference in the average criterion scores relative to the 'pooled variability'[11] of the criterion scores of a tracked cohort when assessed in 2 time points. In this way, the standardised growths across learning stages were independent of the criterion score ranges

[10] Individual student progression was not able to be tracked due to the nature of the data provided.
[11] Pooled variability of the criterion scores of a cohort assessed in 2 time points is calculated based on the standard deviations of criterion scores as well as sample sizes of this cohort, in the prior and in the later years, respectively.

and the variabilities in the criterion scores. Hence, effect size was considered a more valid measure (compared to the simple growth measure) for the purpose of comparing the amount of progression within the criteria over time. To test the generalisability of the finding from tracking one cohort as described above, the same techniques were applied to examine the rate of growth, in Reading, Numeracy and Writing, for 4 Year 3 cohorts (2011, 2012, 2013 and 2015[12]). This was done by tracking each cohort from Year 3 to Year 9 (at the cohort level) and by comparing cohort means when the cohort was in different year levels, using means published in the National Report (ACARA, 2021a).

A similar analysis was conducted to examine the changes in the spread of scores for each criterion and for overall writing scores, as the Year 3 2011 cohort progressed to Years 5, 7 and 9. To test the generalisability of the finding, we again examined the equivalent changes in 3 other Year 3 cohorts (2012, 2013 and 2015), using the criterion scores as well as the statistics published in the National Report (ACARA, 2021a).

For more information on how the uncertainty of the changes in the criterion scores were considered and addressed through methods, see the technical note.

3.4.2 Measurement modelling

After the initial descriptive statistics were obtained, measurement modelling was conducted. Measurement modelling is typically used to construct a *latent variable* (an underlying variable that cannot be directly measured, such as writing ability) and to express it, together with the *indicators* used to measure it (such as criteria relating to aspects of writing ability), on a measurement scale. Such modelling uses students' score patterns over indicators, which in this case were the 10 writing criteria. The measurement model adopted in this research was the Partial Credit Model (PCM) (Masters, 1982). This model accommodates the nature of the NAPLAN data where each writing skill is assessed on a rating scale. The PCM is also the type of model used by ACARA to scale NAPLAN writing data (ACARA, 2020b). In the current study, the PCM was used to estimate the difficulty level for each criterion, with the model constraining the sum of difficulty estimates of all 10 criteria to be zero. Therefore, the difficulty of one criterion was expressed relative to the difficulty levels of other criteria.

In a complementary analysis to further support understandings of **RQ1**, a technique called Differential Item Functioning (DIF) analysis was performed. DIF is a common technique used by assessment agencies to assess whether test questions function differently for different subgroups of students. For example, ACARA performs DIF analysis by Language Background Other than English (LBOTE) status on NAPLAN writing test results to determine whether any criteria appear to be more difficult for LBOTE students as compared to non-LBOTE

[12] Year 3 2014 cohort was not included in this analysis because their Year 9 NAPLAN 2020 results were unavailable due to the cancellation of NAPLAN tests in 2020.

students with the same overall writing performance (ACARA, 2019). The insights gained are used to improve the construction of tests.

The intention of the DIF analysis for **RQ1** was to both check the results from the descriptive analysis as well as to seek additional insights. For this purpose, Year 9 was selected as an example cohort. Firstly, the Persuasive paper-based writing data for Year 9 were pooled across all available calendar years. Then, using the Winsteps software program, the PCM was fit to the combined data to estimate the difficulty of each writing criterion. For each criterion, Winsteps calculates a DIF for each calendar year based on the difference between the criterion difficulty estimated from using one calendar year's data[13] and that from the pooled data. For a given combination of calendar year and criterion, the sign of the DIF can be used to determine whether the Year 9 cohort in that calendar year performed better or worse in the criterion compared to the average performance of similar-ability Year 9 students in other calendar years. For example, a positive DIF for Sentence Structure for 2019 means that the 2019 Year 9 student cohort achieved lower scores on this criterion than the average performance achieved by similar-ability Year 9 students in other calendar years. Changes of DIF over time for each criterion were then examined to identify patterns. DIF is usually statistically significant with large samples, however, the DIF size may not be of practical significance; that is, it may not result in an effect large enough to be meaningful in the real world. Generally speaking, if the DIF size is greater than 0.5, it is considered of practical significance (Linacre 2010).

It's important to stress that the DIF trend analysis shows a relative performance picture. That is, it tells us the change in student performance on a given criterion over time in the context of how these students performed on other criteria over the same period. For example, if there is a consistent upward DIF trend for Sentence Structure, it means student performance in this criterion declined over time at a consistently greater rate than their performance in other criteria over the same period. For this reason, it is not expected that the DIF analysis and the descriptive analysis, which exclusively focused on student performance in one criterion over time, would reveal precisely the same patterns.

An important advantage of conducting the DIF trend analysis is that findings from such analysis are expected to be less subject to the influence of external factors (such as differences in the demographics of cohorts over time), given the nature of the technique, than those from the descriptive analysis of trends. An additional advantage of DIF analysis is that both statistical and practical significance can be attached to changes in the criterion difficulty estimates to provide evidence about whether these changes should be considered to be

[13] This is estimated by anchoring the ability estimates of students of that year to those from the pooled data and then calculating the criterion difficulty estimate using that particular calendar year's data.

substantial. For **RQ3**, the pooled Persuasive paper writing data[14] across all year levels and calendar years (2011 to 2018, excluding 2016) was used. The focus this time was on the examination of the relationships amongst the 10 writing criteria. This analysis involved the following steps[15].

1. The Persuasive paper writing data were pooled across all year levels and all available years. A stratified random sample of 1.4 million records (200,000 records from each calendar year) was drawn for the Principal Component Analysis (PCA) analysis due to the data limit in the Winsteps software program.
2. PCM was applied to estimate the difficulties of each criterion and student writing abilities.
3. Residuals were calculated by removing the influence of the criterion difficulty and the student performance estimates from the raw student scores on each criterion.
4. PCA was undertaken on the residuals (Boone and Staver, 2020). The Principal Component (PC) loadings from the first Principal Component were examined to identify contrasting patterns of student performance across the 10 writing criteria.

This technique illuminated the criteria in which students performed strongly or poorly, contributing to understanding **RQ3**; that is, the strengths and weaknesses in student writing.

To answer **RQ4**, DIF analysis was performed on the pooled 2019 Year 5 to Year 9 data to identify whether students with the same writing ability levels performed better/worse on a particular criterion when tests were administered online compared to on paper. The use of a single year's data (2019) eliminated any effect on student performance that might have occurred as a result of the writing prompt (also known as 'prompt effect'). For each criterion, a DIF size was calculated as the difference in the estimated criterion difficulty between online and paper tests. The signs and magnitudes of the DIFs were used to determine whether student performance on each criterion (relative to their performance on other criteria) was worse/better in the online writing test than the paper writing test in 2019. Consistent with the rule mentioned above, a DIF size greater than 0.5 is interpreted as being of practical significance. A positive DIF with a size greater than 0.5 for a particular criterion indicates that students performed worse on this criterion in the online test than students with the same overall writing abilities performed in the paper test. On the other hand, a negative DIF with a size smaller

[14] For this analysis, only paper-based persuasive genre data were used to avoid the impact of genre and mode on the analysis.
[15] For a more detailed explanation of this technique, see CESE (2019).

than -0.5 indicates that the student performance on this criterion in the online test was better than that in the paper test.

3.5 Stage 2 analysis

Stage 2 of the analysis involved 2 main activities which aimed to analyse actual student achievement on each specific criterion and relate that new information to the learning progressions and the expectations in existing curriculum documents.

3.5.1 Describing performance on specific criteria

The Stage 2 analysis sought to gain a precise understanding of student writing across year levels in each specific writing criterion by mapping student scores against the descriptors associated with each score category across each criterion. This work aimed to identify the levels of knowledge or skills in each criterion that students are finding challenging to demonstrate any patterns of progress across year levels that may be of interest. This supports a more nuanced understanding of **RQ2**. It was also groundwork for the alignment activity which followed.

This activity was done only for the Persuasive genre tasks and only used data from the paper-based tests. The reasons for this were to eliminate the effect of the genre of the task on the score as well as any impact of the mode used to complete the test.

The first step in this analysis was to pool 2011 to 2018 (excluding 2016) Persuasive data across all years for each criterion and year level. The percentage of students achieving each score point was then calculated. For example, the Audience score can fall between 0 and 6 and the percentages of students achieving a 0, 1, 2, 3, 4, 5 and 6 presented a picture of what students actually achieved in this criterion in Persuasive writing between 2011 and 2018.

Once the percentages in each score category for each criterion and year level were established, the results were graphed. The evidence of what students could achieve in each criterion provided an important consideration of whether this achievement reflected the expectations in curriculum documents. To gain further understanding of what this translated to with regard to writing skills, 366 NAPLAN student scripts were then analysed by 2 researchers to establish examples relational to the score categories for each criterion.

3.5.2 Alignment to Curriculum documents and NLLP

In the final stage of analysis (supporting our understanding of **RQ5**), the following 4 documents were accessed:

- National Literacy Learning Progressions (ACARA, n.d.)
- Australian Curriculum – general capabilities (ACARA 2022b)
- NSW English Syllabus (NESA 2012)
- Victorian Curriculum F-10 English (VCAA 2014).

The Australian Curriculum – general capabilities, the NSW English Syllabus and the Victorian Curriculum or 'curriculum documents' outline the writing skills that students are expected to demonstrate at each year level.

The process of aligning the NLLP writing progressions to the NAPLAN assessment scores is not straightforward but is made possible by the fact that both are underpinned by what is generally referred to as the 'functional model' and is adopted by most Australian jurisdictions. An important premise of this model is that grammar has 2 key aspects: one is formal such as the rules of syntax that are not determined by the user, and the other is functional such that it is determined by the social purpose of the text. In a functional sense, therefore, some aspects of grammar are going to be particular to texts that argue and others particular to texts that narrate and so on. The generally accepted approach to teaching grammar in Australia is to 'teach grammar in context'. This means teaching grammar not as a decontextualised set of rules for correctness but as the possibilities the English language provides for delivering the message of the text clearly to its intended audience, with some aspects of syntax being fixed or non-negotiable and others flexible, being determined by the purpose and audience of the text. As a general rule, writers do not re-invent the language system when they sit down to write, and different types of writing have different conventions making it difficult to effectively deal with grammar outside of this context.

Using the average student NAPLAN scores for each criterion, as well as the top 2 score categories where most of the students were observed to achieve, 2 researchers evaluated to what extent the expectation outlined in each document aligned with actual student achievement. For example, for the NLLP, alignment activity involved examining the sub-elements of Creating Texts (CrT), Grammar (GrA), Punctuation (PuN) and Spelling (SpG)[16].

[16] Handwriting and Keyboarding were not aligned as this sub-element is not tested as part of the NAPLAN writing assessment, but keyboarding skills in the context of an online writing assessment is worthy of further exploration

To support this comparative process, student NAPLAN writing samples were consulted by 2 researchers: the project lead and an external expert. The writing samples were examined to understand the score that was applied for each criterion and the writing that evidenced this judgement.

3.6 Collaboration and expert review

Consultation was a key element of the project, which helped to support its rigour and relevance. From planning, through analysis, to identifying and communicating findings, various internal and external experts collaborated on the work and were consulted during the research process. Statistical data analysis was carried out by AERO statisticians (n=3). Qualitative analysis was carried out by AERO researchers (n=1) and external experts (n=1). This report was reviewed by staff internal to AERO (n=5) and an independent academic reviewer (n=1). Additionally, one of the researchers in the project team was a significant contributor to the NLLP (writing).

3.7 Conclusion to the methodology

This chapter has described the data used in the study and how it was analysed. As described, this research used a mixed methods approach to explore 5 research questions over 2 stages. In Stage 1, quantitative analysis techniques including descriptive, statistical and measurement modeling were performed on NAPLAN writing scores to reveal trends, strengths and weaknesses in student writing, as well as to show learning progression and the impact of mode of test on achievement. In Stage 2, qualitative techniques were used to situate students' actual writing achievements on different criteria in relation to 4 key curriculum documents.

The results of these analyses are presented in the following section on findings.

4. Findings

This section presents the key findings from the analyses under 6 headings, each answering a specific research question:

- 4.1 Trends in writing performance over time (RQ1)
- 4.2 Writing development across learning stages (RQ2)
- 4.3 Strengths and weaknesses in student writing (RQ3)
- 4.4 Differences in writing achievement by mode (paper vs online) (RQ4)
- 4.5 Student performance at the criterion level (RQ5)
- 4.6 Alignment of student achievement and curriculum documents (RQ5)

The first 4 sections (4.1 to 4.4) present the results from Stage 1 analysis and the last 2 sections (4.5 and 4.6) discuss the findings from Stage 2 analysis.

4.1 Trends in writing performance over time

The analysis undertaken in the project revealed 2 clear trends in student writing performance over time: a decline in Persuasive writing skill and a decline in high-achieving student performance. These are discussed following a brief discussion of trends in Narrative writing skills.

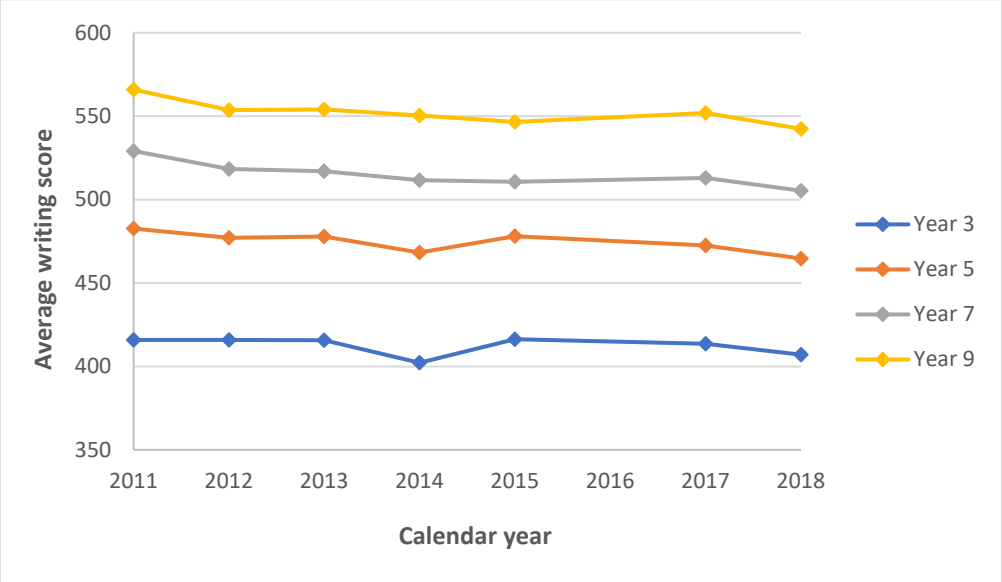
4.1.1 Overall decline in Persuasive writing skills

This finding was established through 2 different analysis techniques: Descriptive analysis and DIF analysis. The results from these 2 analyses will be presented separately before concluding statements about this trend are made.

Analysis 1: Descriptive analysis

An initial investigation of the average (mean) writing score for Persuasive writing showed a downward trend over time for all year levels, as shown in Figure 2. The decline is more pronounced in secondary years (Years 7 and 9). This initial investigation used figures from the NAPLAN National Report (ACARA, 2018) which indicates 2018 results were statistically lower than the 2011 results, for Years 5, 7 and 9, while not statistically different for Year 3.

Figure 2: Mean writing score for Persuasive writing (paper and online) from 2011 to 2018



Further analysis using criteria scores revealed that on average, student achievement in a number of the National Assessment Program – Literacy and Numeracy (NAPLAN) Persuasive writing criteria has declined over time. As described in the methodology section, the raw scores of each of the 10 marking criteria were obtained and descriptive statistics (for example, mean and standard deviation) were computed by calendar year for each criterion and year level. The results of the descriptive statistics are presented in Appendix A, and time-series graphs of average criterion scores from 2011 to 2018 (excluding 2016) are provided in Appendix B.

Visual inspection of the mean (average) raw scores was used to examine the trend patterns of the writing data at the criterion level. Table 6 below summarises the changes in the mean scores for each criterion for each year level over time. In summary, the analysis found that student proficiency in a number of writing skills in NAPLAN Persuasive writing tasks declined over time for at least some year levels. For primary students (Years 3 and 5), the criteria that saw the most decline were Text Structure and Persuasive Devices. For secondary students (Years 7 and 9), the criteria that deteriorated over time were Punctuation, Sentence Structure, and Vocabulary. Patterns for other criteria were less clear.

The only criterion that saw improvement was Spelling. Average student achievement in Spelling in NAPLAN Persuasive writing tasks improved between 2011 and 2018 for Year 7 and 9 students and remained consistent for Year 3 and Year 5 students.

Table 6: Trends in the means (average scores) of Persuasive writing task criterion by year level from 2011 to 2018.

	Year 3	Year 5	Year 7	Year 9
Audience	No trend	No trend (2011–2014) **Decreasing** (2015 – 2018)	No trend	No trend
Text Structure	**Decreasing**	No trend (2011–2014) **Decreasing** (2015–2018)	No trend	No trend
Ideas	No trend	No trend	No trend	No trend
Persuasive Devices	**Decreasing** (2015–2018)	No trend (2011–2014) **Decreasing** (2015–2018)	No trend	No trend
Vocabulary	No trend	No trend (2011–2014) **Decreasing** (2015–2018)	**Decreasing**	**Decreasing**
Cohesion	No trend	No trend (2011–2014) **Decreasing** (2015–2018)	No trend	No trend
Paragraphing	No trend	No trend (2011–2014) **Decreasing** (2015–2018)	No trend	No trend
Sentence Structure	No trend	No trend (2011–2014) **Decreasing** (2015–2018)	**Decreasing**	**Decreasing**
Punctuation	No trend	No trend (2011–2014) **Decreasing** (2015–2018)	**Decreasing**	**Decreasing**
Spelling	No trend	No trend	**Increasing**	**Increasing**

Table 7 depicts the changes in the standard deviation (variability) of scores for each criterion for each year level over time. A decreasing trend in the variability of scores indicates that the scores become more clustered around the average. An increasing trend indicates the opposite. In short, the analysis found that student proficiency in more than half of the writing skills in NAPLAN Persuasive writing appeared to become more clustered around the averages over time for at least some year levels. The criteria on which students became less spread out were Vocabulary (Years 5, 7 and 9), Paragraphing (Years 5, 7 and 9), Sentence Structure (Years 5, 7 and 9), Cohesion (Years 5 and 7), Punctuation (Year 9), and Audience (Year 5). On the contrary, the proficiency of some writing skills such as Spelling (Years 5, 7 and 9) seemed to become more spread out over time, signalling that students' spelling skill became more divergent; that is, the spread of student achievement of spelling is wider.

Table 7: Trends in the standard deviation (variability) of Persuasive writing task criterion scores by year level from 2011 to 2018.

Criterion	Year 3	Year 5	Year 7	Year 9
Audience	No trend	**Decreasing** (2011–2017)	No trend	No trend
Text Structure	**Increasing**	No trend	No trend	No trend
Ideas	No trend	No trend	No trend	No trend
Persuasive Devices	**Increasing**	No trend	No trend	No trend
Vocabulary	No trend	**Decreasing**	**Decreasing**	**Decreasing (2011–2015)**
Cohesion	No trend	**Decreasing**	**Decreasing**	No trend
Paragraphing	No trend	**Decreasing (2011–2015)**	**Decreasing (2011–2015)**	**Decreasing (2011–2015)**
Sentence Structure	No trend	**Decreasing (2011–2017)**	**Decreasing (2011–2015)**	**Decreasing**
Punctuation	No trend	No trend	No trend	**Decreasing**
Spelling	No trend	**Increasing (2014–2018)**	**Increasing (2014–2018)**	**Increasing (2014–2018)**

The spread of criterion scores was also examined through the lens of whether the spread in a year level became larger as the group moved across learning stages. The initial analysis involved comparing the spread (of scores in a particular criterion) in Year 3 results to that in Year 5, in Year 7 and in Year 9, in the same calendar year. This revealed a universal pattern that the spread of scores in a criterion increased as the year level progressed from Year 3 to 5 to 7 and to 9, irrespective of the calendar year or the criterion examined. However, this pattern could be due to demographic differences in the year levels examined as they contained different cohorts of students (for example, Year 3 2011 and Year 5 2011). To address this, we also tracked a cohort of Year 3 students in 2011 through to Year 9 in 2017. Section 4.2 reports changes in the spread of the criterion scores for this tracked cohort.

Analysis 2: DIF analysis

The descriptive analysis of the average criterion scores shows consistent downward trends in some criteria for the secondary year cohorts (Table 6).

In order to check these trend patterns, we undertook a complementary measurement analysis on the performance of criteria for one cohort (Year 9) over time. As described in Section 3.4, DIF analysis by calendar year was undertaken using Year 9 Persuasive paper writing data from 2011 to 2018 (excluding 2016).

Across all 10 criteria, only 2 practically significant DIF sizes were detected for Year 9: Spelling in 2011 (DIF=0.65) and 2018 (DIF=-0.63). As described in Section 3.4, the positive DIF result in 2011 indicates that the Year 9 2011 students performed significantly worse in Spelling compared to the average performance of similar-ability Year 9 students in other calendar years. On the contrary, the negative DIF result in 2018 indicates that the Year 9 2018 cohort performed significantly better in Spelling than the average performance of similar-ability Year 9 students in other years.

The trends in DIF for the 10 criteria were investigated and represented in Figures 3 to 5 according to their trend patterns as identified through the descriptive analysis. Spelling (Figure 3) was the only criterion that showed a reasonably consistent downward trend in DIF, meaning that Year 9 student performance in Spelling consistently improved, more than their performance in other criteria, over time.

Sentence Structure (Figure 4), on the other hand, showed a general upward trend pattern in DIF, which suggests that, relative to other criteria, student performance in this criterion deteriorated more over time. Trend patterns for the other 2 criteria (Vocabulary and Punctuation) that showed decline from the descriptive analysis, were more volatile, although, for both criteria, the DIF increased between 2011 and 2018. This means student performance declined over that period, for students of the same writing abilities.

Other criteria had more fluctuating patterns in DIF, which are more difficult to interpret (Figure 5).

Figure 3: Criteria with decreasing DIF (higher performance) over time

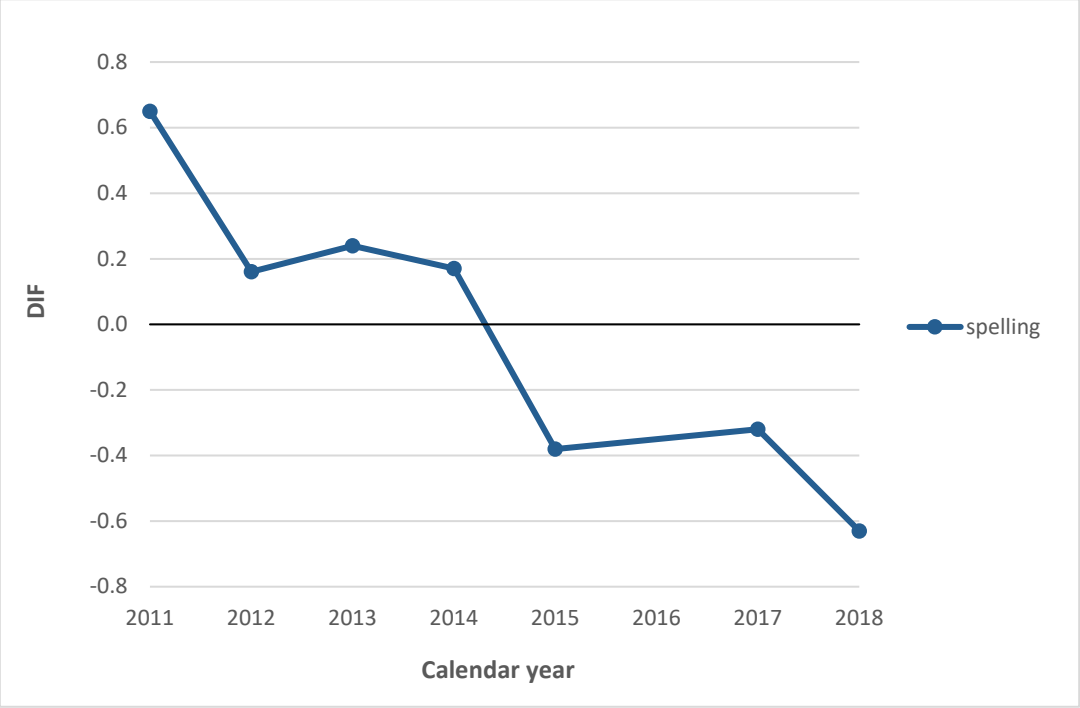


Figure 4: Criteria with increasing DIF (lower performance) over time

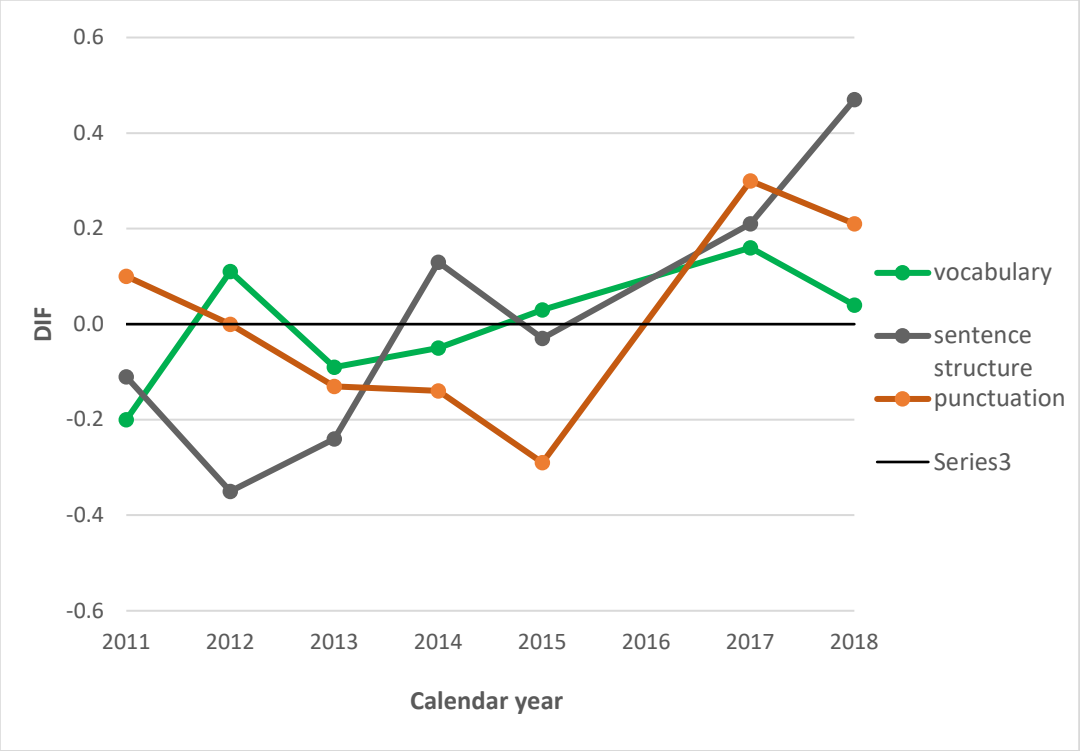
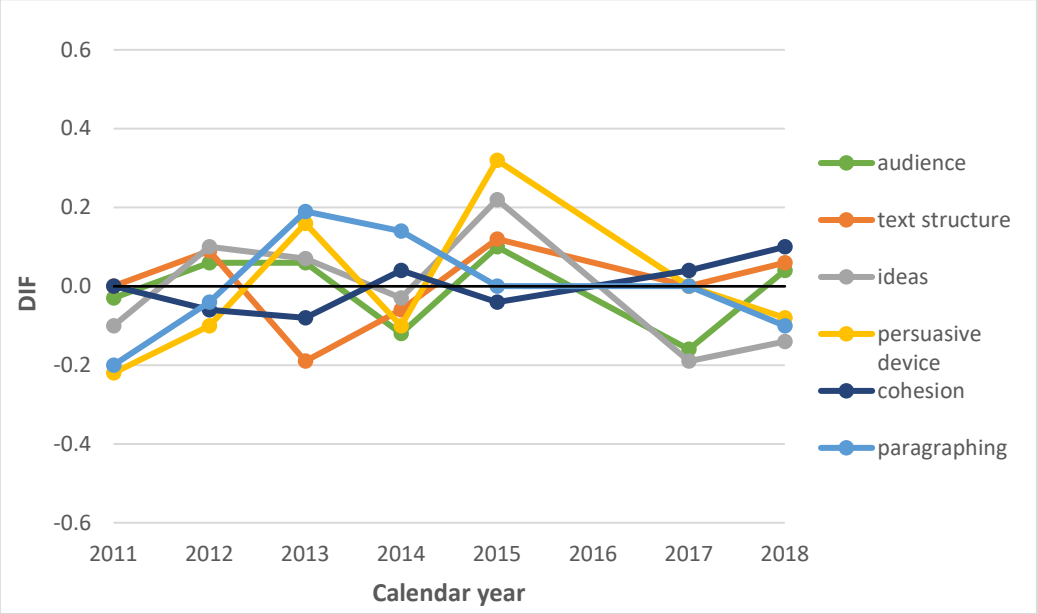


Figure 5: Criteria with stable/fluctuating DIF over time



Conclusions about decline in Persuasive writing skills

Two analyses were conducted on the NAPLAN Persuasive writing data. They established that there has been an overall decline in student Persuasive writing skill and identified which specific criteria have seen falls in achievement.

For primary students (Years 3 and 5), Text Structure and Persuasive Devices saw the most decline. For secondary students (Years 7 and 9), achievement in Punctuation, Sentence Structure, and Vocabulary fell. Patterns for other criteria were less clear. The only criterion that saw improvement was Spelling.

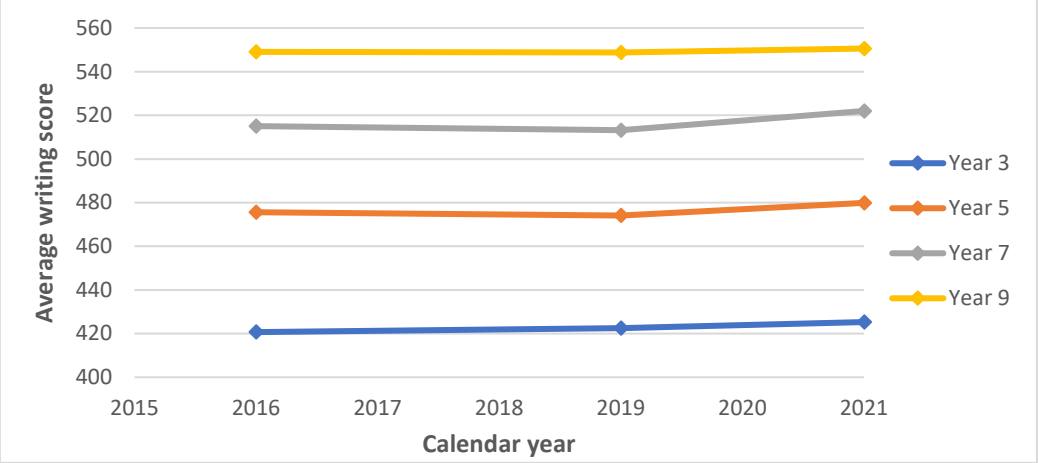
At the same time, students' proficiency in more than half of the writing skills in NAPLAN Persuasive writing appeared to become more clustered around the average over time (for at least some year levels). The criteria that became less spread were Vocabulary (Years 5, 7 and 9), Paragraphing (Years 5, 7 and 9), Sentence Structure (Years 5, 7 and 9), Cohesion (Years 5 and 7), Punctuation (Year 9), and Audience (Year 5).

4.1.2 Narrative writing skills appeared to be consistent or slightly improved since 2016

A Narrative writing task was set in 2016, 2019 and 2021. Given that the time series for Narrative writing only contains 3 time points, few conclusions about trends in this genre can be made with confidence.

An initial visual inspection of the average writing score in Narrative writing in 2016, 2019 and 2021 (Figure 6), using figures published by ACARA[17], revealed that the overall Narrative writing performance slightly improved for the Year 3 cohort from 2016 to 2021, though without the raw data, tests of statistical significance were unable to be calculated[18]. For Year 5 and 7 cohorts, the average writing performance slightly declined between 2016 and 2019 but improved (particularly for the Year 7 cohort) between 2019 and 2021, however, none of the improvement between 2019 and 2021 was statistically significant (ACARA, 2021a). The overall writing performance remained stable for the Year 9 cohort. Narrative writing results (by criterion and year level) for 2016 and 2019 are presented in Appendix A.

Figure 6: Mean writing score for Narrative writing (paper and online) in 2016, 2019 and 2021

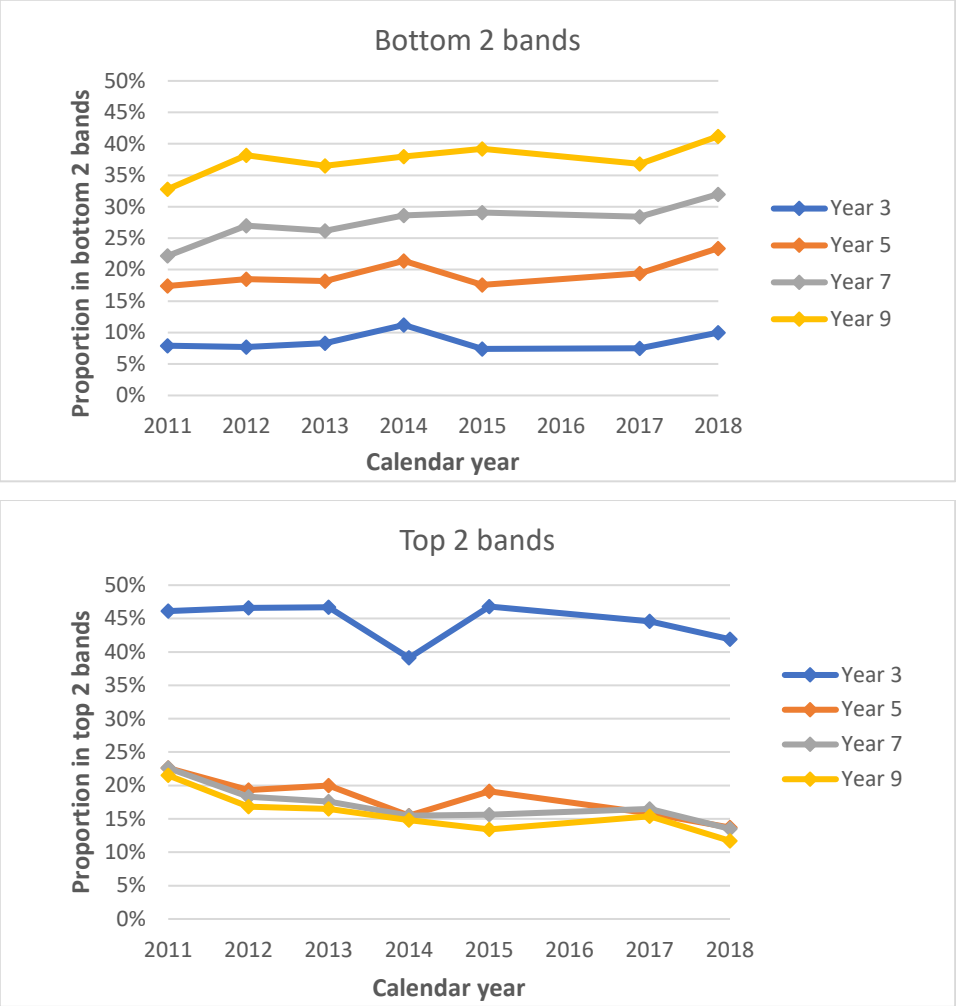


4.1.3 Decline in high-achieving student Persuasive writing performance over time

Analysis showed that Year 5, 7 and 9 cohorts experienced a decline in the proportion of students achieving **overall writing scores** in the top 2 bands (see Figure 7). In other words, some students who had previously achieved high writing scores were no longer doing so – their NAPLAN achievement had declined. Although a decline in the performance of students in the bottom 2 bands was also revealed, this information is not surprising or new (for example, see McGraw et al. 2020 for discussions relating to the National Minimum Standards). Therefore, the remainder of this analysis will focus on the specific aspects of writing in which high-achieving students are performing less well.

[17] Summary data from NAPLAN National Report (ACARA 2021) was used due to a data issue related to 2021 paper records.
[18] No statistical significance was reported for the comparison of results between 2021 and 2016 in the NAPLAN National Report (ACARA, 2021).

Figure 7: Percentages of bottom 2 and top 2 bands across year levels for Persuasive writing (paper and online)



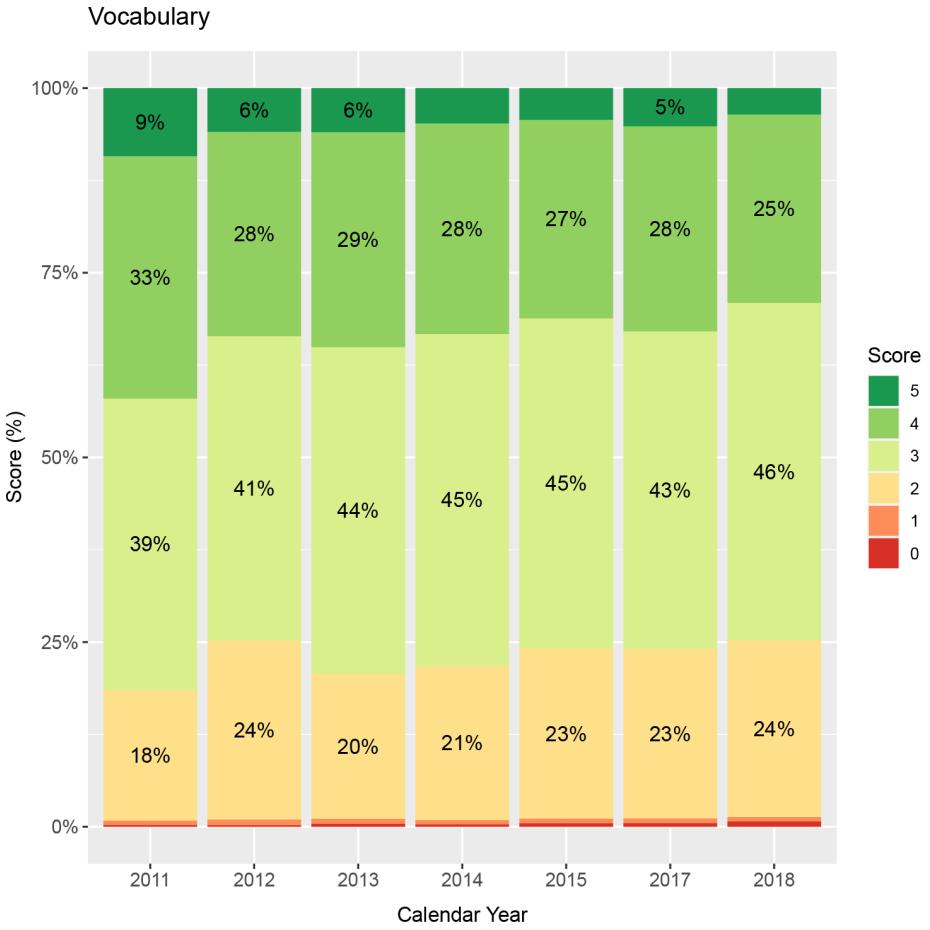
Close analysis of the proportion of students in score categories **by each of the 10 writing criteria** found that across all criteria (except for Spelling) the percentage of Years 5, 7 and 9[19] students in the top 2 score categories had decreased. When looking at Year 5, 7 and 9 there is some consistency across year levels and criteria that demonstrated declining percentages of high-achieving students. For instance, the percentages of high achieving students in both Year 5 and Year 7 have declined in the writing criterion of Cohesion. Similarly, the percentage of students achieving high scores on the Paragraphing criterion was also consistent across Years 7 and 9.

Appendices C and D contain tables and stacked bar graphs of the proportions of students in the top 2 score categories for *all* criteria and year levels. As an

[19] Year 3 students did not demonstrate a negative trend in the top scores. Instead, they demonstrated a stable representation of higher-achieving students in the population cohort over time.

example to illustrate the decline in high-achieving student Persuasive writing, stacked bar graphs in Figure 8 show Year 9 student scores for 2 criteria: Vocabulary and Sentence Structure. The graphs show the proportion of students who achieved the top 2 scores (dark and light green sections). As can be seen, the green sections (proportions of students achieving that score) have reduced over time for both the Vocabulary and Sentence Structure criteria.

Figure 8: Proportion of Year 9 students in score categories for Vocabulary and Sentence structure in Persuasive writing (paper and online)



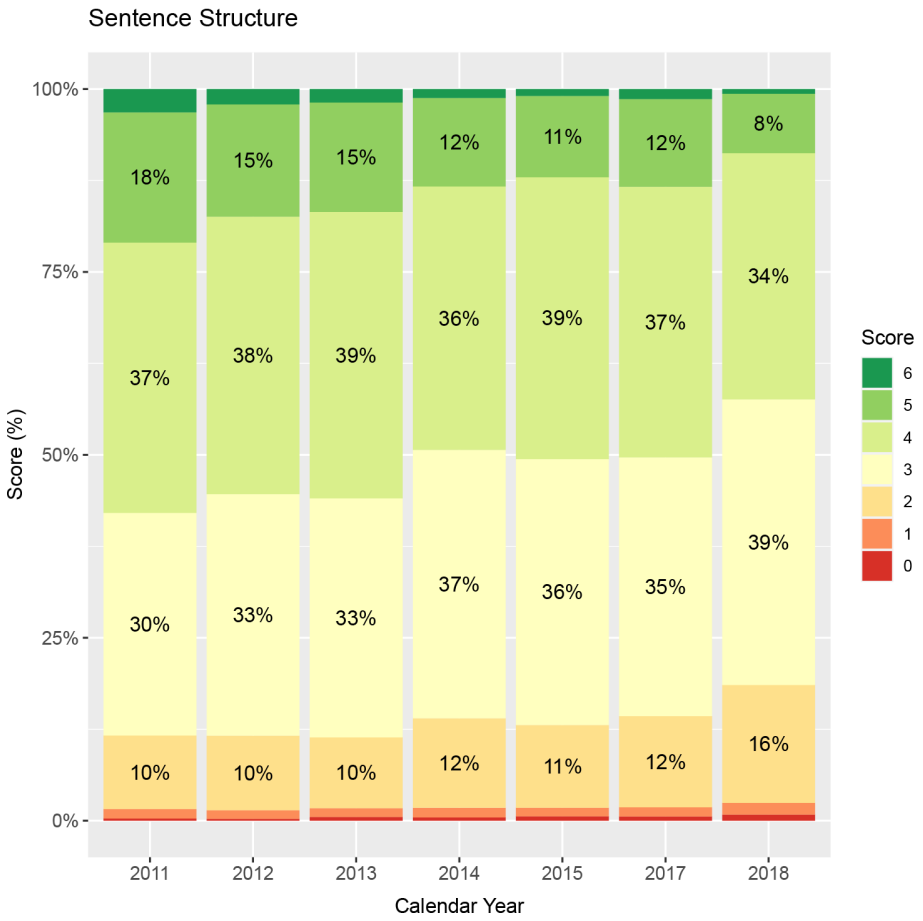


Table 8 presents the key findings related to high scores for specific criteria for each year level. For ease of presentation, criterion have been grouped according to 2 types of text features[20]:

- Whole text level writing features: Audience, Text Structure, Ideas, Persuasive Devices and Paragraphing.
- Word or Sentence level writing features: Sentence Structure, Punctuation, Cohesion, Vocabulary and Spelling.

[20] Some criteria (for example, cohesion and vocabulary) can be included in both whole text and word or sentence-level writing features.

Table 8: Summary of key findings related to the decline in high-achieving student Persuasive writing scores by year level

Year 5 Whole text features	Year 5 Word/Sentence level features
In this group of writing skills, high achieving students in Year 5 declined the most in **Audience, Text Structure** and **Persuasive Devices** which indicates that fewer students over time are developing competency on the authorial structural elements of effective persuasive writing in the NAPLAN context, as defined in the marking guide. In 2011, 20% of students were able to access a score of 4 out of a possible 6 for the **Audience** criterion. This percentage decreased over time and by 2018 the per cent of students achieving a score of 4 has reduced to 11%. For the **Text Structure** criterion, there was a decline in the percentage of students scoring the second highest score point from 28% in 2011 to 18% in 2018; however, it is not an even negative trend line as identified in the Audience criterion. For **Persuasive Devices**, a similar pattern exists. Whilst there was some volatility in the data, Figure 13 demonstrates a general decline in the percentage of students achieving a score of 3 over time. For example, in 2011, 27% of students were able to score a 3 out of a possible 4, by 2018 this has reduced to 18%, the lowest per cent in the 8-year period examined.	Year 5 students' ability to demonstrate a high achievement level on the **Cohesion** criterion appears to be declining over time. Whilst not a steady decline, the percentage of students achieving a score of 3 out of a possible 4 gradually declined from the peak in 2011 (23%), to the lowest in 2018 (14%) over the 8-year period examined. For **Sentence Structure**, the percentage of students in year 5 who achieved a score of 5 out of a potential 6 also declined over time (Figure 15). While 17% of students in 2011, 2012 and 2013 were able to score a 4, this percentage declined significantly from 2014 to 2018, to only 9% in 2018.

Year 7 Whole text features	Year 7 Word/Sentence level features
The most significant decline for high achieving students in Year 7 for the whole text level aspect of writing was **Paragraphing**. Sixteen per cent of Year 7 students in 2011 were able to access a top score of 3. This percentage declined over the calendar years and by 2018, only 6% of high achieving students were able to achieve a score of 3.	The steady decline of the percentage of high achieving students who are achieving a score of 4 out of a possible 5 in the **Vocabulary** writing criterion from 2011 to 2018 is a cause for concern. In 2011, 19% of high-achieving students achieved a score of 4, however, this declined to the lowest point of 10% in 2018 through a gradual decline over this 8-year period. The reduction of high-achieving students achieving a score of 4 also has implications for the spread of scores with an increase of students achieving a score of 2 from 30% in 2011 to 43% in 2018 (Figure 17). **Cohesion** is also a writing criterion that appears to be declining over time. High-achieving students in 2011 who were able to achieve a score of 3 out 4 represented 40% of Year 7 students. Over time the percentages of high-achieving students declined and by 2018, only 31% of students were able to achieve a score of 3.

Year 9 Whole text features	Year 9 Word/Sentence level features
For **Text Structure**, the percentage of students who achieved the highest score of 4 declined. In 2011, 21% of high-achieving students were able to achieve a score of 4. Despite some fluctuation in this percentage over time, by 2018 the percentage of students who achieved a score of 4 had reduced to 10%. For **Persuasive Devices**, 22% of the 2011 cohort were able to achieve a score of 4. However, this percentage declined to 14% in 2012, which then remained relatively stable until 2017. In 2018, however, there was a further 4 percentage point drop from 2017, meaning only 10% of students in 2018 achieved a score of 4. Overall, over the 8-year period, the per cent of high-achieving students declined by 12 percentage points for this criterion. For **Paragraphing**, 28% of students in 2011 were able to achieve a score of 3. This percentage declined the following year (to 21%) and this pattern continued to 2018 where only 15% of high achieving students were able to achieve a score of 3.	For **Sentence Structure**, the percentage of high-achieving students who attained a score of 5 out of 6 declined. In 2011 18% of high-achieving students were able to score a 5. This declined to 15% in both 2012 and 2013 before continuously declining to 8% in 2018. The decline in students' ability to write a variety of sentence types is concerning. For **Punctuation**, high-achieving students who were able to access a score of 4 represented 26% of the cohort in 2011. However, this gradually declined to 17% in 2018.

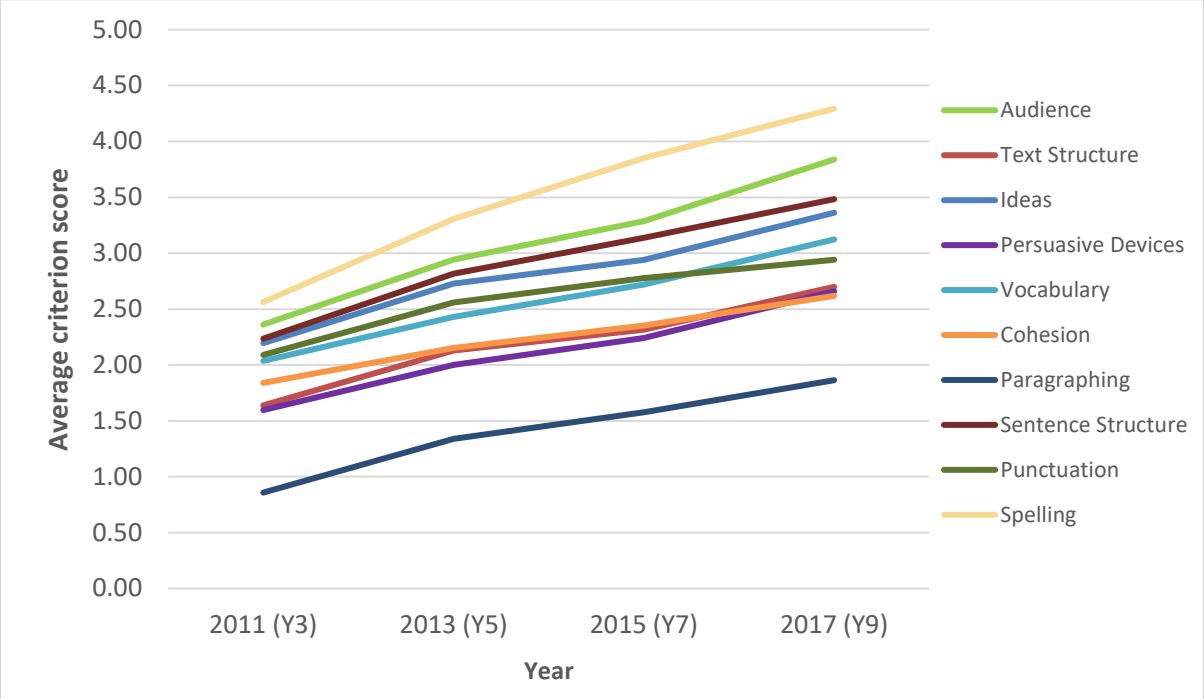
4.2 Writing development across learning stages

The analysis sought to understand the growth in student writing across learning stages. To do so, the performance of the Year 3 2011 cohort was tracked (at a cohort level) to its performance in 2013 when the cohort was in Year 5, and to 2015 (in Year 7), and to 2017 (in Year 9)[21]. All 4 writing assessments were in the Persuasive genre and paper-based tests which eliminated any differences in student performance due to the genre of the test and the mode in which it was taken.

As described in Section 3.4.1, the progression in the average score of this cohort from Year 3 to Year 9 was examined for overall writing scores and by each criterion in 2 different ways: (1) simple growth and (2) effect size. Figure 9 depicts the simple growth for the cohort in each of the 10 writing criteria over time. **Most criteria experienced the fastest growth in writing skills from Year 3 to Year 5** except for Persuasive Devices and Vocabulary. For these 2 criteria, the largest average growth occurred from Year 7 to Year 9. Growth between Year 5 and Year 7 was the smallest for all criteria except for Punctuation and Spelling. For Punctuation and Spelling, the growth between Year 3 and Year 5 was the greatest, with it then significantly reducing in later year levels. The average criterion scores as well as other summary statistics for this Year 3 2011 cohort are available in Appendix E.

[21] At the time of this report this was the only cohort that fit the data requirements and was able to be tracked in this way.

Figure 9: Writing progression by criterion from Year 3 to Year 9 for the Year 3 2011 cohort



The effect size of the growth was then calculated (see Table 9). The trend patterns in the effect size revealed that the growth (after adjusting for the score range and spread of the criterion scores) was consistently largest between Year 3 and Year 5 across all 10 criteria. In addition, the standardised growth was the smallest between Year 5 and Year 7 for the majority of the criteria, with the exception of Sentence structure, Punctuation and Spelling.

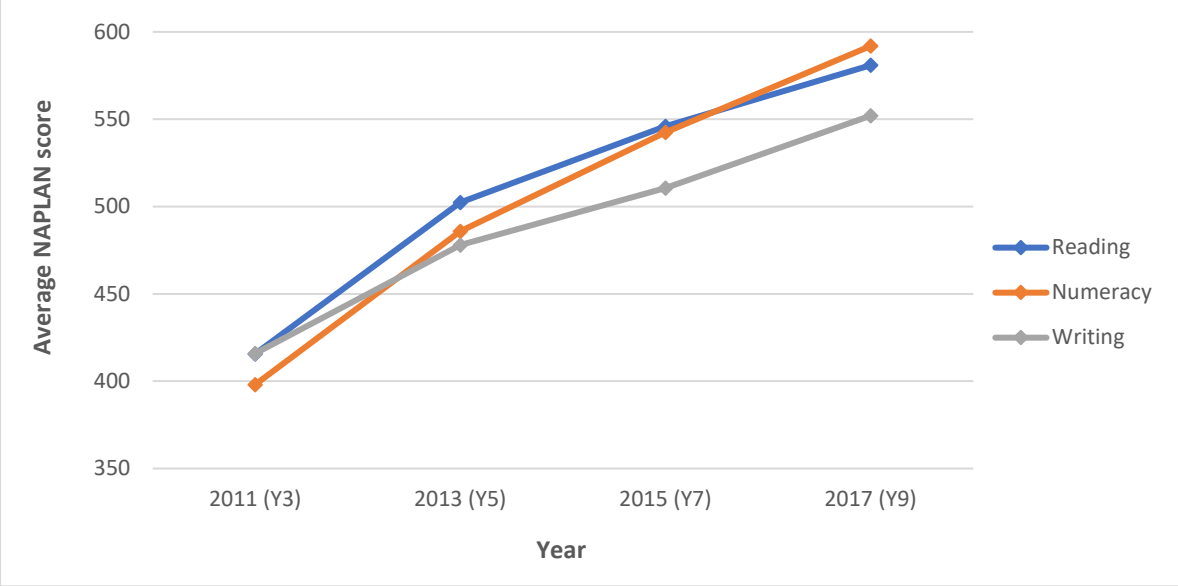
Table 9: Effect size of growth by criterion from Year 3 to Year 9 for the Year 3 2011 cohort

Criterion	Year 3 2011 to Year 5 2013	Year 5 2013 to Year 7 2015	Year 7 2015 to Year 9 2017
Audience	0.81	0.43	0.59
Text structure	0.72	0.24	0.46
Ideas	0.82	0.32	0.57
Persuasive Devices	0.60	0.31	0.50
Vocabulary	0.71	0.42	0.50
Cohesion	0.59	0.36	0.42
Paragraphing	0.69	0.34	0.39
Sentence structure	0.74	0.38	0.37
Punctuation	0.61	0.28	0.20
Spelling	0.92	0.63	0.47

To understand if the particularly rapid development of skills in the primary years (that is, between Year 3 and Year 5) is specific to writing, or generalisable to other areas of literacy and numeracy, data from the National Report (ACARA, 2021a) were analysed.

As shown in Figure 10, for all 3 domains (Reading, Numeracy and Writing) the greatest growth in their overall score for the Year 3 2011 cohort occurred between Year 3 and Year 5. However, while the smallest growth in Writing occurred between Year 5 and Year 7, for Reading and Numeracy, the growth was the smallest between Year 7 and Year 9[22].

Figure 10: Average score in NAPLAN Reading, Numeracy and Writing tests from Year 3 to Year 9 for the Year 3 2011 cohort



Given that these findings were based on tracking a single cohort only, the generalisability of the findings to other groups of students was tested by tracking 3 additional cohorts (Year 3 2012, Year 3 2013 and Year 3 2015) using data from the NAPLAN National Report. An examination of the results of these cohorts assumes that the effect of test mode (paper vs online) on the overall scores was minimal. Average scores for Writing, Numeracy and Reading were obtained and the same techniques (simple growth and effect size) were applied to the examination of growth in NAPLAN average performance for these 3 cohorts to Year 9. Analysis using both the simple growth and effect size measures (see Appendix E) confirmed that for the 3 new Year 3 cohorts across the 3 domains, the growth between Year 3 and Year 5 was consistently the greatest and growth between Year 7 to Year 9 tended to be the smallest. This suggests that the growth pattern observed for the 2011 Year 3 cohort (that is, growth between Year 5 and 7 being

[22] This finding was confirmed through calculation of effect sizes.

the weakest across learning stages) might be due to the idiosyncratic characteristics of the Year 3 2011 cohort.

In terms of the change in the variability of the score across learning stages, the examination of the standard deviations of the scores across year levels for the Year 3 2011 cohort indicates that, for all criteria (except for Ideas and Paragraphing), the scores became more spread out when the cohort progressed to higher year levels. In other words, **the gap between low- and high-performing students within the cohort widened for all criteria except for Ideas and Paragraphing as students progressed through year levels**. For Ideas and Paragraphing, the spread of the score for the Year 3 2011 cohort in Year 3 and Year 5 remained stable **but increased in Year 7 through to Year 9**. See Appendix E for the standard deviations of the criterion scores for this cohort.

In order to test the generalisability of this finding, the same analysis was also performed on 3 additional cohorts (that is, the Year 3 2012, Year 3 2013 and Year 3 2015 cohorts) using the spread of writing scores when each cohort was in different year levels, as published in the National Report (2021). Analysis revealed the same finding: the gap between **low- and high-performing students widened as each cohort progressed from primary to secondary** (see Appendix E for the simple growths and effect sizes), irrespective of the cohort examined.

A more detailed discussion of the evidence of student learning progress across year levels for each criterion is presented in section 4.5.

4.3 Strengths and weaknesses in student writing

Measurement modelling analysis of the writing criteria followed by Principal Component Analysis (PCA) (described in section 3.4.2) identified contrasting patterns of student performance across the 10 writing criteria. The PCA revealed that 75% of the variance in the Persuasive writing criterion scores was explained by the item difficulty measure and the student writing ability measure in the PCM. The rest of the 25% of variation in the data was examined through PCA to look for patterns in the part of the data that did not accord with the Rasch measure.

Table 10 reports the Principal Component (PC) loadings of the first component that explains the largest possible amount of variance in the residuals. Three criteria – **Punctuation, Sentence Structure and Spelling** – had highly positive PC loading (>0.3). On the other hand, 4 criteria – **Persuasive Devices, Text Structure, Ideas and Audience**, had highly negative PC loading (<-0.3). These PC loadings are visualised in Figure 11.

Table 10: Loadings (in descending order) for the first principal component

Criterion	PC loading
Punctuation	**0.66**
Sentence structure	**0.41**
Spelling	**0.31**
Paragraphing	0.27
Cohesion	0.02
Vocabulary	-0.11
Text structure	**-0.46**
Ideas	**-0.49**
Audience	**-0.52**
Persuasive devices	**-0.57**

Figure 11: Plot of first PC loadings from the PCA on the standardised residuals using pooled data

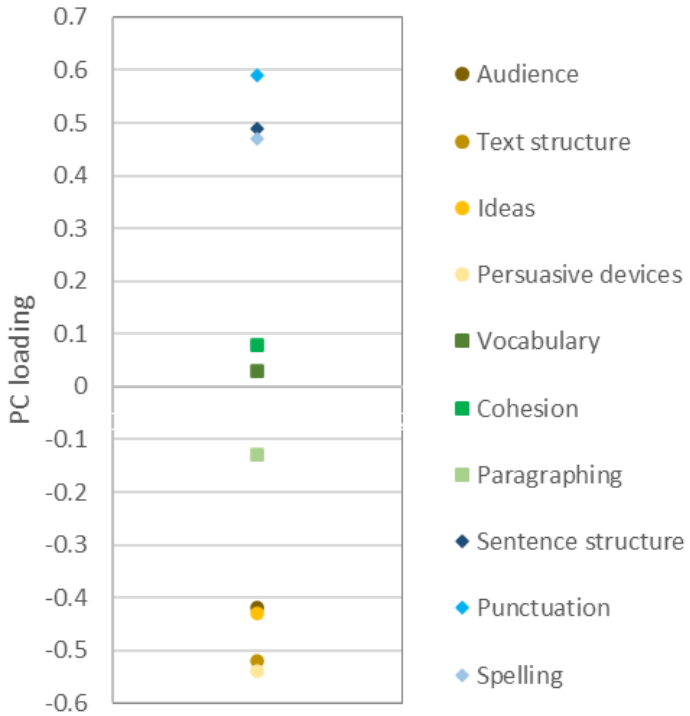


Figure 11 depicts the contrast between the clusters of criteria that have highly positive PC loading (diamonds) and highly negative PC loading (dots). The dots relate to **word or sentence level (mechanical) writing features** (Sentence Structure, Punctuation and Spelling), and the diamonds relate to **whole text level (authorial) writing features** (Audience, Text Structure, Ideas and Persuasive Devices). Some criteria that are located midway between them (squares) do not contribute much to the contrasting pattern[23].

In summary, the PCA of Persuasive writing test data shows that, while the 10 writing characteristics fit a unidimensional model reasonably well, there is evidence of an opposite response pattern across criteria by students. While the majority of students tend to have a consistent developmental profile across these 2 sets of skills, analysis shows some students clearly have a more uneven development profile. This group of students were either stronger in mechanical writing skills but weaker in authorial writing, or weaker in mechanical aspect but stronger in authorial aspect. Both mechanical and authorial writing skills need to be developed in students, meaning this feature of uneven skills development amongst some students warrants further investigation.

4.4 Difference in writing achievement by mode of test

In 2019, a roughly even number of students across Year 5 to Year 9 took either the online or paper-based Narrative writing tests. DIF analysis was conducted to see whether students with the same writing ability levels perform better/worse on a particular criterion when tests were administered online compared to on paper.

In summary, the analysis found that **students with the same writing ability levels performed worse in Punctuation but better in Paragraphing when writing online**.

Table 11 summarises the DIF size by the mode that the test was taken in. For each criterion, the DIF size is the difference in the estimated difficulty between online and paper writing cohorts. A positive DIF with a magnitude greater than 0.5 indicates that the student performance on this criterion in the online test was worse than that in the paper test for students with the same writing ability levels. Across the 3 year levels, Punctuation was the only criterion that showed a practically significant positive DIF size above 0.5, indicating that amongst students of the same writing ability level the online cohort scored lower in Punctuation than the paper cohort. On the other hand, Paragraphing was found to have a negative DIF of -0.4 suggesting the online cohort performed better in

[23] This finding is consistent with the results found in another similar study using only NSW 2017 writing data (CESE, 2019).

Paragraphing compared to the paper cohort of the same writing ability level (though it should be noted the DIF size did not reach the *practical* significance threshold). The remaining 8 criteria did not show any significant DIF in test mode.

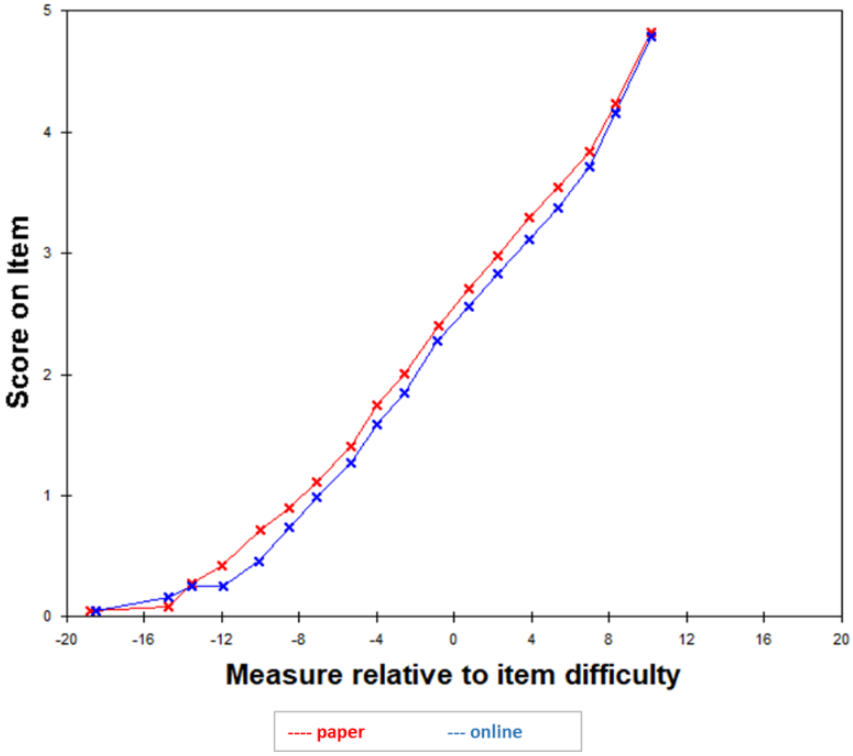
Table 11: DIF size of each criterion from DIF analysis by mode for Year 5, 7 and 9 2019 cohorts

Criterion	DIF size
Audience	-0.07
Text structure	-0.10
Ideas	-0.13
Characters and setting	-0.14
Vocabulary	-0.06
Cohesion	-0.05
Paragraphing	**-0.40**
Sentence structure	0.16
Punctuation	**0.67**
Spelling	-0.03

To investigate whether the DIF was uniformly distributed across the entire students' writing ability spectrum, the observed criterion scores by test mode were plotted against the students' writing abilities on the Item Characteristic Curve (ICC) for Punctuation (see Figure 12). In the ICC, the red and blue curves represent the paper and online cohorts respectively. The plot indicates that the online cohort (blue curve) consistently performed lower than the paper cohort (red curve) along the student's ability spectrum except for the very low end of the spectrum. This suggests that Punctuation is generally more difficult for the online cohorts than for the paper cohorts except for the low-achieving students[24].

Figure 12: Item characteristic curve for Punctuation showing DIF by calendar year

[24] A limitation of this analysis is that there might be some small demographic differences between the online and paper cohorts, which may impact on the size of DIF. However, it is not expected that impact would be material because there is no evidence so far to suggest that the NAPLAN writing criteria function differently for students of different demographic backgrounds. ACARA does check this assumption and report the findings in the NAPLAN National Reports (for example, ACARA (2020b)).



4.5 Student performance on individual writing criteria

During Stage 2 analysis, a more precise understanding of student writing across year levels in each specific writing skill was obtained. This section presents student performance in each criterion, contextualised by the descriptors associated with each score category. It provides a nuanced picture of what students can do in each writing skill area and where practical, provides evidence of student writing.

4.5.1 Audience

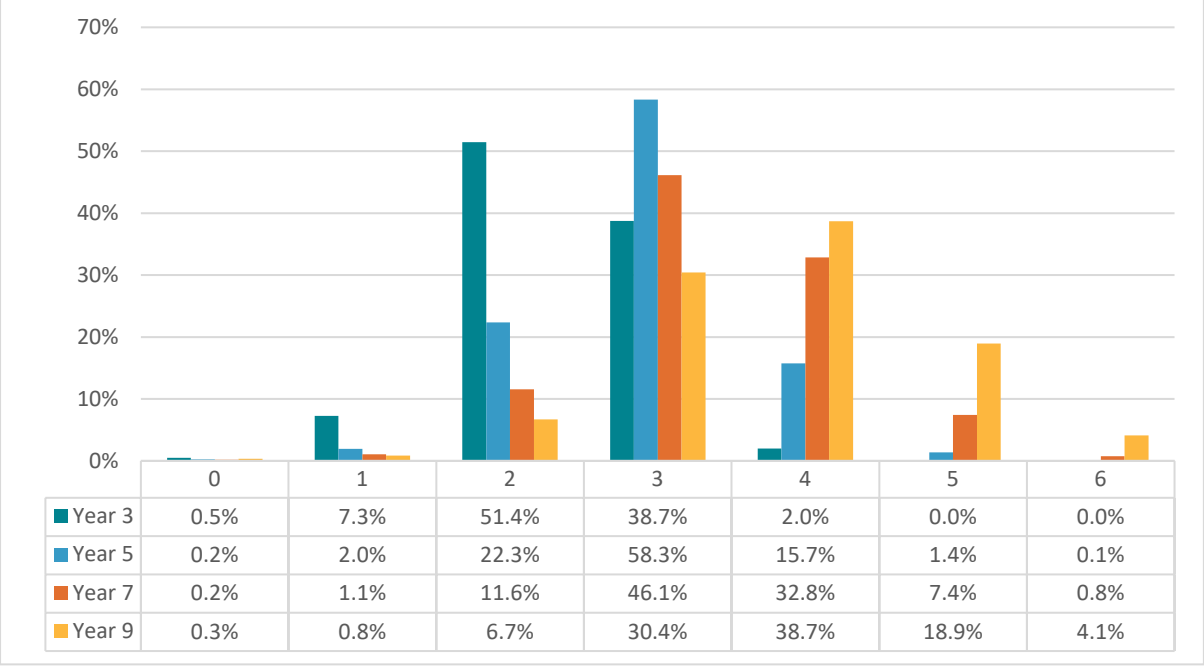
The writer's capacity to orient, engage and persuade the reader

The category descriptors in the Audience criteria range from 'contains some simple writing content' which would score a 1, to the more proficient demonstration of the skill which would be to 'control writer/reader relationship' which would score a 6. The results from the analysis illustrated in Figure 13 highlight that the highest percentage of students in Year 3 are able to score a 2 (51%), Year 5 score a 3 (58%), Year 7 also score a 3 (46%) and Year 9 a 4 (39%).

While there is an improvement for the majority of students from Year 3 to Year 5, there seems to be little progress from Year 5 to Year 7 as the most common score achieved by both cohorts is a score of 3. However, greater progress was observed from Year 7 to Year 9 where the majority of students in Year 9 moved to a score of 4 or more. Notwithstanding this, it should be noted that almost one-third of Year 9 students only achieved a score of 3.

In order to score a 4, 5 or 6 students need to have greater control of structuring their writing to create appropriate relationships with the reader in order to reveal their values and attitudes in the context of the Persuasive genre. The ability to write for an audience is developmental. Students in the early years understand audience to be the people close to them such as family and friends, and as students develop, they become more aware of the widening social layers that are beyond their immediate family and the need to bring multiple audiences into the text. Derewianka (2022:35) contends that there are key transition points: 'there is a shift from simple 'identifying the audience' in the primary years to 'considering how their writing reflects the audience for which it was intended' in secondary school.' It would seem that 33% of students in Year 7 and 39% in Year 9 have made the transition to providing some evidence of being able to identify their audience but most students have not transitioned to a broad understanding of how to support, engage and persuade the reader.

Figure 13: Proportion of students achieving each Audience score by year level



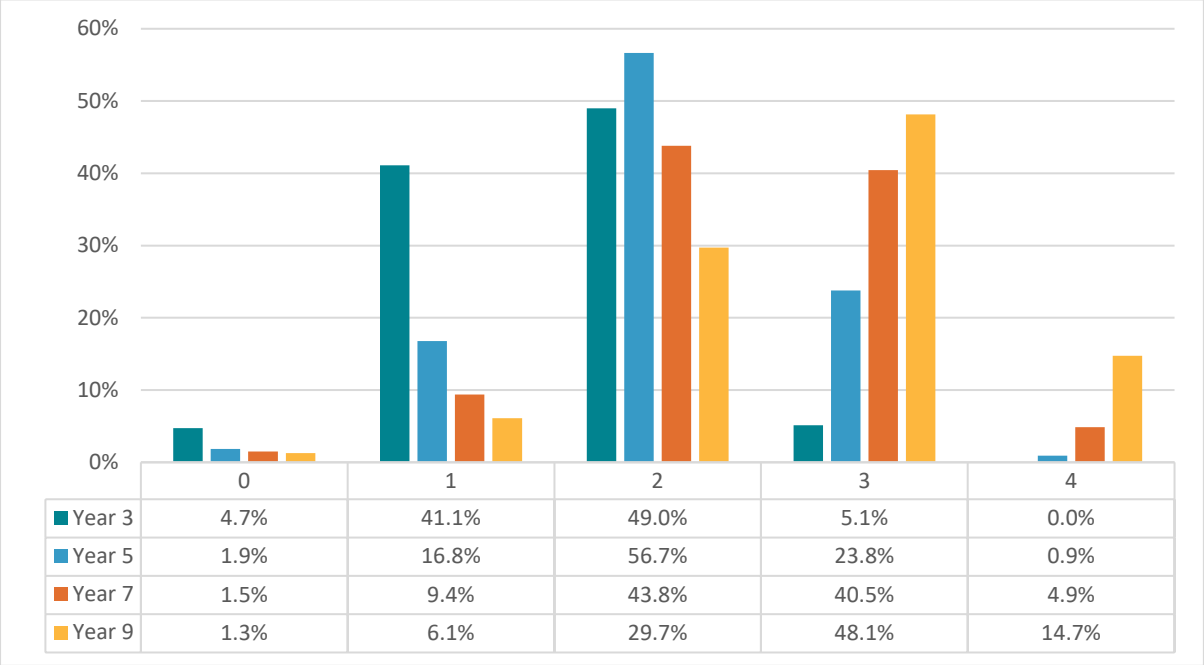
	0	1	2	3	4	5	6
Year 3	0.5%	7.3%	51.4%	38.7%	2.0%	0.0%	0.0%
Year 5	0.2%	2.0%	22.3%	58.3%	15.7%	1.4%	0.1%
Year 7	0.2%	1.1%	11.6%	46.1%	32.8%	7.4%	0.8%
Year 9	0.3%	0.8%	6.7%	30.4%	38.7%	18.9%	4.1%

4.5.2 Text Structure

> The organisation of the structural components of a persuasive text (introduction, body and conclusion) into an appropriate and effective text structure

The results in Figure 14 demonstrate that the highest percentage of students in Year 3 (49%), 5 (57%) and 7 (44%) achieve a score of 2 which indicates that the writing contains only '2 recognisable structural components' (ACARA 2012:9). Students in Year 7 (41%) are able to score 3 in this criterion. However, to score a 3 in this criterion means that students' writing 'contains an introduction, a body and conclusion' (ACARA 2012:9). These data indicate that the vast majority of students are finding it challenging to score a 4, which would demonstrate text structure that has 'greater control and that is able to clearly articulate a position with reasons, supported evidence and a reinforced conclusion' (ACARA 2012:9). This is evidenced by the score point of 4 only being achieved by 15% of Year 9 students.

Figure 14: Proportion of students achieving each Text Structure score by year level



	0	1	2	3	4
Year 3	4.7%	41.1%	49.0%	5.1%	0.0%
Year 5	1.9%	16.8%	56.7%	23.8%	0.9%
Year 7	1.5%	9.4%	43.8%	40.5%	4.9%
Year 9	1.3%	6.1%	29.7%	48.1%	14.7%

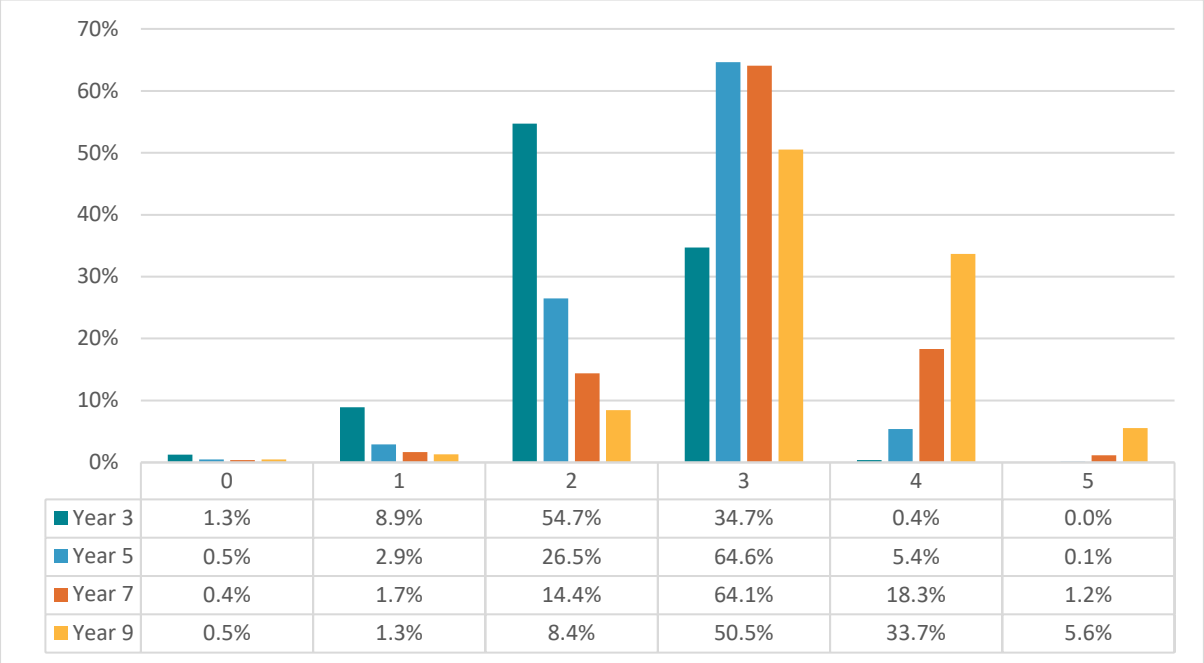
4.5.3 Ideas

The selection, relevance and elaboration of ideas for a persuasive argument

This criterion assesses the degree to which writers 'introduce a range of ideas/arguments and support them through elaboration or supporting evidence' (ACARA 2012:10). As shown in Figure 15, the majority of Year 3 students score a 2, indicating they have introduced at least one idea/argument supported by a simple elaboration. The largest percentage of Years 5, 7 and 9 students score a 3, indicating they can introduce a range of ideas/arguments without elaboration or having at least one argument with a developed elaboration.

One-third of Year 9 students were able to provide elaborations to all of their ideas/arguments and only 6% were able to write arguments that were highly persuasive using strategies such as refutations or providing evidence.

Figure 15: Proportion of students achieving each Idea score by year level



	0	1	2	3	4	5
Year 3	1.3%	8.9%	54.7%	34.7%	0.4%	0.0%
Year 5	0.5%	2.9%	26.5%	64.6%	5.4%	0.1%
Year 7	0.4%	1.7%	14.4%	64.1%	18.3%	1.2%
Year 9	0.5%	1.3%	8.4%	50.5%	33.7%	5.6%

While this is not encouraging, it is worth considering a recent study by Derewianka (2022:37) that examined 5 international English syllabuses found that 'the generation of ideas is only fleetingly mentioned in most … syllabuses' and often there 'is little guidance for teachers in terms of how the generation of ideas increases in complexity across the years or any evident transition points'. While the generation of ideas is the first step in the planning process, the organisation of ideas is how students' writing is judged in this criterion.

One critical element to organising ideas is the need for a planning process, which is an important first step before writing. Strategies such as visual scaffolds, mind maps and diagrams support the organisation of ideas before the ideas are articulated as sentences and organised into paragraphs. While novice writers may develop basic or concrete ideas, in the middle years the expectation is to set goals, reflect and structure their ideas into greater coherency; in other words, shifting the focus from 'knowledge-telling to knowledge-transformation' (Derewianka 2022:43, Bereiter and Scarmadalia 1987).

It's worth noting that research has shown technology can impact all aspects of students' writing processes – planning, composing and editing writing (CESE 2021; Turnbull et al. 2021). For example, when students undertook writing tests like NAPLAN, CESE (2021) research showed that those in the lower primary years did less planning (for example, less frequent use of mind maps and diagrams to support the planning and organisation of ideas) when undertaking the computer-based tests compared to paper-based tests. Case studies conducted by Turnbull et al. (2021) highlight the importance of teachers and students making the most effective use of all available digital tools to develop texts, including using devices to encourage collaborative planning.

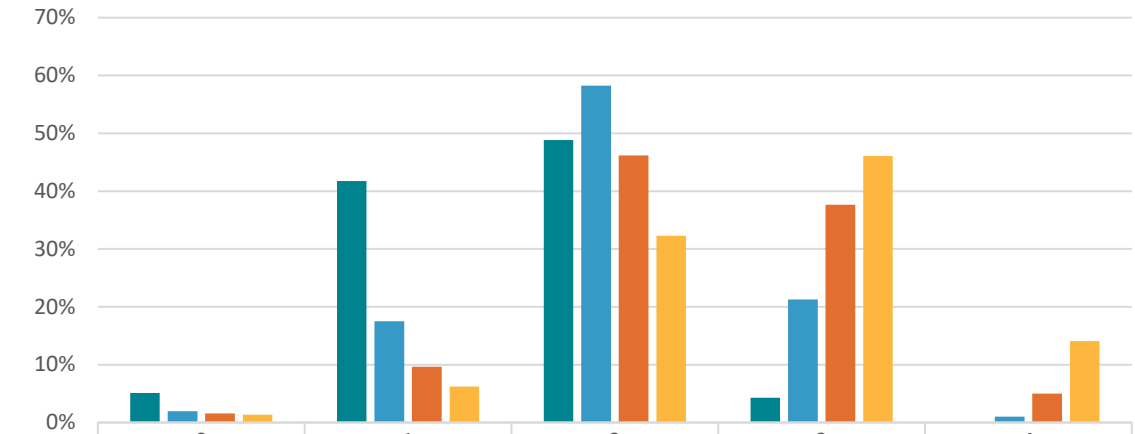
4.5.4 Persuasive Devices

> The use of a range of persuasive devices to enhance the writer's position and persuade the reader.

The data in Figure 16 indicate that the highest percentage of students in Years 3 (49%), 5 (58%) and 7 (46%) are able to attain a score of 2, which means they are able to use 3 or more instances of Persuasive Devices in their writing that supports the writer's position. By Year 9, the highest percentage of students (46%) can score a 3, which would indicate the ability to effectively use some devices that persuade, but in a way that is not sustained through their writing. Early writers may use relatively simple devices such as modalities of obligation like, *should*, *must*, *want* and so on. By Year 9, however, writers are expected to employ devices that are subtle, effective, sustained and that utilise figures of speech.

The low percentage of Year 9 students achieving a score of 4 (14%) is something that should be of concern to syllabus and curriculum writers. Of equal concern, however, is that the trend data indicate that 22% of high achieving Year 9 students in 2011 scored a 4, dropping to 10% in 2018 as indicated in Appendix D.

Figure 16: Proportion of students achieving each Persuasive Devices score by year level



	0	1	2	3	4
Year 3	5.1%	41.7%	48.8%	4.3%	0.0%
Year 5	2.0%	17.5%	58.2%	21.3%	1.0%
Year 7	1.6%	9.6%	46.2%	37.7%	5.0%
Year 9	1.4%	6.2%	32.3%	46.1%	14.1%

4.5.5 Vocabulary

> The range and precision of contextually appropriate language choices

As can be seen in Figure 17 below, most students in Year 3 (85%) are able to achieve a score of 2, which means they are able to include 2 or 3 precise words that are inclusive of noun groups, adjectives or adverbs and simple comparisons. This is also the case for most Year 5 students (63%). An example of writing from a student who achieved a score of 2 in the Vocabulary criterion is below:

> Home is a special place, it should be special to everyone whether you call a country, a town, a building or just the world home it should be special.

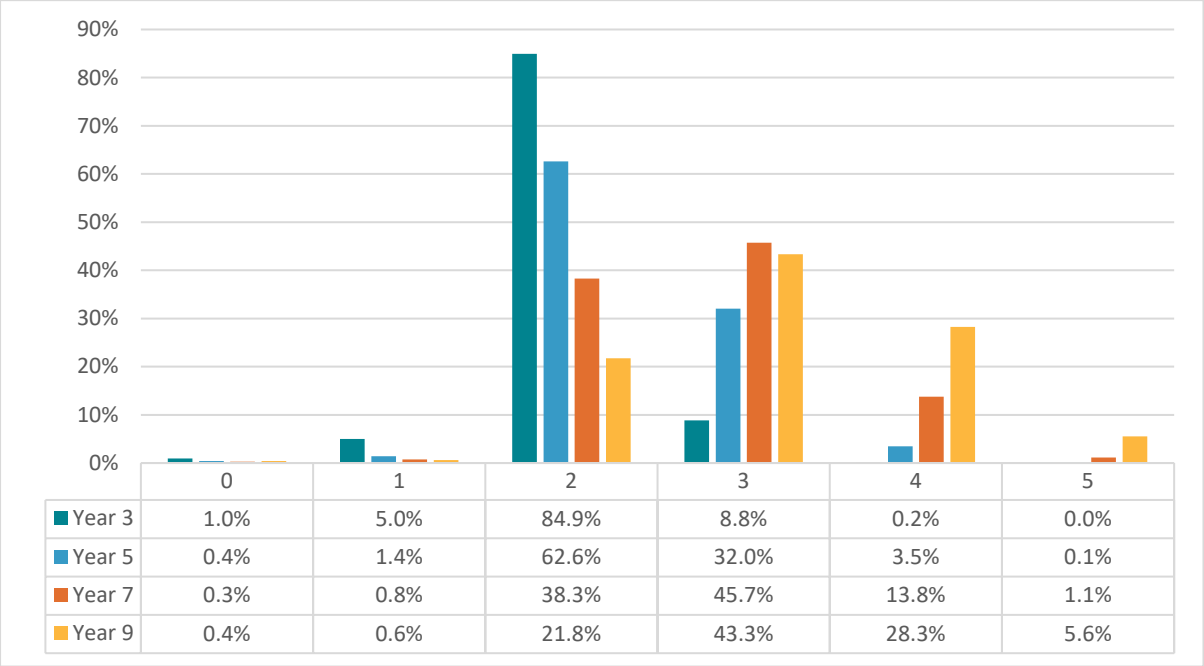
The highest percentage of students in Year 7 (46%) and Year 9 (43%) also achieve a score of 3. This result is problematic as there does not seem to be much progression to sustained and consistent use of precise words that enhance meaning. The writing below shows an example of a score of 3 and the emerging use of precise words.

> The animation is truly incredible and the way the characters speak fits them really well. The way the characters peform is all because of the animators and even the Bay Max is an incredible character. Bay Max is key to the story and if he wasn't what he is because of the animators really get to know them.

The percentage of students in Year 7 and 9 scoring a 4 and 5 demonstrating a control of vocabulary – necessary for success in secondary school (Year 7 15% [total of 4 and 5], Year 9 34% [total of 4 and 5]) – should be a cause of concern.

The ability to use technical language, figurative language and nominalisation are indicators of progression in writing. Using precise language in a sustained way creates fluency in writing and enables students to articulate their arguments with greater clarity. There are opportunities for explicit teaching of this writing trait that can be actioned in English and also subjects other than English. Prioritising precision in language would support analytical writing in Year 11 and Year 12.

Figure 17: Proportion of students achieving each Vocabulary score by year level



	0	1	2	3	4	5
Year 3	1.0%	5.0%	84.9%	8.8%	0.2%	0.0%
Year 5	0.4%	1.4%	62.6%	32.0%	3.5%	0.1%
Year 7	0.3%	0.8%	38.3%	45.7%	13.8%	1.1%
Year 9	0.4%	0.6%	21.8%	43.3%	28.3%	5.6%

4.5.6 Cohesion

> The control of multiple threads and relationships across the text, achieved through the use of referring words, ellipsis, text connectives, substitutions, and word associations.

The criterion is marked based on students' ability to demonstrate logical links between sentences through such techniques as word associations (such as a continuity of ideas) and consistency in sentences within text.

The majority of students in Year 3 (79%), Year 5 (75%) and Year 7 (59%) demonstrate some correct links between sentences and have some control of cohesion in their writing as demonstrated by a score of 2. (Figure 18). This result by the majority of Year 3, 5 and 7 is quite problematic as it would appear that

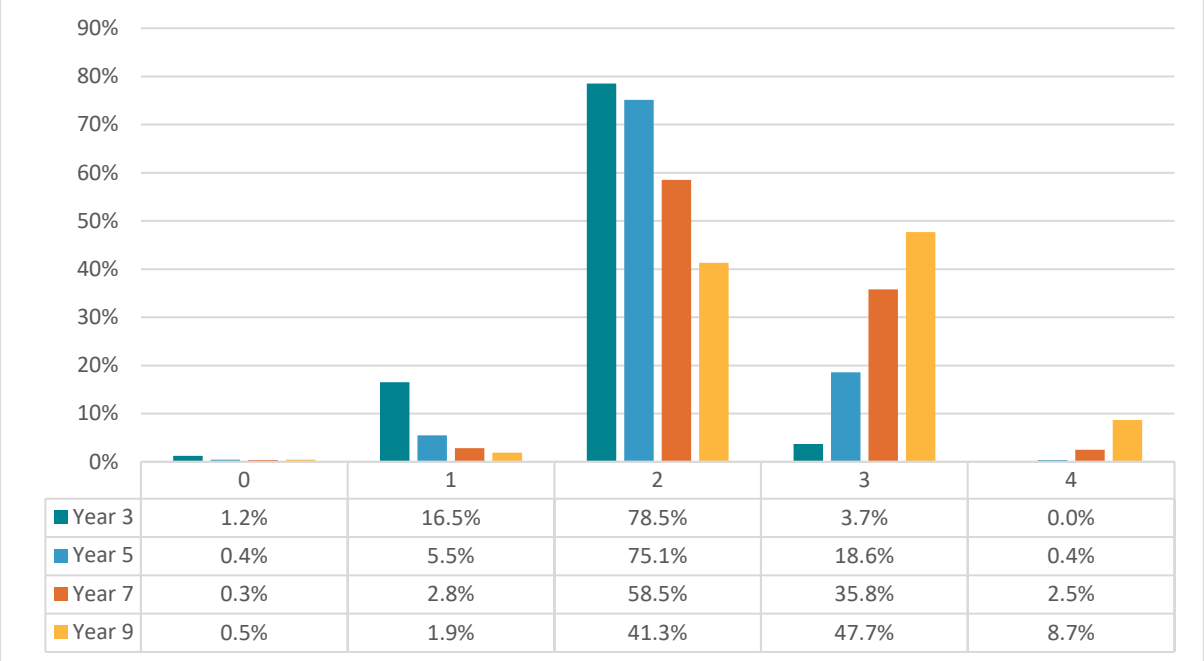
there does not seem to be much progression from Year 3 to 9. Even in Year 9, 41% of students are still only achieving a score of 2. An example of a students' writing that has scored a 2 in Cohesion is below.

> I disagree because I think they should learn to catch food and not be hand fed. and I also think they should find there own shelter too And Also they don't see there family...

To achieve a score of 3, students need to have control of cohesive devices indicated by using connectives such as 'however', 'although' and 'additionally' as can be seen in the following example.

> However many animals are still trapped in cages and wrongly treated I believe that if an animal is an a zoo with the proper habitat it is not wrong but if an animal is crammed in a cage it is wrong.

Figure 18: Proportion of students achieving each Cohesion score by year level



	0	1	2	3	4
Year 3	1.2%	16.5%	78.5%	3.7%	0.0%
Year 5	0.4%	5.5%	75.1%	18.6%	0.4%
Year 7	0.3%	2.8%	58.5%	35.8%	2.5%
Year 9	0.5%	1.9%	41.3%	47.7%	8.7%

4.5.7 Paragraphing

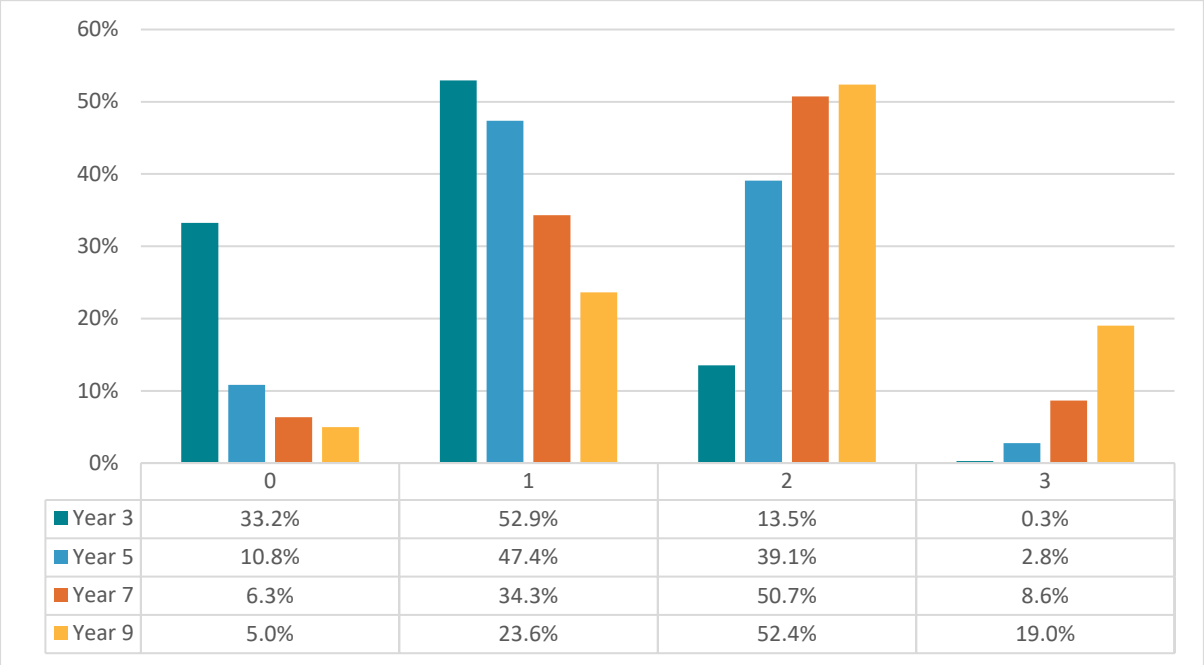
> The segmenting of text into paragraphs that assists the reader to follow the line of argument

While it may seem that paragraphing is primarily a structural feature of a text, the ability to use this writing skill to support an argument in a logical and orderly way

is often quite elusive. The highest percentage of students in Years 3 (53%) and 5 (47%) are able to achieve a score of 1, which indicates an ability to organise ideas separately or demonstrate one correct paragraph break. The majority of students in Years 7 (51%) and 9 (52%) scored a 2, which demonstrates that all paragraphs are focused on one idea or set of like ideas. A score of 2 indicates that not all paragraphs are correct but there is some demonstrated logic in the text.

While the data below in Figure 19 indicates that there is some progression across stages of schooling, there is an opportunity to improve this aspect of writing. This criterion and the Text Structure criterion function as part of a similar skill, one that is arguably critical for future writing skills in Years 11 and 12.

Figure 19: Proportion of students achieving each Paragraphing score by year level



	0	1	2	3
Year 3	33.2%	52.9%	13.5%	0.3%
Year 5	10.8%	47.4%	39.1%	2.8%
Year 7	6.3%	34.3%	50.7%	8.6%
Year 9	5.0%	23.6%	52.4%	19.0%

4.5.8 Sentence structure

The production of grammatically correct, structurally sound and meaningful sentences

While there seems to be some progression of the skill across year levels, it is apparent that there is not a consistent level of mastery of complex sentences.

As shown in Figure 20, the majority of students in Year 3 (56%) are able to score a 2, which would indicate that they are able to write some correct simple and compound sentences and that the meaning is predominantly clear.

> Ulru is a important place because it is an old picece of our history and has been around for generations. Ulru is an sacrecedc landmark as it has been around for generations and is the biggist rock in australia.It has been homes to many animals and aboriginal people over the years.

The highest percentage of students in Year 5 (48%) and Year 7 (45%) demonstrate that they can achieve a score of 3, which would indicate their writing contains mostly correct simple and compound sentences and some correct complex sentences.

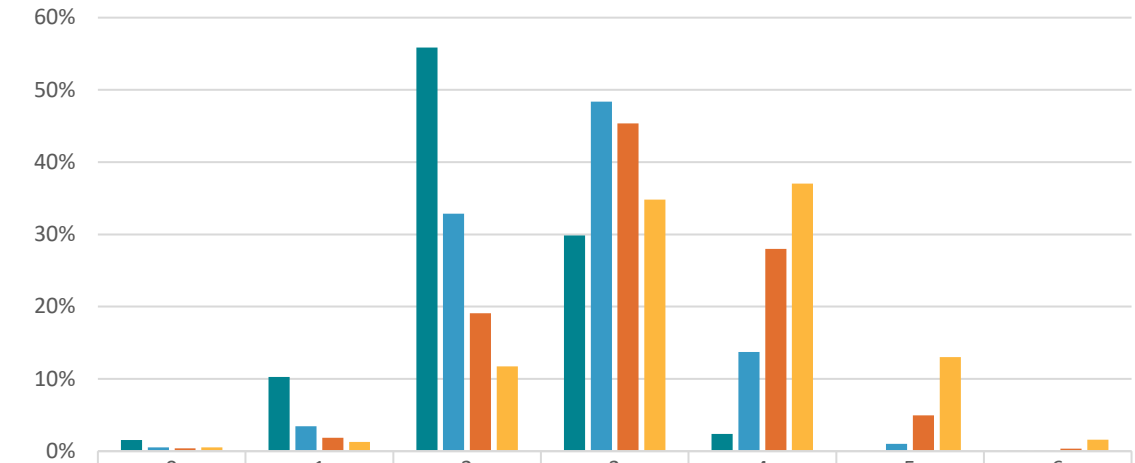
> The best movie I have seen is 101 Dalmatians because I love Dalmatians and they are really cute. I love the movie because all the characters are drawn and played beautifully. You should watch the movie 101 Dalmatians because it have allot of drama and feelings in it. Reason number 2 why you have to watch is so you can also learn how to look after a Dalmatian and learn to be responsible with one.

By Year 9, 37% of students are able to demonstrate mastery of simple and compound sentences, with most complex sentences being correct. However, they do not show variety in the types of sentences that they write.

> She dreamt and pictured herself in a foreign country. She tried to make out where she might be. Jamie looked around and she saw a small village to her left. The village was made up of 5 tiny huts. There were about 30 people sitting on the dirt ground with the children playing soccer with a sandball that had been wrapped in layers of plastic to add firmness. She staggered towards the village nervous as this was a place that was clearly under great poverty. As she got closer, her hands were shaking and her knees clattered together. A small boy approached Jamie with the sandball/soccer ball tucked under his left arm.

Only small percentages of students are able to achieve a score of 5 (13%) or 6 (2%) in Year 9. This is concerning as it indicates that students do not have control over a range of different sentence structures impacting their ability to express meaning with precision. Sentences are the building blocks of writing and competence in controlling the structure of complex sentences at the level assessed to score 5 or 6 in NAPLAN is critical for success in senior schooling.

Figure 20: Proportion of students achieving each Sentence Structure score by year level



	0	1	2	3	4	5	6
Year 3	1.5%	10.3%	55.9%	29.9%	2.4%	0.0%	0.0%
Year 5	0.5%	3.4%	32.9%	48.4%	13.7%	1.0%	0.0%
Year 7	0.4%	1.9%	19.1%	45.4%	28.0%	5.0%	0.3%
Year 9	0.5%	1.3%	11.7%	34.8%	37.0%	13.0%	1.6%

4.5.9 Punctuation

> The use of correct and appropriate punctuation to aid reading of the text

The results indicate that the majority of students are finding the ability to demonstrate punctuation in their writing challenging. As indicated in Figure 21, the majority of Year 3 students (53%) scored a 2, which indicates the writing 'provides some markers to assist reading' (ACARA 2012:16). Specifically, this would mean that the student had demonstrated that the sentence level punctuation was mostly correct, and students had provided some other examples of punctuation:

> Later that night we hear a noise. Our hole family gos out side and we see the living dead.

The largest percentage of students in Year 5 (44%), Year 7 (50%) and Year 9 (49%) were able to score a 3 which indicates that they can 'provide adequate markers to assist reading' (ACARA 2012:16). More specifically a score of 3 indicates that their sentence level punctuation is mostly correct (80% of 5 sentences punctuated correctly) and some other correct punctuation (such as apostrophes, commas, colons for example). An example of a score of 3 is below:

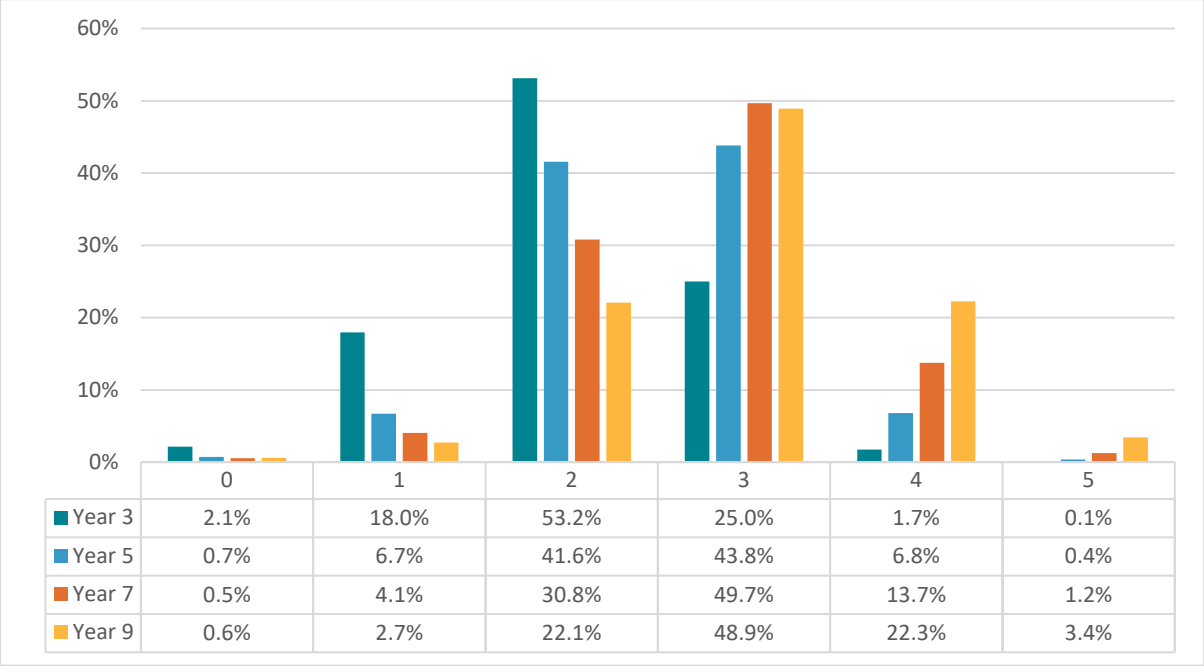
> The cast are brilliant and famous actors and actresses including Johny Depp, Olando Bloom, Keira nightly and Geoffry Rush!

> Filmed by Disney it's an amazing movie! Filmed in cairns it has amazing graphics and veiws and a twisting and thrilling storyline it's bound to be a family favourite for years to come.

There seems to be no significant progression from Year 5 to Year 9 in the application of punctuation as part of student writing. Only 22% of students in Year 9 are able to achieve a score of 4, which would mean that students have used all sentence punctuation correctly (no stray capital letters) and have mostly demonstrated correct use of other punctuation, as can be seen in the example below:

> I personally believe there is no greater place than Forster. Forster, the sun is always shining, the beaches are extremely beautiful and clean, the shops are very convenient and the people are lovely.

Figure 21: Proportion of students achieving each Punctuation score by year level



	0	1	2	3	4	5
Year 3	2.1%	18.0%	53.2%	25.0%	1.7%	0.1%
Year 5	0.7%	6.7%	41.6%	43.8%	6.8%	0.4%
Year 7	0.5%	4.1%	30.8%	49.7%	13.7%	1.2%
Year 9	0.6%	2.7%	22.1%	48.9%	22.3%	3.4%

4.5.10 Spelling

> The accuracy of spelling and the difficulty of the words used.

The skill focus for spelling is the ability to accurately spell words, with higher scores being allocated based on the ability to spell more difficult words. When examining Figure 22, the largest percentage of students in Year 3 (44%) and Year 5 (46%) were able to achieve a score of 3, which would indicate that they are able to correctly spell most simple words and at least 20 common words. An example of a score of 3 is below:

> One sunny moring My Mum and I were cleaning out the shed, then my mum got a call from work and needed to go

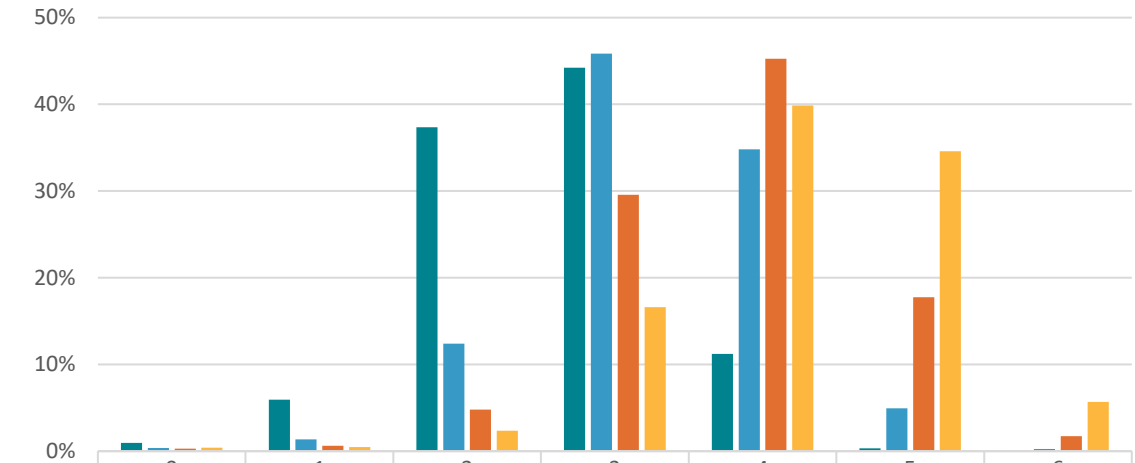
The largest percentage of students in Years 7 (45%) and Year 9 (40%) were able to score a 4. To score a 4, students would need to demonstrate the correct spelling of simple words, most common words and some difficult words (at least 2) ensuring that the incorrect 'difficult' words do not outnumber the correct spelling of difficult words. An example of a score of 4 is below:

> Some toys and games are educational. Also toys and games can help you to excersize like skipping, basketball, trampolines and much more.

A third of Year 9 students (35%) were able to achieve a score of 5 which would show correctly spelt simple words, most common words and at least 10 difficult words. A score of 5 has the same premise as a 4 in that the incorrect 'difficult' words do not outnumber the correct spelling of difficult words. An example of a score of 5 is below:

> Most Wild animals should not be kept in captivity, they need open spaces ... The only exception is for conservation.

Figure 22: Proportion of students achieving each Spelling score by year level



	0	1	2	3	4	5	6
Year 3	1.0%	5.9%	37.3%	44.2%	11.2%	0.3%	0.0%
Year 5	0.4%	1.4%	12.4%	45.8%	34.8%	5.0%	0.3%
Year 7	0.3%	0.6%	4.8%	29.6%	45.3%	17.7%	1.7%
Year 9	0.4%	0.5%	2.4%	16.6%	39.9%	34.6%	5.7%

4.6 Alignment of student achievement to curriculum documents

This section discusses the results from qualitative work that aligned student performance at the criterion level to the National Literacy Learning Progression (NLLP). Mapping to the NLLP makes it possible to align the performance of students' NAPLAN achievement and curriculum documents including the Australian Curriculum (ACARA 2022b), NSW English Syllabus (NESA, 2012) and the Victorian English Curriculum (VCAA 2014).

During Stage 2 of the research, the NAPLAN dataset was analysed alongside curriculum and syllabus documents in order to understand whether the documents are aligned to actual student writing development, as evidenced by NAPLAN data. The aim of this activity is to provide a clearer understanding of what the majority of students are achieving and make transparent where the majority of students are situated on the progression. This information can provide the best evidence to help teachers meet students at their point of need.

4.6.1 Alignment table

Table 12 compares the Australian Curriculum – general capabilities (NLLP), NSW English Syllabus and Victorian Curriculum (hereafter referred to as the 'curriculum documents') with results from NAPLAN data analysis. The intention of the table is to align what levels the curriculum documents suggest are reflective

of year levels progression with how students perform in each of the NAPLAN writing criteria.

To ensure a fair representation of student performance, the 2 highest percentage scores students achieved in Years 3, 5, 7 and 9 were extracted from the analysis. Drawing on the alignment process that was developed in Stage 2, the NLLP levels that best fit each criterion have been provided in the table for Years 3, 5, 7 and 9. This large table was informed by separate tables for each criterion which are presented in Appendix F.

Table 12: Alignment of the NLLP, Australian Curriculum, NSW English Syllabus, and Victorian Curriculum with NAPLAN writing achievement

				NAPLAN Results (2011–2018)									
Year level	**Aust. Curric.**	**NSW Syllabus**	**Victoria Syllabus**	**Audience**	**Text Structure**	**Ideas**	**Persuas. Devices**	**Vocab.**	**Cohesion**	**Para.**	**Sentence Structure**	**Punct.**	**Spelling**
Year 9	CrT: L10–11 GrA: L7 PuN: L8 SpG: L14	CrT: L10–11 GrA: L6–7 PuN: None SpG: L14	CrT: L11 GrA: L7 PuN: L8 SpG: L14	**CrT: 6–7** (Score 3: 30%)	**CrT: 4–6** (Score 2: 30%)	**CrT: L6–7** (Score 3: 51%)	**CrT: 5–6** (Score 2: 32%)	**CrT: L6–7** (Score 3: 43%)	**CrT: L5–6** (Score 2: 41%)	**CrT: L2–5** (Score 1: 24%)	**CrT: L7–8** **GrA: 4–5** (Score 3: 35%)	**PuN: L3** (Score 3: 49%)	**SpG: L9–10** (Score 4: 40%)
				CrT: L8–9 (Score 4: 39%)	**CrT: L7–9** (Score 3: 48%)	**CrT: L8–9** (Score 4: 34%)	**CrT: L7–8** (Score 3: 46%)	**CrT: 8–9** (Score 4: 28%)	**CrT: L7–8** (Score 3: 48%)	**CrT: L6–9** (Score 2: 52%)	**CrT: L7–8** **GrA: L5** (Score 4: 37%)	**PuN: L4–6** (Score 4: 22%)	**SpG: L11–12** (Score 5: 34%)
Year 7	CrT: L9 GrA: L6–7 PuN: L7 SpG: L12–13	CrT: L9–11 GrA: L5–7 PuN: L7–8 SpG: L12–14	CrT: L10–11 GrA: L7 PuN: L7 SpG: L12–13	**CrT: L6–7** (Score 3: 46%)	**CrT: L 4–6** (Score 2: 44%)	**CrT: L6–7** (Score 3: 64%)	**CrT: L5–6** (Score 2: 46%)	**CrT: L4–5** (Score 2: 38%)	**CrT: L5–6** (Score 2: 59%)	**CrT: L2–5** (Score 1: 34%)	**CrT: L7–8** **GrA: L4–5** (Score 3: 45%)	**PuN: L2** (Score 2: 31%)	**SpG: L7–8** (Score 3: 30%)
				CrT: L8–9 (Score 4: 33%)	**CrT: L7–9** (Score 3: 41%)	**CrT: L8–9** (Score 4: 18%)	**CrT: L7–8** (Score 3: 38%)	**CrT: L6–7** (Score 3: 46%)	**CrT: L7–8** (Score 3: 36%)	**CrT: L6–9** (Score 2: 51%)	**CrT: L7–8** **GrA: L5** (Score 4: 28%)	**PuN: L3** (Score 3: 50%)	**SpG: L9–10** (Score 4: 45%)
Year 5	CrT: L7 GrA: L5 PuN: L6 SpG: 10	CrT: L8–10 GrA: L5–6 PuN: L5–7 SpG: 10–14	CrT: L9 GrA: L6 PuN: L5–6 SpG: L11	**CrT: L4–5** (Score 2: 22%)	**CrT: L4–6** (Score 2: 57%)	**CrT: L4–5** (Score 2: 27%)	**CrT: L5–6** (Score 2: 58%)	**CrT: L4–5** (Score 2: 63%)	**CrT: L5–6** (Score 2: 75%)	**CrT: L2–5** (Score 1: 47%)	**CrT: L 5–6** **GrA: L3** (Score 2: 33%)	**PuN: L2** (Score 2: 42%)	**SpG: L7–8** (Score 3: 46%)
				CrT: L6–7 (Score 3: 58%)	**CrT: L7–9** (Score 3: 24%)	**CrT: L6–7** (Score 3: 65%)	**CrT: L7–8** (Score 3: 21%)	**CrT: L6–7** (Score 3: 32%)	**CrT: L7–8** (Score 3: 19%)	**CrT: L6–9** (Score 2: 39%)	**CrT: L7–8** **GrA: L4–5** (Score 3: 48%)	**PuN: L3** (Score 3: 44%)	**SpG: L9–10** (Score 4: 35%)
Year 3	CrT: L6 GrA: L3–4 PuN: L4–5 SpG: L8	CrT: L5–8 GrA: L4–6 PuN: L4–5 SpG: L8–9	CrT: L7–8 GrA: L5 PuN: L4 SpG: L9–10	**CrT: L4–5** (Score 2: 51%)	**CrT: L2–3** (Score 1: 41%)	**CrT: L4–5** (Score 2: 55%)	**CrT: L3–4** (Score 1: 42%)	**CrT: L4–5** (Score 2: 85%)	**CrT: L3–4** (Score 1: 17%)	**CrT: L1–2** (Score 0: 33%)	**CrT: L5–6** **GrA: L3** (Score 2: 56%)	**PuN: L2** (Score 2: 53%)	**SpG: L5–6** (Score 2: 37%)
				CrT: L6–7 (Score 3: 39%)	**CrT: L4–6** (Score 2: 49%)	**CrT: L6–7** (Score 3: 35%)	**CrT: L5–6** (Score 2: 49%)	**CrT: L6–7** (Score 3: 9%)	**CrT: L5–6** (Score 2: 79%)	**CrT: L2–5** (Score 1: 53%)	**CrT: L 7–8** **GrA: L 4–5** (Score 3: 30%)	**PuN: L3** (Score 3: 25%)	**SpG: L7–8** (Score 3: 44%)

4.6.2 Areas of misalignment for review

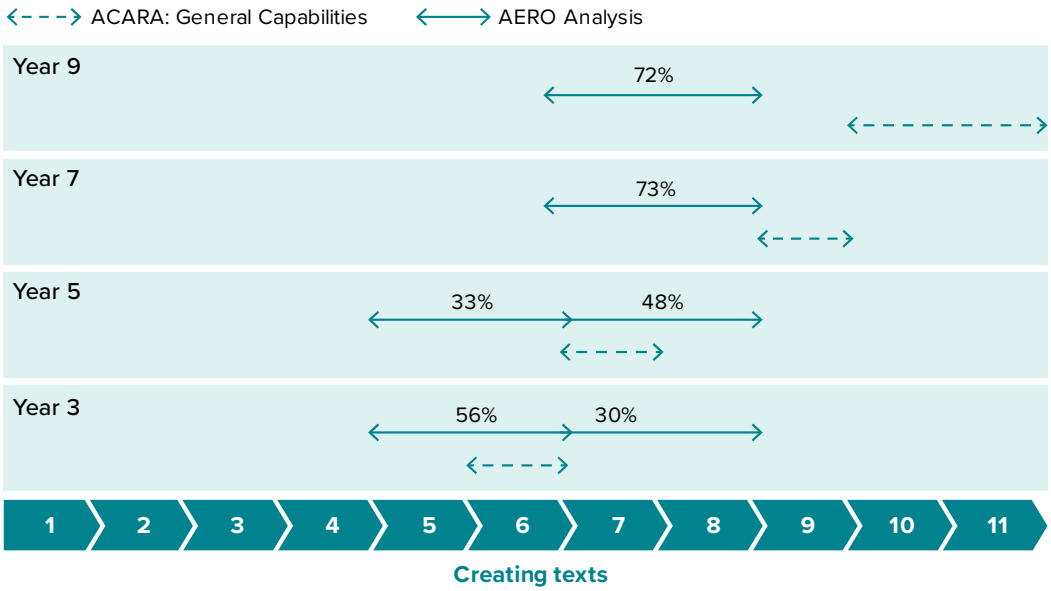
The following section describes the differences between the expectations of student writing capabilities across year levels from the curriculum documents and evidence of students' writing capability from analysis of NAPLAN writing data at the criterion level.

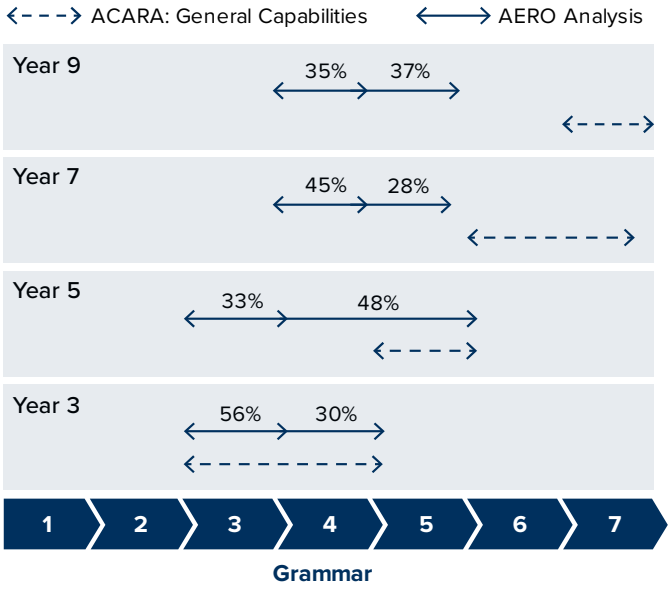
Creating Texts

The curriculum documents examined presented discrepancies in alignment with what students are achieving based on the NAPLAN analysis. While the Year 3 alignment was the most accurate, the Year 9 alignment presents an opportunity for re-examination given the discrepancies between the 3 curriculum documents and the evidence of student achievement. The Victorian Curriculum, in particular, had a higher expectation of where students were situated on the NLLP compared to the NSW syllabus and Australian Curriculum.

An illustration of how the current analysis alignment compares with Australian Curriculum – general capabilities, is provided in Figure 23. The figure presents a breakdown of one sub-element 'Creating texts'. The general capabilities align Year 3 with a level 6, Year 5 (level 7) Year 7 (level 9) and Year 9 (level 10 to 11) for Creating Texts. When we compare the current analysis for 'Sentence Structure' to the general capabilities alignment to year levels, we can see that there is a misalignment regarding our expectation of what students are expected to achieve and what the NAPLAN data indicates they can achieve. This is particularly evident for Year 7 and Year 9.

Figure 23: Student achievement in Sentence Structure mapped to NLLP for all year levels





When examining all 3 curriculum documents' expectations of student progression, there are examples where the year-level expectation was particularly ambitious for the majority of students. This was evident primarily in the secondary year levels. Table 13 presents an opportunity to consider some of the criteria that 'best fit' the curriculum documents expectations of students in their respective year levels. Conversely, it highlights that some criteria may need to be reviewed in terms of the expectation of student writing in those particular skills.

Table 13: Writing criteria alignment with curriculum documents – best and worst fits

Year levels	Australian Curriculum	NSW Syllabus	Victorian Curriculum
Year 3	Best Fit		
	Cohesion and Sentence Structure	Audience, Ideas, Vocabulary, Cohesion, Sentence Structure	Sentence Structure
	Needs review		
	Vocabulary and Paragraphing	Paragraphing	Paragraphing
Year 5	Best Fit		
	Audience, Ideas, Sentence Structure	Sentence Structure and Text Structure	Text Structure
	Needs review		
	Persuasive Devices, Vocabulary and Cohesion	Audience, Ideas, Persuasive Devices, Vocabulary, Cohesion and Paragraphing	Audience, Ideas, Persuasive Devices, Vocabulary, Cohesion, Paragraphing and Sentence Structure
Year 7	Best Fit		
	Audience, Text Structure and Paragraphing	Audience, Text Structure and Paragraphing	None
	Needs review		
	Audience, Ideas, Persuasive Devices, Vocabulary, Cohesion and Paragraphing	Ideas, Persuasive Devices, Vocabulary, Cohesion and Sentence Structure	Audience, Text Structure, Ideas, Persuasive Devices, Vocabulary, Cohesion, Paragraphing, and Sentence Structure
Year 9	Best Fit		
	None	None	None
	Needs review		
	Audience, Text Structure, Ideas, Persuasive Devices, Vocabulary, Cohesion, Paragraphing and Sentence Structure	Audience, Text Structure, Ideas, Persuasive Devices, Vocabulary, Cohesion, Paragraphing and Sentence Structure	Audience, Text Structure, Ideas, Persuasive Devices, Vocabulary, Cohesion, Paragraphing, and Sentence Structure

Grammar

The **curriculum documents have a high expectation of student achievement across all year levels for grammar[25] skills**. In Year 3 and Year 5 the analysis identified students achieving a level below that assumed in the curriculum documents. This discrepancy increased when examining Year 7, for which the curriculum documents indicate that students should achieve between Levels 5 and 7, whilst the analysis identified the majority of students performing at Level 4. This was also the case with Year 9, where the curriculum documents suggested students should achieve between Levels 6 and 7, and the analysis indicated that students achieved at Level 5. The NAPLAN analysis indicates that only 1.6% of students in Year 9 would be situated at Level 7 on the NLLP for Sentence Structure.

Punctuation

Across all the year levels there was not much symmetry between the expectations in the curriculum documents and the demonstrated level of achievement based on the analysis in the area of **punctuation**. **At all year levels, students are not performing or progressing in line with the curriculum document expectations**. To illustrate this point, 49% of students in Year 9 are achieving a score of 3 which aligns with Level 3 on the NLLP. The curriculum documents indicate that students in Year 3 are achieving a Level 4 in Punctuation – this misalignment is problematic for our expectations of student achievement in this key skill area.

Spelling

While **Spelling**, out of all the criteria analysed, demonstrates the most alignment of all the sub-elements, the vast majority of students in Years 7 and 9 are not achieving Level 14 as indicated by the curriculum documents. While 40% of students in Year 9 can achieve a Level 9 to 10 for Spelling, only 6% of students are able to achieve a Score of 6 which would align with Level 14. However, the curriculum documents and the actual achievement for Year 3 and 5 students were consistent.

Overall, there are alignment issues with what the NAPLAN data tell us and what is expected in the syllabus and curriculum documents. Having syllabus and curriculum documents that aspire to high achievement standards and strong

[25] Grammar was considered in the context of Sentence Structure for the purpose of this analysis. There is a valid case that it could also be considered in the context of the Vocabulary criterion given the ACARA Persuasive Writing Marking Guide (ACARA, 2022) includes the use of 'grammatical word classes (or structural words) consisting of prepositions, articles, conjunctions, pronouns and interjections' in this criterion. However, for the purposes of this analysis, it is not possible to identify the degree to which markers included the correct use of these grammatical items when scoring Vocabulary.

learning outcomes is not a problem. A problem may arise, however, if teachers do not target their teaching to the students' learning need. Students will be unable to progress the development of their writing skills if their teachers are being guided by the expectations of syllabus documents rather than the actual knowledge and skills of their students.

4.7 Limitations of this study

As described earlier, much of the interpretation of the results contained in this report relies on a key assumption that the writing tasks (or prompts) used in the NAPLAN writing assessments in different years are reasonably comparable. That is, the prompt effect on the comparability of the raw scores over time is small or negligible. Some evidence exists supporting this assumption. Firstly, ACARA trials the writing tasks before selecting ones that meet the psychometric and reliability requirements for inclusion in the assessments. Secondly, research by CESE (2021:14) using a Many Facet Measurement analysis also provides evidence that the effect of prompts (of the same genre) in the NAPLAN writing assessments is extremely small in size (effect size ranging from 0.03 to 0.06).

Another key assumption underlying most of the interpretation of results in this report is that marker effects (that is, marking inconsistency across years) are small and therefore they do not impact on the comparability of raw scores over time. Again, ACARA's use of experienced markers for NAPLAN marking helps mitigate the risk of marking inconsistency. Additionally, findings from the pair-wise equating procedure undertaken by ACARA annually for writing provide evidence that there is a reasonable level of marking consistency across time and across modes (for example, ACARA 2020b). Notwithstanding the above, the results provided in this report should be interpreted with caution and with the understanding that there are external factors such as marking consistency and prompt effects that can affect changes in writing scores over time.

A third limitation of the study is that there are potential student cohort differences that can confound the trend patterns generated from the raw scores. To mitigate this, where possible, we performed complementary analysis to check the results from the descriptive analysis. For example, findings from the psychometric analysis (DIF analysis in Chapter 4) should be less subject to cohort effects given the nature of the technique applied. The alignment between findings from DIF and the descriptive analysis suggests that any cohort effect is likely to have had a negligible impact on our interpretation of trend patterns.

A fourth limitation is that the analyses in this project are based on observed writing results from students who were present in the NAPLAN writing test.

As mentioned in Section 2.3, 5 to 10% of students, depending on the year level, did not participate in the 2021 writing assessments. Additionally, the rate of participation for secondary year students has been declining since 2011. This is likely to bias the findings from this research because 'at risk' students are much more likely to disengage and not participate in tests than their peers. This means the declining student performance on certain writing criteria as identified in this report would likely have been more pronounced had we included the non-participating students' results.

Lastly, as stated in Section 2.3, NAPLAN does not assess all aspects of writing. However, whilst the NAPLAN writing assessment has some limitations, it is on the whole a detailed assessment. It is marked on a common marking scale covering 4 scholastic year levels, which makes it a consistent and reliable measure, and it can provide a detailed record of the development and progress of student writing. In other words, the NAPLAN writing assessment provides a powerful repository and evidence base for teachers to identify important milestones of progress in writing, and it remains a robust nationally consistent dataset for policy analysis and program evaluation.

5. Discussion

5.1 Introduction

This section draws together the findings from the research and considers them in the context of the study and the key literature. Throughout the discussion, recommendations for policy, practice and research will be identified and highlighted, providing a clear rationale for recommendations relating to the teaching and learning of writing in Australian schools. The discussion is presented in 7 sections:

- Sharpening the focus on the teaching of writing
- Prioritising the teaching of specific skills
- Understanding the strengths and weaknesses in student writing
- Tracking writing progress between year levels
- Investigating the decline of high-achieving students in National Assessment Program – Literacy and Numeracy (NAPLAN) writing
- Addressing the misalignment between curriculum documents and achievement
- Considering the difference in writing achievement by mode.

5.2 Sharpening the focus on the teaching of writing

Students' stagnating or declining results in the NAPLAN Writing domain have been a source of attention across all jurisdictions for the last 10 years. Various theories as to why there is a decline in writing have been attributed to the design of the NAPLAN task (Turbill et al. 2015), inadequate time for the writing task (Cumming et al. 2018), issues with criteria (Humphrey and Heldsinger 2014), formulaic teaching of writing (Comber 2012; McKnight 2021), limited preparation on how to teach writing during Initial Teacher Education (NESA 2018; Wyatt-Smith et al. 2018) and a decline in the focus of teaching writing (NESA 2018). The analysis in this research built on these studies to consider how best to address the issue of declining student results in writing.

A clear outcome of the current analysis is that, for many writing skills, student performance has either declined or stagnated over time; and for some writing skills, the level of demonstrated progression in these skills as students moved across year levels was less than adequate (see further discussion in 5.5).

This means many students, by the end of their junior secondary years, may not possess key writing skills critical for their learning in senior secondary years.

Some of the key findings from the data analysis of trends of performance covering the period from 2011 to 2018 (Persuasive writing) showed:

- For Years 7 and 9, performance either stagnated or declined across all criteria over that period, except for the Spelling criterion where some improvement was observed.
- For Year 3, performance on Text Structure and Persuasive Devices deteriorated over the same time period.
- For Year 5, performance on most of the criteria was stable or fluctuating in the earlier years but appeared to decline from 2015 onwards.
- Across the criteria, gaps between high and low-performing students were exacerbated as students progressed from primary to secondary, indicating that there may be a greater emphasis required on teaching writing in Years 5 and 6 and continued through secondary.

The deterioration of performance of Year 3 students on Text Structure and Persuasive Devices was attributable to fewer students scoring in the top 2 score categories and more students scoring in the lowest score category over time. Similar patterns explain the deterioration of Year 9 student performance in Vocabulary, Sentence Structure and Punctuation over the same period.

Overall, the decline in performance observed at a criterion level, particularly for the secondary cohorts, over the last 10 years, is consistent with the results reported in the NAPLAN National Reports. For example, the NAPLAN report (ACARA 2021a) notes that the 2018 national writing means and proportions of students at or above National Minimum Standards for Years 5, 7 and 9 were all statistically lower than their respective figures in 2011. Furthermore, the 2019 national means for Years 7 and 9 were also statistically lower than their 2011 respective means. This general declining pattern supports the call for a sharpened focus on the teaching of writing across the curriculum, including support for improving explicit instruction in classrooms.

Additionally, the finding that performance gaps are exacerbated as students progress through learning stages indicates that it's critical to provide targeted and intensive support to students who are significantly behind their peers early on, as without this support, they are likely to fall further behind on their learning trajectories.

5.3 Prioritising teaching of specific writing skills

The analysis of the NAPLAN Writing criteria has, for the first time, highlighted specific writing traits that are not improving across years of schooling. While it could be argued that all the criteria should be an ongoing focus for writing instruction in the classroom, 5 particular criteria need attention and prioritisation for teaching practice.

5.3.1 Audience

As discussed in Chapter 4, the progression of students in the criterion of Audience indicated that the highest percentage of students in Years 5 and 7 scored a 3 and Year 9 students scored a 4 (however 30% of Year 9 students were scoring a 3). The issue of 'Audience' is contentious as writing research has suggested that having a prompt with an undefined audience is challenging for students (Perelman 2018). This, coupled with the challenge of teaching students how to write to an audience, demonstrates the need for greater teaching focus, particularly as it relates to an awareness of the key developmental transition points from primary school to secondary school.

Genre-based approaches to teaching writing have been the predominant theoretical framework in Australian education for over 30 years and are based on a functional model of language that emphasises the social constructedness of language. This social view of language is inextricably tied up with writing to an audience and a knowledge of how language and grammar operate to support meaning-making and successful communication through the written word.

For novice writers, this may be a simpler first step of writing to family members or friends, however as highlighted by Derewianka (2022) it cannot be assumed that the transition to secondary school results in the ability to write with the consideration of audiences beyond peer groups and family. To be able to write to a specific audience needs explicit teaching through modelling, and an understanding of what type of language is most appropriate for the audience.

5.3.2 Sentence Structure

The analysis has highlighted that secondary school students, while mastering simple and compound sentences, were unable to demonstrate a range of correct complex sentences. Of concern was the low percentage of students in Year 9 who were able to achieve a score of 5 or 6. This indicates that students do not have control over a range of different sentence structures, which impacts their ability to express meaning with precision. This weakness is particularly concerning for senior students given the writing demands of the senior syllabus.

Students need to understand the functional and structural aspects of sentences and how clauses are structured grammatically. When a student can understand the function of a sentence in the context of the text that is being written, a clearer and more strategic understanding of how to write will develop. This needs to be explicitly taught.

Being 'explicit' means singling out what devices are needed in order to produce a written piece of work. This can be done by systematically examining the aspects of the genre and how sentences complement both the functional structure (genre) and the grammatical resources to enable the effective expression and interpretation of knowledge. These concepts need to integrate and build on each other as part of accumulating knowledge and skills to improve writing processes (Knapp and Watkins 2005).

5.3.3 Punctuation

Analysis of the Punctuation criterion indicated that there was no significant progression from Year 5 to Year 9 in the application of punctuation as part of student writing. The majority of students in Year 5 (44%), Year 7 (50%) and Year 9 (49%) were able to score a 3, which indicates that they were able to 'provide adequate markers to assist reading' (ACARA 2012:16). Only 22% of students in Year 9 were able to achieve a score of 4 which would mean that students had all sentence punctuation correct (no stray capital letters) and mostly correct use of other punctuation.

Although punctuation is assessed in the context of NAPLAN independently of Sentence Structure, it is of critical importance that it is not treated as a separate issue when it comes to teaching. The functioning of punctuation in a sentence ensures precision in communication and facilitates audience understanding. A basic function of punctuation is to define the boundaries of sentences; however, punctuation provides clarification of meaning and for example, assigns different meaning to sentences depending on whether you wish to make a statement (.); command (.); question (?) or exclamation (!).

5.3.4 Paragraphs

Paragraphing appears to be an easy skill when writing yet is quite a difficult skill to master. However, if used effectively, it can structure and organise arguments and ideas. There has been much debate regarding the formulaic constraints of paragraph types becoming popular as a strategy to address the teaching of essay writing (McKnight 2021). Despite some evidence suggesting there is a formulaic focus to writing paragraphs, the student results do not seem to indicate a comprehensive understanding of the features and intent of a paragraph.

The highest percentage of students in Years 3 (53%) and 5 (47%) were able to achieve a score of 1 which indicates an ability to organise ideas separately or demonstrate one correct paragraph break. The majority of students in Years 7 (51%) and 9 (52%) scored a 2, which demonstrates that all paragraphs are focused on one idea or a set of like ideas.

Consideration of the functions of paragraphs aligned with the genre that is being written does not need to be constrained by a formulaic approach to its teaching. A focus on the merits of different types of paragraphing styles, particularly as they relate to genres beyond Persuasive, such as Informative and Report Writing, should be considered as part of a more targeted teaching approach.

5.3.5 Text Structure

The ability to structure an argument, supported with elaboration and evidence is a critical skill required in many Years 11 and 12 subjects. The writing demands for Year 11 and 12 subjects require demonstration of analytical writing skills inclusive of the ability to integrate evidence as part of an argument and discussion.

It should be stressed, however, that the low percentage of Year 9 students achieving a score of 4 should not be seen as a case of the bar being set too high. It is a reasonable expectation that a significant proportion of Year 9 students are achieving a score of 3. A significant issue is that only 15% are scoring a 4 for this criterion.

5.4 Understanding the strengths and weaknesses in student writing

Psychometric analysis revealed patterns of strength and weakness in student writing. Explicitly, some students performed stronger on the technical aspects of writing (that is, word/sentence level writing features such as Punctuation, Sentence Structure and Spelling) but weaker on the text level features such as Text Structure, Ideas and Audience). Other students had the opposite performance profiles.

This contrast between the sentence and text-level aspects of writing is consistent with theories of writing and previous research. For example, CESE's (2019) analysis of NSW student NAPLAN data found that some students are stronger in word/sentence level writing traits and weaker on whole text level writing features (and vice versa). Writing process models (Bereiter and Scardamalia 1987; Hayes 1996) suggest that writing ability (in an academic environment) is influenced by 2 competencies: language competence which is comprised of linguistics resources, and strategic competence which is higher-order,

non-language specific ability. In NAPLAN writing, the mechanical or technical aspects of writing (word/sentence level writing traits) are more likely to be underpinned by the language competence whereas the authorial aspects of writing (whole text level features) are more influenced by strategic competence.

Researchers have argued that many teachers remain focused on the technical aspects of writing and neglect authorial skills (Fang and Wang 2011), and that creating a balance between the authorial and technical aspects of writing in teaching is required. Students need to not only master the skills of how to write correct sentences, but how to write effectively by conveying their message and anticipating the needs of the reader, ordering their thoughts and ideas and carefully choosing words and sentences that best convey meaning (Christie 2005; Wing 2009).

Understanding this distinction between sentence and text level writing features can help prioritise the development of teaching resources and guides to address the strength and weakness more specifically in student writing to better respond to student needs.

5.5 Tracking writing progress between year levels

The research found that while the writing results were not aligned with the expected progression anticipated by the curriculum documents, there is still progression in student writing.

Tracking the 2011 Year 3 cohort over a 6-year period to when they reached Year 9 showed student writing improved across all 10 criteria as students progressed through year levels. This finding indicates however small, there is a development of skills in student writing.

Having said this, the more detailed analysis at the score category level within each criterion indicates that, for some criteria, there is a lack of progress between learning stages. For example, the analysis of the Audience criteria demonstrates that the majority of both Year 7 and Year 9 students achieve a score of 3 and 4, This indicates that the majority of Year 9 students have not transitioned to a broad understanding of how to support, engage and persuade the reader in their writing. This was also the case with the Text Structure and Sentence Structure criterion where students in Year 9 were finding it challenging to access the maximum scores.

5.6 Investigating the decline of high-achieving students in NAPLAN writing

The analysis showed that there is a decline in the percentage of students who achieved the highest 2 score points across many writing criteria from 2011 to 2018, particularly in Years 5, 7 and 9.

One reason often offered for this decline in high-achieving student results is poor practice associated with so-called 'teaching to the test'. The allegation is that NAPLAN has incentivised some teachers to adopt 'robotic posturing of genre' (Exley et al. 2013:60), and that their primary goal of ensuring students meet minimum benchmark standards seems to have reduced the level of attention directed to the extension of high achieving students. Despite the intention for improvement, the unintended consequence has been that more skilled writers are scaffolded 'into' writing rather than challenged to write beyond the scaffold. This claim has also been presented in the commissioned NAPLAN Review (McGaw et al. 2020:86) which highlighted that 'the NAPLAN writing test does not support students to produce excellent writing, in its current form', suggesting that 'the test has the effect of suppressing the quality of the writing students could demonstrate at the high-end of performance in favour of attempts to deliver writing to fit "the formula"'. Education ministers have requested that ACARA trial modifications to the NAPLAN writing assessment to improve its validity.

5.7 Addressing misalignment between curriculum documents and achievement

One of the functions of the NLLP was to provide teachers with an alternative to assessing and reporting student achievement against the aspirational outcomes of syllabus and curriculum documents. The intention was to provide a developmental and sequential description of the progress from pre-writing to the level of accomplishment required to succeed in senior secondary school.

As highlighted in Section 4.6, curriculum documents from the Australian Curriculum, NSW English Syllabus and the Victorian Curriculum have all aligned the NLLP to year levels. Between all 3 curriculum documents, there was symmetry in the alignment of NLLP progressions to year levels, particularly for Year 7 and Year 9. The Australian Curriculum alignment was more conservative in the expectation of student writing ability for Year 3 and Year 5 compared to the NSW Syllabus and Victorian Curriculum.

When comparing the evidence of students' NAPLAN results at the criterion level to the expectations from the various curriculum documents, the alignment for

Year 3 and Year 5 was quite reasonable. The one criterion that demonstrated higher aspiration from the curriculum documents compared to the students' achievement levels evidenced by the NAPLAN analysis was Punctuation. In this instance, it was 2 levels (Year 3) and 3 to 4 levels (Year 5) higher than the levels demonstrated through the NAPLAN student results.

For Years 7 and 9, the expectation of the curriculum documents was aspirational when compared to the actual achievement levels evidenced by the NAPLAN analysis. Across all criteria in Year 9 the curriculum documents anticipated that students would be at the end of the scale of the NLLP across all sub-domains, however, the NAPLAN analysis indicated that this was not the case. This finding is quite critical for the teaching profession. The transparency of where students are situated on the progression provides key information when preparing and targeting teaching practice and speaks to the intent of the progression that is a 'conceptual tool that can assist them to develop targeted teaching and learning programs for students who are working above or below year-level expectations' (ACARA n.d.:3).

5.8 Considering the difference in writing achievement by mode

Psychometric analysis conducted in this research indicates that students perform differently when writing online versus on paper. Given the same overall writing ability levels, students writing online achieved lower scores on Punctuation than those writing on paper. This suggests that test mode can impact student performance on individual writing criteria.

This finding needs further investigation to understand the causes of the mode effect. One hypothesis is that the more ubiquitous use of technologies including the use of digital devices (for example, smartphones) to construct text messages or write short messages on social media might have changed how written texts are constructed. The next step is to carefully select online and paper writing samples to conduct a more detailed comparative analysis of writing features between texts generated online and on paper in order to understand any implications for the teaching of writing. This is particularly important when written texts are increasingly being generated digitally, rather than on paper.

Another consideration is the difference between planning what to write for paper-based assessments compared to online assessments. Empirical evidence indicates that drafting a writing plan is a critical part of a higher-level writing process but what is not as well-known is how students plan to write in an online environment compared to paper-based. Online interactive planning devices such as 'mind maps' and 'box plans' integrated as part of the online assessment may ensure this critical step is completed. Equally, teaching students how to plan to

write in an online environment also needs explicit instruction and sustained practice as part of an overall writing improvement plan.

Whether online or on paper, teaching this skill as part of a planning, drafting, revising and self-regulation intervention strategy is particularly important (De La Paz and Graham 2002). Research by Bouwer, Koster, and Van den Bergh (2018) found that a strategy-focused instructional program of explicit instruction, modelling, and guided practice of writing strategies, text structures and self-regulation skills resulted in better writing outcomes.

6. Conclusion

This research, which involved analysis of 10 years of the National Assessment Program – Literacy and Numeracy (NAPLAN) writing data, breaks new ground in several ways. It is one of the most comprehensive analyses of student writing achievement undertaken in Australia to date. The 10-year longitudinal design provided evidence of the trends in student writing measured through the NAPLAN writing assessments from 2011 to 2021. This work also builds on the Australian Education Research Organsiation's (AERO) foundational *Writing and writing instruction: An overview of the literature* (AERO 2022:4) that foreshadowed the need for more research into the teaching of writing and to 'improve the access to high quality and systematic professional learning options for school leaders and teachers in the writing domain'.

Stage 1 of the analysis provided insight into trends in students' writing over time, importantly at the writing criterion level, which has provided a level of granularity and insight that has not been previously available. The trend analysis was conducted for each of the 10 NAPLAN marking criteria, facilitating sufficiently granular findings for further explorations of teaching strategies that can respond to identified student writing needs. Additionally, the psychometric analysis of the internal structure of the writing construct yielded further insights into the strengths and weaknesses of students' writing. This initial analysis warranted further examination in Stage 2.

The Stage 2 analysis provided transparency of student achievement in the 10 writing traits examined by NAPLAN criteria, and showed where students in Years 3, 5, 7 and 9 are situated on the (National Literacy Learning Progression) NLLP. The value of this alignment is that it will provide teachers with new knowledge of the capabilities of the students in their classrooms versus the expected capabilities from the curriculum.

This study is the first to have analysed NAPLAN writing at the criterion level from 2011 to 2021. The analysis reveals that students' results have stagnated or declined across many criteria of NAPLAN writing across year levels, and for some criteria, the demonstrated progression in these criteria as students moved across year levels appeared to be inadequate. The study's analysis of data at the criterion level gives confidence to the identification of the key writing skills that should be explored as a first step to addressing these trends. There is a need to target these writing skills combined with a deliberate integration facilitated through a whole school 'Writing instruction framework' with a particular focus on secondary schools.

The analysis also found evidence that performance gaps are exacerbated as students progress through learning stages. This reinforces the importance of providing targeted and intensive support to struggling students early on, as without this support, they are likely to fall further behind on their learning trajectories.

The decline in 'high achieving' students' results over time was also recognised as a critical issue and warrants a targeted approach to teaching these students. Both 'Whole text level criteria' and 'Word and Sentence level' criteria highlighted a decline, indicating that both authorial and technical writing skills need to be examined.

Of importance also is the evidence of test mode effects in student performance on the Punctuation criterion, which should be further investigated to understand possible causes. This will help understand the implication of this finding for the teaching of writing, which is particularly important as writing online becomes increasingly ubiquitous.

The alignment of the curriculum documents to the NLLP and NAPLAN writing analysis provided critical insight into what level of writing students have achieved. The intention of both the research and the findings is not to be didactic around engaging with NLLP in teaching writing, but instead to observe where students are situated on the progressions based on their demonstrated performance, and from there, to understand what the next teaching steps may be. Similarly, the use of curriculum documents to guide teaching decisions should also be informed by both the evidence of student actual performance levels as well as the expectations in these documents based on year levels.

The results from this report provide an opportunity for considering how best to improve student writing in Australia. There are opportunities at a policy level to consider the value of prioritising writing and how this focus could be situated in the teaching and learning of writing across the curriculum. Importantly, this report also presents the need to re-examine the policy rationales underscoring the public-facing expectations of student writing progression and to consider how best to represent these expectations in line with both the intent of the curriculum documents and evidence of actual student achievement. The provision of this clarity would present and support a clear expectation of writing standards and writing skill progression for the teaching profession.

Increased clarity needs to also be met with increased access to evidenced-based resources on best practice writing pedagogy. Teachers acknowledge the importance of explicit writing instruction in the classroom but have often not been instructed about the teaching of writing in initial teacher education courses or subsequent professional development.

Teaching writing is complex. It moves beyond an understanding of the structures of a text and requires expertise that can explain, motivate, and recognise how language is intertwined with the function and intention of the communication. It is just as challenging to recognise where students are in terms of their progression and how to influence their development. In order for these challenges to be met, teachers need opportunities for professional development to teach writing. A focus on teachers' professional development will go some way to develop confidence, and build high-level skills with written language, in order to effectively chart how best to set clear expectations of writing quality that students can meet.

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Appendices

Appendix A

Summary statistics of criterion scores by genre and year level

Appendix B

Time series graphs of average criterion scores from 2011 to 2018 (excluding 2016) for Persuasive writing by year level

Appendix C

Counts and proportions of criterion scores in each score category by genre and year level

Appendix D

Stacked bar graphs of criterion score categories by genre and year level

Appendix E

Summary statistics of criterion scores and NAPLAN scores for Year 3 2011 cohort tracked to Year 9

Appendix F

Alignment of the National Literacy Learning Progressions (NLLP) to NAPLAN Writing criterion scores by year level

Appendix A: Summary statistics of criterion scores by genre and year level

Persuasive writing

Year 3

Table A.1: Audience

	2011 *(N = 252935)*	2012 *(N = 258575)*	2013 *(N = 261844)*	2014 *(N = 272656)*	2015 *(N = 285043)*	2017 *(N = 290104)*	2018 *(N = 312329)*
mean	2.36	2.34	2.36	2.27	2.39	2.40	2.30
SD	0.69	0.65	0.69	0.68	0.65	0.64	0.66
min	0	0	0	0	0	0	0
median	2	2	2	2	2	2	2
max	6	6	6	5	6	6	6
25th percentile	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	3	3

Table A.2: Text Structure

	2011 *(N = 252935)*	2012 *(N = 258575)*	2013 *(N = 261844)*	2014 *(N = 272656)*	2015 *(N = 285043)*	2017 *(N = 290104)*	2018 *(N = 312329)*
mean	1.64	1.64	1.62	1.49	1.54	1.48	1.45
SD	0.64	0.62	0.66	0.66	0.69	0.66	0.71
min	0	0	0	0	0	0	0
median	2	2	2	2	2	1	2
max	4	4	4	4	4	4	4
25th percentile	1	1	1	1	1	1	1
75th percentile	2	2	2	2	2	2	2

Table A.3: Ideas

	2011 *(N = 252935)*	2012 *(N = 258575)*	2013 *(N = 261844)*	2014 *(N = 272656)*	2015 *(N = 285043)*	2017 *(N = 290104)*	2018 *(N = 312329)*
mean	2.20	2.23	2.26	2.15	2.29	2.34	2.20
SD	0.66	0.64	0.67	0.69	0.65	0.65	0.69
min	0	0	0	0	0	0	0
median	2	2	2	2	2	2	2
max	5	5	5	4	5	5	5
25th percentile	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	3	3

Table A.4: Persuasive Devices

	2011 *(N = 252935)*	2012 *(N = 258575)*	2013 *(N = 261844)*	2014 *(N = 272656)*	2015 *(N = 285043)*	2017 *(N = 290104)*	2018 *(N = 312329)*
mean	1.60	1.62	1.51	1.45	1.52	1.50	1.48
SD	0.65	0.62	0.63	0.65	0.69	0.65	0.72
min	0	0	0	0	0	0	0
median	2	2	1	1	2	2	2
max	4	4	4	4	4	4	4
25th percentile	1	1	1	1	1	1	1
75th percentile	2	2	2	2	2	2	2

Table A.5: Vocabulary

	2011 *(N = 252935)*	2012 *(N = 258575)*	2013 *(N = 261844)*	2014 *(N = 272656)*	2015 *(N = 285043)*	2017 *(N = 290104)*	2018 *(N = 312329)*
mean	2.04	2.01	2.05	2.00	2.04	2.03	2.00
SD	0.47	0.44	0.46	0.44	0.41	0.38	0.41
min	0	0	0	0	0	0	0
median	2	2	2	2	2	2	2
max	5	5	5	5	5	5	5
25th percentile	2	2	2	2	2	2	2
75th percentile	2	2	2	2	2	2	2

Table A.6: Cohesion

	2011 *(N = 252935)*	2012 *(N = 258575)*	2013 *(N = 261844)*	2014 *(N = 272656)*	2015 *(N = 285043)*	2017 *(N = 290104)*	2018 *(N = 312329)*
mean	1.84	1.84	1.87	1.78	1.88	1.87	1.85
SD	0.52	0.49	0.49	0.50	0.44	0.44	0.46
min	0	0	0	0	0	0	0
median	2	2	2	2	2	2	2
max	4	4	4	4	4	4	4
25th percentile	2	2	2	2	2	2	2
75th percentile	2	2	2	2	2	2	2

Table A.7: Paragraphing

	2011 *(N = 252935)*	2012 *(N = 258575)*	2013 *(N = 261844)*	2014 *(N = 272656)*	2015 *(N = 285043)*	2017 *(N = 290104)*	2018 *(N = 312329)*
mean	0.86	0.82	0.83	0.71	0.83	0.81	0.81
SD	0.71	0.65	0.65	0.63	0.66	0.68	0.67
min	0	0	0	0	0	0	0
median	1	1	1	1	1	1	1
max	3	3	3	3	3	3	3
25th percentile	0	0	0	0	0	0	0
75th percentile	1	1	1	1	1	1	1

Table A.8: Sentence Structure

	2011 *(N = 252935)*	2012 *(N = 258575)*	2013 *(N = 261844)*	2014 *(N = 272656)*	2015 *(N = 285043)*	2017 *(N = 290104)*	2018 *(N = 312329)*
mean	2.24	2.27	2.26	2.12	2.29	2.21	2.13
SD	0.75	0.73	0.75	0.71	0.71	0.67	0.69
min	0	0	0	0	0	0	0
median	2	2	2	2	2	2	2
max	6	5	6	6	5	6	6
25th percentile	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	3	3

Table A.9: Punctuation

	2011 *(N = 252935)*	2012 *(N = 258575)*	2013 *(N = 261844)*	2014 *(N = 272656)*	2015 *(N = 285043)*	2017 *(N = 290104)*	2018 *(N = 312329)*
mean	2.09	2.07	2.12	2.05	2.11	2.03	2.00
SD	0.76	0.74	0.77	0.77	0.78	0.76	0.76
min	0	0	0	0	0	0	0
median	2	2	2	2	2	2	2
max	5	5	5	5	5	5	5
25th percentile	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	2	2

Table A.10: Spelling

	2011 *(N = 252935)*	2012 *(N = 258575)*	2013 *(N = 261844)*	2014 *(N = 272656)*	2015 *(N = 285043)*	2017 *(N = 290104)*	2018 *(N = 312329)*
mean	2.56	2.62	2.61	2.52	2.63	2.62	2.62
SD	0.78	0.81	0.83	0.80	0.82	0.81	0.84
min	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3
max	6	6	6	6	6	6	6
25th percentile	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	3	3

Year 5

Table A.11: Audience

	2011 *(N = 258583)*	2012 *(N = 239588)*	2013 *(N = 258006)*	2014 *(N = 262941)*	2015 *(N = 267169)*	2017 *(N = 290303)*	2018 *(N = 297476)*	2018 paper *(N = 251071)*
mean	3.00	2.93	2.94	2.89	2.94	2.92	2.82	2.81
SD	0.79	0.77	0.74	0.74	0.69	0.67	0.70	0.70
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3	3
max	6	6	6	6	6	6	6	6
25th percentile	3	2	3	2	3	3	2	2
75th percentile	3	3	3	3	3	3	3	3

Table A.12: Text Structure

	2011 *(N = 258583)*	2012 *(N = 239588)*	2013 *(N = 258006)*	2014 *(N = 262941)*	2015 *(N = 267169)*	2017 *(N = 290303)*	2018 *(N = 297476)*	2018 paper *(N = 251071)*
mean	2.14	2.09	2.13	2.02	2.08	2.00	1.93	1.93
SD	0.72	0.68	0.71	0.70	0.73	0.72	0.73	0.72
min	0	0	0	0	0	0	0	0
median	2	2	2	2	2	2	2	2
max	4	4	4	4	4	4	4	4
25th percentile	2	2	2	2	2	2	2	2
75th percentile	3	2	3	2	3	2	2	2

Table A.13: Ideas

	2011 *(N = 258583)*	2012 *(N = 239588)*	2013 *(N = 258006)*	2014 *(N = 262941)*	2015 *(N = 267169)*	2017 *(N = 290303)*	2018 *(N = 297476)*	2018 paper *(N = 251071)*
mean	2.74	2.71	2.73	2.68	2.75	2.77	2.66	2.65
SD	0.67	0.63	0.64	0.65	0.60	0.58	0.65	0.65
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3	3
max	5	5	5	5	5	5	5	5
25th percentile	2	2	2	2	2	3	2	2
75th percentile	3	3	3	3	3	3	3	3

Table A.14: Persuasive Devices

	2011 *(N = 258583)*	2012 *(N = 239588)*	2013 *(N = 258006)*	2014 *(N = 262941)*	2015 *(N = 267169)*	2017 *(N = 290303)*	2018 *(N = 297476)*	2018 paper *(N = 251071)*
mean	2.13	2.09	2.00	1.98	2.03	1.97	1.95	1.95
SD	0.74	0.68	0.71	0.70	0.73	0.68	0.73	0.72
min	0	0	0	0	0	0	0	0
median	2	2	2	2	2	2	2	2
max	4	4	4	4	4	4	4	4
25th percentile	2	2	2	2	2	2	2	2
75th percentile	3	2	2	2	2	2	2	2

Table A.15: Vocabulary

	2011 *(N = 258583)*	2012 *(N = 239588)*	2013 *(N = 258006)*	2014 *(N = 262941)*	2015 *(N = 267169)*	2017 *(N = 290303)*	2018 *(N = 297476)*	2018 paper *(N = 251071)*
mean	2.48	2.38	2.43	2.36	2.36	2.32	2.29	2.28
SD	0.66	0.62	0.63	0.60	0.57	0.56	0.56	0.55
min	0	0	0	0	0	0	0	0
median	2	2	2	2	2	2	2	2
max	5	5	5	5	5	5	5	5
25th percentile	2	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	3	3	3

Table A.16: Cohesion

	2011 *(N = 258583)*	2012 *(N = 239588)*	2013 *(N = 258006)*	2014 *(N = 262941)*	2015 *(N = 267169)*	2017 *(N = 290303)*	2018 *(N = 297476)*	2018 paper *(N = 251071)*
mean	2.17	2.14	2.15	2.08	2.16	2.13	2.09	2.08
SD	0.56	0.53	0.53	0.50	0.49	0.47	0.47	0.47
min	0	0	0	0	0	0	0	0
median	2	2	2	2	2	2	2	2
max	4	4	4	4	4	4	4	4
25th percentile	2	2	2	2	2	2	2	2
75th percentile	2	2	2	2	2	2	2	2

Table A.17: Paragraphing

	2011 *(N = 258583)*	2012 *(N = 239588)*	2013 *(N = 258006)*	2014 *(N = 262941)*	2015 *(N = 267169)*	2017 *(N = 290303)*	2018 *(N = 297476)*	2018 paper *(N = 251071)*
mean	1.45	1.33	1.34	1.25	1.37	1.35	1.28	1.29
SD	0.75	0.71	0.69	0.68	0.68	0.70	0.7	0.69
min	0	0	0	0	0	0	0	0
median	1	1	1	1	1	1	1	1
max	3	3	3	3	3	3	3	3
25th percentile	1	1	1	1	1	1	1	1
75th percentile	2	2	2	2	2	2	2	2

Table A.18: Sentence Structure

	2011 *(N = 258583)*	2012 *(N = 239588)*	2013 *(N = 258006)*	2014 *(N = 262941)*	2015 *(N = 267169)*	2017 *(N = 290303)*	2018 *(N = 297476)*	2018 paper *(N = 251071)*
mean	2.82	2.83	2.82	2.67	2.81	2.70	2.59	2.59
SD	0.84	0.82	0.82	0.78	0.76	0.75	0.76	0.76
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3	3
max	6	6	6	6	6	6	6	6
25th percentile	2	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	3	3	3

Table A.19: Punctuation

	2011 *(N = 258583)*	2012 *(N = 239588)*	2013 *(N = 258006)*	2014 *(N = 262941)*	2015 *(N = 267169)*	2017 *(N = 290303)*	2018 *(N = 297476)*	2018 paper *(N = 251071)*
mean	2.55	2.52	2.56	2.51	2.56	2.45	2.4	2.41
SD	0.78	0.77	0.77	0.76	0.77	0.75	0.76	0.75
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	2	2	2
max	5	5	5	5	5	5	5	5
25th percentile	2	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	3	3	3

Table A.20: Spelling

	2011 *(N = 258583)*	2012 *(N = 239588)*	2013 *(N = 258006)*	2014 *(N = 262941)*	2015 *(N = 267169)*	2017 *(N = 290303)*	2018 *(N = 297476)*	2018 paper *(N = 251071)*
mean	3.25	3.30	3.31	3.22	3.34	3.32	3.31	3.30
SD	0.81	0.83	0.84	0.82	0.83	0.83	0.87	0.87
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3	3
max	6	6	6	6	6	6	6	6
25th percentile	3	3	3	3	3	3	3	3
75th percentile	4	4	4	4	4	4	4	4

Year 7

Table A.21: Audience

	2011 *(N = 261772)*	2012 *(N = 263019)*	2013 *(N = 260736)*	2014 *(N = 240914)*	2015 *(N = 258214)*	2017 *(N = 267083)*	2018 *(N = 279452)*	2018 paper *(N = 235399)*
mean	3.50	3.37	3.36	3.36	3.29	3.37	3.26	3.24
SD	0.91	0.88	0.85	0.84	0.85	0.86	0.82	0.83
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3	3
max	6	6	6	6	6	6	6	6
25th percentile	3	3	3	3	3	3	3	3
75th percentile	4	4	4	4	4	4	4	4

Table A.22: Text Structure

	2011 *(N = 261772)*	2012 *(N = 263019)*	2013 *(N = 260736)*	2014 *(N = 240914)*	2015 *(N = 258214)*	2017 *(N = 267083)*	2018 *(N = 279452)*	2018 paper *(N = 235399)*
mean	2.50	2.39	2.44	2.38	2.32	2.36	2.27	2.26
SD	0.78	0.75	0.77	0.75	0.82	0.80	0.76	0.77
min	0	0	0	0	0	0	0	0
median	3	2	2	2	2	2	2	2
max	4	4	4	4	4	4	4	4
25th percentile	2	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	3	3	3

Table A.23: Ideas

	2011 *(N = 261772)*	2012 *(N = 263019)*	2013 *(N = 260736)*	2014 *(N = 240914)*	2015 *(N = 258214)*	2017 *(N = 267083)*	2018 *(N = 279452)*	2018 paper *(N = 235399)*
mean	3.11	3.02	3.02	3.00	2.94	3.04	2.98	2.97
SD	0.73	0.67	0.68	0.67	0.68	0.69	0.67	0.67
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3	3
max	5	5	5	5	5	5	5	5
25th percentile	3	3	3	3	3	3	3	3
75th percentile	4	3	3	3	3	3	3	3

Table A.24: Persuasive Devices

	2011 *(N = 261772)*	2012 *(N = 263019)*	2013 *(N = 260736)*	2014 *(N = 240914)*	2015 *(N = 258214)*	2017 *(N = 267083)*	2018 *(N = 279452)*	2018 paper *(N = 235399)*
mean	2.51	2.41	2.32	2.34	2.24	2.33	2.3	2.28
SD	0.79	0.74	0.77	0.75	0.85	0.78	0.76	0.76
min	0	0	0	0	0	0	0	0
median	3	2	2	2	2	2	2	2
max	4	4	4	4	4	4	4	4
25th percentile	2	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	3	3	3

Table A.25: Vocabulary

	2011 *(N = 261772)*	2012 *(N = 263019)*	2013 *(N = 260736)*	2014 *(N = 240914)*	2015 *(N = 258214)*	2017 *(N = 267083)*	2018 *(N = 279452)*	2018 paper *(N = 235399)*
mean	2.92	2.75	2.79	2.74	2.72	2.70	2.66	2.65
SD	0.79	0.76	0.75	0.73	0.73	0.74	0.72	0.72
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3	3
max	5	5	5	5	5	5	5	5
25th percentile	2	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	3	3	3

Table A.26: Cohesion

	2011 *(N = 261772)*	2012 *(N = 263019)*	2013 *(N = 260736)*	2014 *(N = 240914)*	2015 *(N = 258214)*	2017 *(N = 267083)*	2018 *(N = 279452)*	2018 paper *(N = 235399)*
mean	2.46	2.40	2.39	2.34	2.35	2.36	2.31	2.30
SD	0.64	0.61	0.61	0.59	0.58	0.59	0.57	0.57
min	0	0	0	0	0	0	0	0
median	2	2	2	2	2	2	2	2
max	4	4	4	4	4	4	4	4
25th percentile	2	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	3	3	3

Table A.27: Paragraphing

	2011 *(N = 261772)*	2012 *(N = 263019)*	2013 *(N = 260736)*	2014 *(N = 240914)*	2015 *(N = 258214)*	2017 *(N = 267083)*	2018 *(N = 279452)*	2018 paper *(N = 235399)*
mean	1.77	1.63	1.61	1.57	1.58	1.61	1.55	1.55
SD	0.78	0.75	0.72	0.71	0.70	0.72	0.72	0.72
min	0	0	0	0	0	0	0	0
median	2	2	2	2	2	2	2	2
max	3	3	3	3	3	3	3	3
25th percentile	1	1	1	1	1	1	1	1
75th percentile	2	2	2	2	2	2	2	2

Table A.28: Sentence Structure

	2011 *(N = 261772)*	2012 *(N = 263019)*	2013 *(N = 260736)*	2014 *(N = 240914)*	2015 *(N = 258214)*	2017 *(N = 267083)*	2018 *(N = 279452)*	2018 paper *(N = 235399)*
mean	3.29	3.25	3.22	3.09	3.14	3.10	2.97	2.96
SD	0.93	0.89	0.89	0.86	0.86	0.88	0.86	0.86
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3	3
max	6	6	6	6	6	6	6	6
25th percentile	3	3	3	3	3	3	2	2
75th percentile	4	4	4	4	4	4	4	4

Table A.29: Punctuation

	2011 *(N = 261772)*	2012 *(N = 263019)*	2013 *(N = 260736)*	2014 *(N = 240914)*	2015 *(N = 258214)*	2017 *(N = 267083)*	2018 *(N = 279452)*	2018 paper *(N = 235399)*
mean	2.85	2.78	2.81	2.78	2.78	2.69	2.62	2.62
SD	0.81	0.80	0.80	0.78	0.80	0.81	0.80	0.80
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3	3
max	5	5	5	5	5	5	5	5
25th percentile	2	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	3	3	3

Table A.30: Spelling

	2011 *(N = 261772)*	2012 *(N = 263019)*	2013 *(N = 260736)*	2014 *(N = 240914)*	2015 *(N = 258214)*	2017 *(N = 267083)*	2018 *(N = 279452)*	2018 paper *(N = 235399)*
mean	3.76	3.77	3.76	3.71	3.85	3.84	3.83	3.81
SD	0.86	0.87	0.87	0.86	0.91	0.91	0.93	0.94
min	0	0	0	0	0	0	0	0
median	4	4	4	4	4	4	4	4
max	6	6	6	6	6	6	6	6
25th percentile	3	3	3	3	3	3	3	3
75th percentile	4	4	4	4	4	4	4	4

Year 9

Table A.31: Audience

	2011 *(N = 245416)*	2012 *(N = 252649)*	2013 *(N = 253113)*	2014 *(N = 253755)*	2015 *(N = 251814)*	2017 *(N = 250008)*	2018 *(N = 255432)*	2018 paper *(N = 212777)*
mean	3.94	3.78	3.79	3.81	3.71	3.84	3.69	3.66
SD	1.06	1.02	1	0.97	1	1.01	0.97	0.97
min	0	0	0	0	0	0	0	0
median	4	4	4	4	4	4	4	4
max	6	6	6	6	6	6	6	6
25th percentile	3	3	3	3	3	3	3	3
75th percentile	5	4	4	4	4	4	4	4

Table A.32: Text Structure

	2011 *(N = 245416)*	2012 *(N = 252649)*	2013 *(N = 253113)*	2014 *(N = 253755)*	2015 *(N = 251814)*	2017 *(N = 250008)*	2018 *(N = 255432)*	2018 paper *(N = 212777)*
mean	2.79	2.67	2.75	2.69	2.62	2.7	2.6	2.58
SD	0.85	0.83	0.84	0.81	0.87	0.85	0.82	0.83
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3	3
max	4	4	4	4	4	4	4	4
25th percentile	2	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	3	3	3

Table A.33: Ideas

	2011 *(N = 245416)*	2012 *(N = 252649)*	2013 *(N = 253113)*	2014 *(N = 253755)*	2015 *(N = 251814)*	2017 *(N = 250008)*	2018 *(N = 255432)*	2018 paper *(N = 212777)*
mean	3.44	3.31	3.32	3.32	3.23	3.36	3.28	3.25
SD	0.84	0.78	0.8	0.77	0.79	0.8	0.78	0.78
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3	3
max	5	5	5	5	5	5	5	5
25th percentile	3	3	3	3	3	3	3	3
75th percentile	4	4	4	4	4	4	4	4

Table A.34: Persuasive Devices

	2011 *(N = 245416)*	2012 *(N = 252649)*	2013 *(N = 253113)*	2014 *(N = 253755)*	2015 *(N = 251814)*	2017 *(N = 250008)*	2018 *(N = 255432)*	2018 paper *(N = 212777)*
mean	2.8	2.67	2.63	2.66	2.54	2.66	2.6	2.57
SD	0.86	0.81	0.85	0.82	0.9	0.84	0.81	0.81
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3	3
max	4	4	4	4	4	4	4	4
25th percentile	2	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	3	3	3

Table A.35: Vocabulary

	2011 *(N = 245416)*	2012 *(N = 252649)*	2013 *(N = 253113)*	2014 *(N = 253755)*	2015 *(N = 251814)*	2017 *(N = 250008)*	2018 *(N = 255432)*	2018 paper *(N = 212777)*
mean	3.32	3.13	3.19	3.15	3.1	3.12	3.05	3.03
SD	0.91	0.89	0.87	0.85	0.85	0.88	0.85	0.85
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3	3
max	5	5	5	5	5	5	5	5
25th percentile	3	2	3	3	3	3	2	2
75th percentile	4	4	4	4	4	4	4	4

Table A.36: Cohesion

	2011 *(N = 245416)*	2012 *(N = 252649)*	2013 *(N = 253113)*	2014 *(N = 253755)*	2015 *(N = 251814)*	2017 *(N = 250008)*	2018 *(N = 255432)*	2018 paper *(N = 212777)*
mean	2.71	2.64	2.65	2.6	2.59	2.62	2.54	2.53
SD	0.73	0.69	0.7	0.68	0.67	0.68	0.67	0.67
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3	3
max	4	4	4	4	4	4	4	4
25th percentile	2	2	2	2	2	2	2	2
75th percentile	3	3	3	3	3	3	3	3

Table A.37: Paragraphing

	2011 *(N = 245416)*	2012 *(N = 252649)*	2013 *(N = 253113)*	2014 *(N = 253755)*	2015 *(N = 251814)*	2017 *(N = 250008)*	2018 *(N = 255432)*	2018 paper *(N = 212777)*
mean	1.99	1.86	1.83	1.82	1.82	1.86	1.81	1.79
SD	0.82	0.8	0.78	0.77	0.74	0.75	0.76	0.76
min	0	0	0	0	0	0	0	0
median	2	2	2	2	2	2	2	2
max	3	3	3	3	3	3	3	3
25th percentile	2	1	1	1	1	1	1	1
75th percentile	3	2	2	2	2	2	2	2

Table A.38: Sentence Structure

	2011 *(N = 245416)*	2012 *(N = 252649)*	2013 *(N = 253113)*	2014 *(N = 253755)*	2015 *(N = 251814)*	2017 *(N = 250008)*	2018 *(N = 255432)*	2018 paper *(N = 212777)*
mean	3.69	3.62	3.61	3.48	3.48	3.48	3.3	3.29
SD	1.04	0.99	0.99	0.97	0.95	0.98	0.96	0.97
min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
median	4.00	4.00	4.00	3.00	4.00	4.00	3.00	3.00
max	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
25th percentile	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
75th percentile	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00

Table A.39: Punctuation

	2011 *(N = 245416)*	2012 *(N = 252649)*	2013 *(N = 253113)*	2014 *(N = 253755)*	2015 *(N = 251814)*	2017 *(N = 250008)*	2018 *(N = 255432)*	2018 paper *(N = 212777)*
mean	3.1	3.01	3.05	3.02	3.02	2.94	2.86	2.85
SD	0.87	0.87	0.86	0.84	0.85	0.86	0.86	0.86
min	0	0	0	0	0	0	0	0
median	3	3	3	3	3	3	3	3
max	5	5	5	5	5	5	5	5
25th percentile	3	2	3	3	3	2	2	2
75th percentile	4	4	4	4	4	3	3	3

Table A.40: Spelling

	2011 *(N = 245416)*	2012 *(N = 252649)*	2013 *(N = 253113)*	2014 *(N = 253755)*	2015 *(N = 251814)*	2017 *(N = 250008)*	2018 *(N = 255432)*	2018 paper *(N = 212777)*
mean	4.17	4.18	4.17	4.16	4.26	4.29	4.27	4.25
SD	0.94	0.94	0.94	0.93	0.94	0.96	0.98	0.99
min	0	0	0	0	0	0	0	0
median	4	4	4	4	4	4	4	4
max	6	6	6	6	6	6	6	6
25th percentile	4	4	4	4	4	4	4	4
75th percentile	5	5	5	5	5	5	5	5

Narrative writing

Year 3

Table A.41: Audience

	2016 *(N = 291686)*	2019 *(N = 292489)*
mean	2.42	2.43
SD	0.61	0.62
min	0	0
median	2	2
max	5	5
25th percentile	2	2
75th percentile	3	3

Table A.42: Text Structure

	2016 *(N = 291686)*	2019 *(N = 292489)*
mean	1.79	1.80
SD	0.59	0.57
min	0	0
median	2	2
max	4	4
25th percentile	1	2
75th percentile	2	2

Table A.43: Ideas

	2016 *(N = 291686)*	2019 *(N = 292489)*
mean	2.23	2.30
SD	0.67	0.65
min	0	0
median	2	2
max	5	5
25th percentile	2	2
75th percentile	3	3

Table A.44: Characters and Setting

	2016 *(N = 291686)*	2019 *(N = 292489)*
mean	1.84	1.86
SD	0.57	0.59
min	0	0
median	2	2
max	4	4
25th percentile	2	2
75th percentile	2	2

Table A.45: Vocabulary

	2016 *(N = 291686)*	2019 *(N = 292489)*
mean	2.07	2.06
SD	0.46	0.44
min	0	0
median	2	2
max	5	5
25th percentile	2	2
75th percentile	2	2

Table A.46: Cohesion

	2016 *(N = 291686)*	2019 *(N = 292489)*
mean	1.91	1.90
SD	0.45	0.42
min	0	0
median	2	2
max	4	4
25th percentile	2	2
75th percentile	2	2

Table A.47: Paragraphing

	2016 *(N = 291686)*	2019 *(N = 292489)*
mean	0.51	0.49
SD	0.54	0.53
min	0	0
median	0	0
max	2	2
25th percentile	0	0
75th percentile	1	1

Table A.48: Sentence Structure

	2016 *(N = 291686)*	2019 *(N = 292489)*
mean	2.19	2.21
SD	0.68	0.67
min	0	0
median	2	2
max	6	6
25th percentile	2	2
75th percentile	3	3

Table A.49: Punctuation

	2016 *(N = 291686)*	2019 *(N = 292489)*
mean	1.88	1.90
SD	0.72	0.73
min	0	0
median	2	2
max	5	5
25th percentile	1	1
75th percentile	2	2

Table A.50: Spelling

	2016 *(N = 291686)*	2019 *(N = 292489)*
mean	2.68	2.72
SD	0.79	0.79
min	0	0
median	3	3
max	6	6
25th percentile	2	2
75th percentile	3	3

Year 5

Table A.51: Audience

	2016 *(N = 278959)*	2019 *(N = 296632)*
mean	2.89	2.89
SD	0.67	0.69
min	0	0
median	3	3
max	6	6
25th percentile	3	2
75th percentile	3	3

Table A.52: Text Structure

	2016 *(N = 278959)*	2019 *(N = 296632)*
mean	2.13	2.09
SD	0.63	0.61
min	0	0
median	2	2
max	4	4
25th percentile	2	2
75th percentile	3	2

Table A.53: Ideas

	2016 *(N = 278959)*	2019 *(N = 296632)*
mean	2.66	2.70
SD	0.64	0.63
min	0	0
median	3	3
max	5	5
25th percentile	2	2
75th percentile	3	3

Table A.54: Character and Setting

	2016 *(N = 278959)*	2019 *(N = 296632)*
mean	2.22	2.23
SD	0.60	0.63
min	0	0
median	2	2
max	4	4
25th percentile	2	2
75th percentile	3	3

Table A.55: Vocabulary

	2016 *(N = 278959)*	2019 *(N = 296632)*
mean	2.42	2.39
SD	0.61	0.61
min	0	0
median	2	2
max	5	5
25th percentile	2	2
75th percentile	3	3

Table A.56: Cohesion

	2016 *(N = 278959)*	2019 *(N = 296632)*
mean	2.16	2.12
SD	0.50	0.47
min	0	0
median	2	2
max	4	4
25th percentile	2	2
75th percentile	2	2

Table A.57: Paragraphing

	2016 *(N = 278959)*	2019 *(N = 296632)*
mean	0.82	0.81
SD	0.54	0.52
min	0	0
median	1	1
max	2	2
25th percentile	0	0
75th percentile	1	1

Table A.58: Sentence Structure

	2016 *(N = 278959)*	2019 *(N = 296632)*
mean	2.69	2.66
SD	0.77	0.76
min	0	0
median	3	3
max	6	6
25th percentile	2	2
75th percentile	3	3

Table A.59: Punctuation

	2016 *(N = 278959)*	2019 *(N = 296632)*
mean	2.28	2.23
SD	0.72	0.76
min	0	0
median	2	2
max	5	5
25th percentile	2	2
75th percentile	3	3

Table A.60: Spelling

	2016 *(N = 278959)*	2019 *(N = 296632)*
mean	3.32	3.35
SD	0.81	0.84
min	0	0
median	3	3
max	6	6
25th percentile	3	3
75th percentile	4	4

Year 7

Table A.61: Audience

	2016 *(N = 264101)*	2019 *(N = 288223)*
mean	3.32	3.33
SD	0.81	0.82
min	0	0
median	3	3
max	6	6
25th percentile	3	3
75th percentile	4	4

Table A.62: Text Structure

	2016 *(N = 264101)*	2019 *(N = 288223)*
mean	2.38	2.38
SD	0.71	0.71
min	0	0
median	2	2
max	4	4
25th percentile	2	2
75th percentile	3	3

Table A.63: Ideas

	2016 *(N = 264101)*	2019 *(N = 288223)*
mean	2.96	3.01
standard deviation	0.67	0.68
min	0	0
median	3	3
max	5	5
25th percentile	3	3
75th percentile	3	3

Table A.64: Character and Setting

	2016 *(N = 264101)*	2019 *(N = 288223)*
mean	2.52	2.54
SD	0.70	0.71
min	0	0
median	3	3
max	4	4
25th percentile	2	2
75th percentile	3	3

Table A.65: Vocabulary

	2016 *(N = 264101)*	2019 *(N = 288223)*
mean	2.77	2.71
SD	0.74	0.74
min	0	0
median	3	3
max	5	5
25th percentile	2	2
75th percentile	3	3

Table A.66: Cohesion

	2016 *(N = 264101)*	2019 *(N = 288223)*
mean	2.39	2.35
SD	0.59	0.57
min	0	0
median	2	2
max	4	4
25th percentile	2	2
75th percentile	3	3

Table A.67: Paragraphing

	2016 *(N = 264101)*	2019 *(N = 288223)*
mean	0.94	0.94
SD	0.58	0.56
min	0	0
median	1	1
max	2	2
25th percentile	1	1
75th percentile	1	1

Table A.68: Sentence Structure

	2016 *(N = 264101)*	2019 *(N = 288223)*
mean	3.12	3.06
SD	0.87	0.84
min	0	0
median	3	3
max	6	6
25th percentile	3	3
75th percentile	4	4

Table A.69: Punctuation

	2016 *(N = 264101)*	2019 *(N = 288223)*
mean	2.53	2.47
SD	0.76	0.79
min	0	0
median	3	2
max	5	5
25th percentile	2	2
75th percentile	3	3

Table A.70: Spelling

	2016 *(N = 264101)*	2019 *(N = 288223)*
mean	3.77	3.78
SD	0.86	0.88
min	0	0
median	4	4
max	6	6
25th percentile	3	3
75th percentile	4	4

Year 9

Table A.71: Audience

	2016 *(N = 233705)*	2019 *(N = 256215)*
mean	3.73	3.77
SD	0.93	0.97
min	0	0
median	4	4
max	6	6
25th percentile	3	3
75th percentile	4	4

Table A.72: Text Structure

	2016 *(N = 233705)*	2019 *(N = 256215)*
mean	2.63	2.65
SD	0.76	0.79
min	0	0
median	3	3
max	4	4
25th percentile	2	2
75th percentile	3	3

Table A.73: Ideas

	2016 *(N = 233705)*	2019 *(N = 256215)*
mean	3.25	3.32
SD	0.76	0.79
min	0	0
median	3	3
max	5	5
25th percentile	3	3
75th percentile	4	4

Table A.74: Characters and Setting

	2016 *(N = 233705)*	2019 *(N = 256215)*
mean	2.82	2.84
SD	0.75	0.78
min	0	0
median	3	3
max	4	4
25th percentile	2	2
75th percentile	3	3

Table A.75: Vocabulary

	2016 *(N = 233705)*	2019 *(N = 256215)*
mean	3.14	3.10
SD	0.83	0.85
min	0	0
median	3	3
max	5	5
25th percentile	3	3
75th percentile	4	4

Table A.76: Cohesion

	2016 *(N = 233705)*	2019 *(N = 256215)*
mean	2.62	2.58
SD	0.66	0.66
min	0	0
median	3	3
max	4	4
25th percentile	2	2
75th percentile	3	3

Table A.77: Paragraphing

	2016 *(N = 233705)*	2019 *(N = 256215)*
mean	1.03	1.04
SD	0.63	0.62
min	0	0
median	1	1
max	2	2
25th percentile	1	1
75th percentile	1	1

Table A.78: Sentence Structure

	2016 *(N = 233705)*	2019 *(N = 256215)*
mean	3.47	3.39
SD	0.93	0.93
min	0	0
median	4	3
max	6	6
25th percentile	3	3
75th percentile	4	4

Table A.79: Punctuation

	2016 *(N = 233705)*	2019 *(N = 256215)*
mean	2.74	2.68
SD	0.79	0.84
min	0	0
median	3	3
max	5	5
25th percentile	2	2
75th percentile	3	3

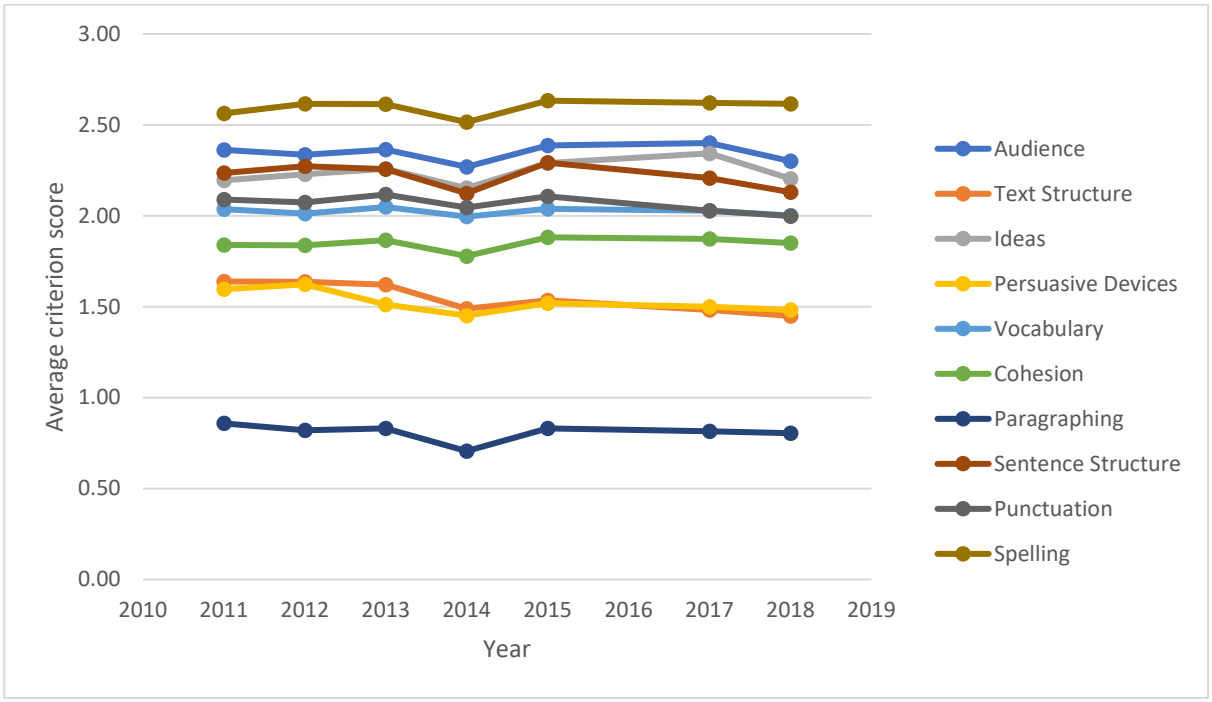
Table A.80: Spelling

	2016 *(N = 233705)*	2019 *(N = 256215)*
mean	4.15	4.16
SD	0.88	0.93
min	0	0
median	4	4
max	6	6
25th percentile	4	4
75th percentile	5	5

Appendix B: Time series graphs of average criterion scores from 2011 to 2018 (excluding 2016) for Persuasive writing by year level

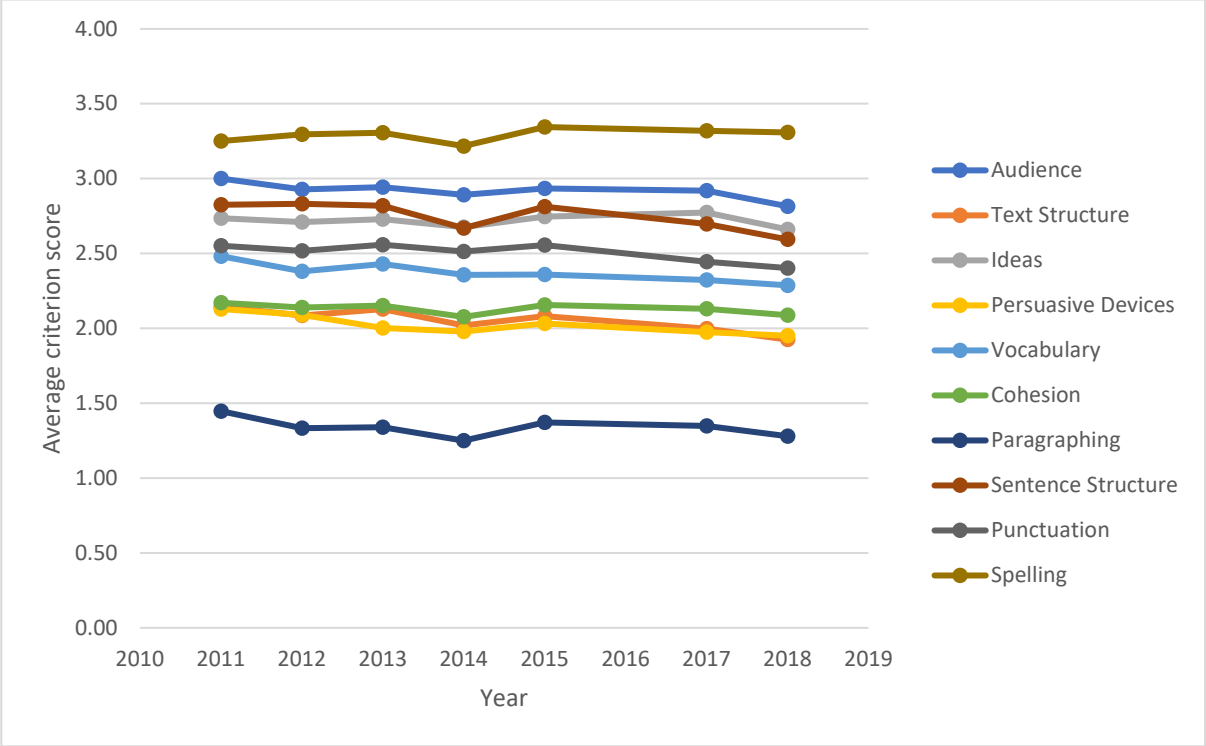
Year 3

Figure B.1: Average criterion scores for Year 3 (2011 to 2018)



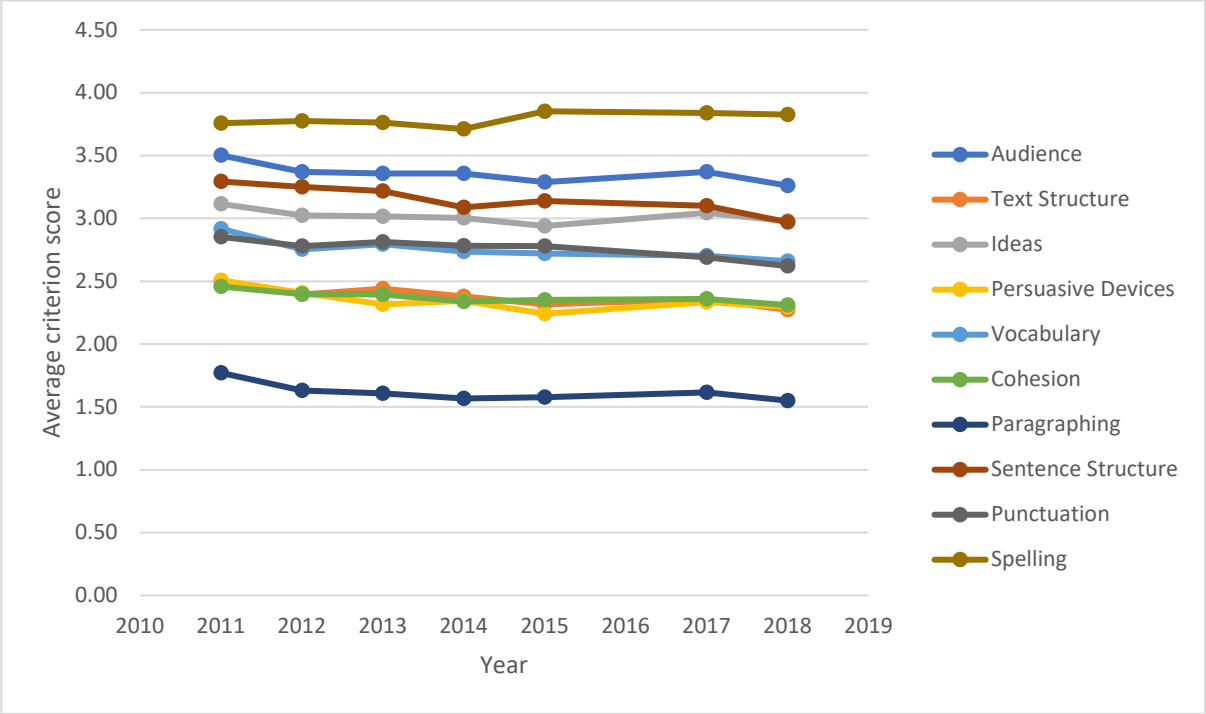
Year 5

Figure B.2: Average criterion scores for Year 5 (2011 to 2018)



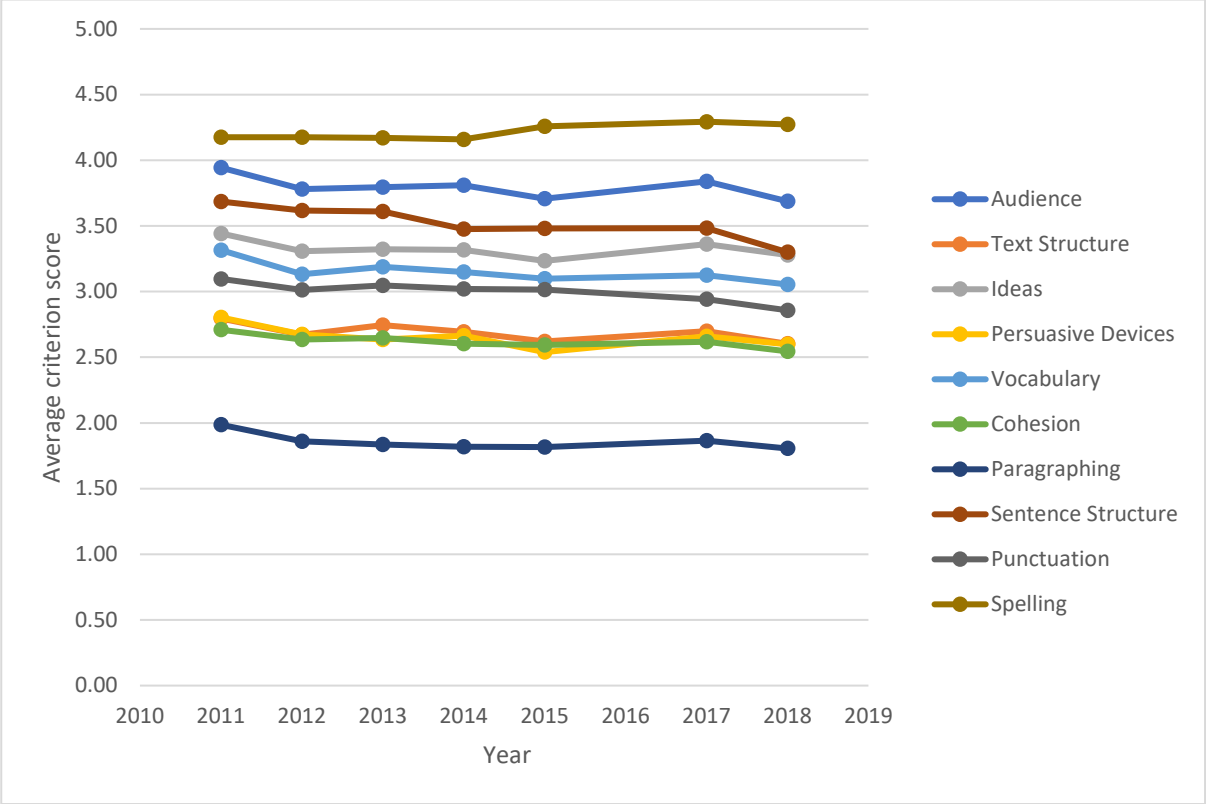
Year 7

Figure B.3: Average criterion scores for Year 7 (2011 to 2018)



Year 9

Figure B.4: Average criterion scores for Year 9 (2011 to 2018)



Appendix C: Counts and proportions of criterion scores in each score category by genre and year level

Persuasive writing

Year 3

Table C.1: Audience

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)
0	962 (0.38%)	853 (0.33%)	1447 (0.55%)	1543 (0.57%)	1481 (0.52%)	1119 (0.39%)	2479 (0.79%)
1	20030 (7.92%)	16582 (6.41%)	20683 (7.9%)	27506 (10.09%)	16877 (5.92%)	16069 (5.54%)	23076 (7.39%)
2	126299 (49.93%)	142518 (55.12%)	127284 (48.61%)	143890 (52.77%)	142279 (49.91%)	143327 (49.41%)	168831 (54.06%)
3	98031 (38.76%)	91994 (35.58%)	106090 (40.52%)	95408 (34.99%)	118805 (41.68%)	124749 (43%)	113808 (36.44%)
4	7334 (2.9%)	6426 (2.49%)	6162 (2.35%)	4225 (1.55%)	5504 (1.93%)	4772 (1.64%)	4057 (1.3%)
5	269 (0.11%)	200 (0.08%)	176 (0.07%)	84 (0.03%)	95 (0.03%)	62 (0.02%)	75 (0.02%)
6	10 (0%)	2 (0%)	2 (0%)	0 (0%)	2 (0%)	6 (0%)	3 (0%)

Table C.2: Text Structure

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)
0	5258 (2.08%)	5287 (2.04%)	7256 (2.77%)	14315 (5.25%)	16505 (5.79%)	14067 (4.85%)	29090 (9.31%)
1	98323 (38.87%)	97579 (37.74%)	103213 (39.42%)	121568 (44.59%)	114555 (40.19%)	135192 (46.6%)	124598 (39.89%)
2	132018 (52.19%)	141543 (54.74%)	133137 (50.85%)	126036 (46.23%)	138855 (48.71%)	127743 (44.03%)	147824 (47.33%)
3	17141 (6.78%)	14058 (5.44%)	18074 (6.9%)	10668 (3.91%)	15064 (5.28%)	13028 (4.49%)	10778 (3.45%)
4	195 (0.08%)	108 (0.04%)	164 (0.06%)	69 (0.03%)	64 (0.02%)	74 (0.03%)	39 (0.01%)

Table C.3: Ideas

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)
0	3441 (1.36%)	3163 (1.22%)	3588 (1.37%)	4370 (1.6%)	2845 (1%)	2352 (0.81%)	4755 (1.52%)
1	23205 (9.17%)	19337 (7.48%)	21742 (8.3%)	32930 (12.08%)	20926 (7.34%)	21194 (7.31%)	33330 (10.67%)
2	148056 (58.54%)	152223 (58.87%)	141055 (53.87%)	152893 (56.08%)	152830 (53.62%)	141846 (48.89%)	168744 (54.03%)
3	76837 (30.38%)	82803 (32.02%)	94274 (36%)	81715 (29.97%)	107505 (37.72%)	123768 (42.66%)	104515 (33.46%)
4	1387 (0.55%)	1047 (0.4%)	1179 (0.45%)	748 (0.27%)	934 (0.33%)	937 (0.32%)	982 (0.31%)
5	9 (0%)	2 (0%)	6 (0%)	0 (0%)	3 (0%)	7 (0%)	3 (0%)

Table C.4: Persuasive Devices

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)
0	6509 (2.57%)	5883 (2.28%)	8054 (3.08%)	15889 (5.83%)	17273 (6.06%)	14681 (5.06%)	30582 (9.79%)
1	104856 (41.46%)	98554 (38.11%)	123017 (46.98%)	126068 (46.24%)	116604 (40.91%)	125783 (43.36%)	112274 (35.95%)
2	125904 (49.78%)	141352 (54.67%)	119578 (45.67%)	122493 (44.93%)	137206 (48.14%)	139646 (48.14%)	158041 (50.6%)
3	15352 (6.07%)	12643 (4.89%)	11025 (4.21%)	8129 (2.98%)	13873 (4.87%)	9921 (3.42%)	11337 (3.63%)
4	314 (0.12%)	143 (0.06%)	170 (0.06%)	77 (0.03%)	87 (0.03%)	73 (0.03%)	95 (0.03%)

Table C.5: Vocabulary

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)
0	2639 (1.04%)	2506 (0.97%)	2839 (1.08%)	3199 (1.17%)	2229 (0.78%)	1880 (0.65%)	3546 (1.14%)
1	14339 (5.67%)	15599 (6.03%)	12702 (4.85%)	16684 (6.12%)	11989 (4.21%)	11260 (3.88%)	14717 (4.71%)
2	207796 (82.15%)	217246 (84.02%)	216025 (82.5%)	231271 (84.82%)	243625 (85.47%)	254397 (87.69%)	272114 (87.12%)
3	27368 (10.82%)	22610 (8.74%)	29499 (11.27%)	21097 (7.74%)	26777 (9.39%)	22152 (7.64%)	21553 (6.9%)
4	779 (0.31%)	607 (0.23%)	775 (0.3%)	401 (0.15%)	419 (0.15%)	409 (0.14%)	394 (0.13%)
5	14 (0.01%)	7 (0%)	4 (0%)	4 (0%)	4 (0%)	6 (0%)	5 (0%)

Table C.6: Cohesion

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)
0	3412 (1.35%)	3147 (1.22%)	3460 (1.32%)	4135 (1.52%)	2680 (0.94%)	2378 (0.82%)	4380 (1.4%)
1	47385 (18.73%)	45906 (17.75%)	41410 (15.81%)	58598 (21.49%)	38402 (13.47%)	41327 (14.25%)	46656 (14.94%)
2	188481 (74.52%)	199327 (77.09%)	203703 (77.8%)	203333 (74.57%)	233878 (82.05%)	237031 (81.71%)	252477 (80.84%)
3	13596 (5.38%)	10167 (3.93%)	13220 (5.05%)	6577 (2.41%)	10066 (3.53%)	9349 (3.22%)	8803 (2.82%)
4	61 (0.02%)	28 (0.01%)	50 (0.02%)	13 (0%)	17 (0.01%)	19 (0.01%)	13 (0%)

Table C.7: Paragraphing

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)
0	81986 (32.41%)	80938 (31.3%)	81158 (30.99%)	105757 (38.79%)	89328 (31.34%)	98246 (33.87%)	105157 (33.67%)
1	126341 (49.95%)	144236 (55.78%)	144692 (55.26%)	141752 (51.99%)	155272 (54.47%)	147873 (50.97%)	163479 (52.34%)
2	42995 (17%)	32446 (12.55%)	35147 (13.42%)	24646 (9.04%)	39896 (14%)	43405 (14.96%)	43080 (13.79%)
3	1613 (0.64%)	955 (0.37%)	846 (0.32%)	501 (0.18%)	547 (0.19%)	580 (0.2%)	613 (0.2%)

Table C.8: Sentence Structure

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)
0	3872 (1.53%)	3472 (1.34%)	4309 (1.65%)	5319 (1.95%)	3657 (1.28%)	3044 (1.05%)	5802 (1.86%)
1	27437 (10.85%)	24545 (9.49%)	26398 (10.08%)	33749 (12.38%)	24294 (8.52%)	26970 (9.3%)	35384 (11.33%)
2	135434 (53.54%)	136852 (52.93%)	137670 (52.58%)	159744 (58.59%)	150060 (52.64%)	172435 (59.44%)	188205 (60.26%)
3	77844 (30.78%)	85675 (33.13%)	84623 (32.32%)	69628 (25.54%)	99172 (34.79%)	82326 (28.38%)	78195 (25.04%)
4	8150 (3.22%)	7855 (3.04%)	8651 (3.3%)	4141 (1.52%)	7759 (2.72%)	5226 (1.8%)	4677 (1.5%)
5	195 (0.08%)	176 (0.07%)	187 (0.07%)	74 (0.03%)	101 (0.04%)	100 (0.03%)	65 (0.02%)
6	3 (0%)	0 (0%)	5 (0%)	1 (0%)	0 (0%)	3 (0%)	1 (0%)

Table C.9: Punctuation

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)
0	5430 (2.15%)	4937 (1.91%)	5572 (2.13%)	6838 (2.51%)	5499 (1.93%)	5680 (1.96%)	7378 (2.36%)
1	42285 (16.72%)	43437 (16.8%)	41584 (15.88%)	50755 (18.62%)	50034 (17.55%)	56507 (19.48%)	62539 (20.02%)
2	133947 (52.96%)	142441 (55.09%)	136879 (52.28%)	142185 (52.15%)	145059 (50.89%)	157149 (54.17%)	169990 (54.43%)
3	66697 (26.37%)	63407 (24.52%)	72385 (27.64%)	68907 (25.27%)	77726 (27.27%)	65822 (22.69%)	67990 (21.77%)
4	4435 (1.75%)	4227 (1.63%)	5211 (1.99%)	3860 (1.42%)	6470 (2.27%)	4750 (1.64%)	4291 (1.37%)
5	141 (0.06%)	126 (0.05%)	213 (0.08%)	111 (0.04%)	255 (0.09%)	196 (0.07%)	141 (0.05%)

Table C.10: Spelling

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)
0	2535 (1%)	2431 (0.94%)	2743 (1.05%)	3145 (1.15%)	2254 (0.79%)	1856 (0.64%)	3612 (1.16%)
1	14300 (5.65%)	15015 (5.81%)	15608 (5.96%)	19518 (7.16%)	15263 (5.35%)	16266 (5.61%)	18593 (5.95%)
2	98441 (38.92%)	92703 (35.85%)	95117 (36.33%)	107541 (39.44%)	106165 (37.25%)	109283 (37.67%)	112750 (36.1%)
3	113766 (44.98%)	118452 (45.81%)	115746 (44.2%)	119118 (43.69%)	123500 (43.33%)	126563 (43.63%)	137975 (44.18%)
4	23474 (9.28%)	29145 (11.27%)	31781 (12.14%)	22842 (8.38%)	36749 (12.89%)	34937 (12.04%)	37839 (12.12%)
5	406 (0.16%)	801 (0.31%)	824 (0.31%)	484 (0.18%)	1103 (0.39%)	1170 (0.4%)	1534 (0.49%)
6	13 (0.01%)	28 (0.01%)	25 (0.01%)	8 (0%)	9 (0%)	29 (0.01%)	26 (0.01%)

Year 5

Table C.11: Audience

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	368 (0.14%)	239 (0.1%)	703 (0.27%)	703 (0.27%)	598 (0.22%)	477 (0.16%)	1180 (0.4%)	1108 (0.44%)
1	5527 (2.14%)	4453 (1.86%)	5823 (2.26%)	6580 (2.5%)	4134 (1.55%)	4099 (1.41%)	6163 (2.07%)	5297 (2.11%)
2	54393 (21.04%)	60131 (25.1%)	52668 (20.41%)	60596 (23.05%)	53691 (20.1%)	59081 (20.35%)	78139 (26.27%)	66282 (26.4%)
3	139197 (53.83%)	127601 (53.26%)	151110 (58.57%)	150647 (57.29%)	165119 (61.8%)	184160 (63.44%)	175112 (58.87%)	148422 (59.12%)
4	51984 (20.1%)	42109 (17.58%)	43717 (16.94%)	41268 (15.69%)	40920 (15.32%)	39893 (13.74%)	34652 (11.65%)	28238 (11.25%)
5	6661 (2.58%)	4804 (2.01%)	3767 (1.46%)	3041 (1.16%)	2623 (0.98%)	2527 (0.87%)	2178 (0.73%)	1693 (0.67%)
6	453 (0.18%)	251 (0.1%)	218 (0.08%)	106 (0.04%)	84 (0.03%)	66 (0.02%)	52 (0.02%)	31 (0.01%)

Table C.12: Text Structure

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	1891 (0.73%)	1830 (0.76%)	3231 (1.25%)	4852 (1.85%)	6416 (2.4%)	5471 (1.88%)	11280 (3.79%)	9502 (3.78%)
1	40926 (15.83%)	37974 (15.85%)	37951 (14.71%)	45474 (17.29%)	39696 (14.86%)	56924 (19.61%)	55615 (18.7%)	45708 (18.21%)
2	138392 (53.52%)	140147 (58.49%)	142111 (55.08%)	154274 (58.67%)	148821 (55.7%)	162119 (55.84%)	175923 (59.14%)	149446 (59.52%)
3	72655 (28.1%)	56863 (23.73%)	71781 (27.82%)	56494 (21.49%)	70416 (26.36%)	64178 (22.11%)	53416 (17.96%)	45437 (18.1%)
4	4719 (1.82%)	2774 (1.16%)	2932 (1.14%)	1847 (0.7%)	1820 (0.68%)	1611 (0.55%)	1242 (0.42%)	978 (0.39%)

Table C.13: Ideas

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	1096 (0.42%)	975 (0.41%)	1435 (0.56%)	1579 (0.6%)	1008 (0.38%)	860 (0.3%)	1887 (0.63%)	1713 (0.68%)
1	6856 (2.65%)	5388 (2.25%)	7006 (2.72%)	9697 (3.69%)	6682 (2.5%)	7360 (2.54%)	11401 (3.83%)	9732 (3.88%)
2	73383 (28.38%)	70823 (29.56%)	66855 (25.91%)	73800 (28.07%)	64441 (24.12%)	62335 (21.47%)	85129 (28.62%)	72164 (28.74%)
3	155651 (60.19%)	147866 (61.72%)	167742 (65.01%)	165122 (62.8%)	182071 (68.15%)	206008 (70.96%)	186481 (62.69%)	157485 (62.73%)
4	20907 (8.09%)	14205 (5.93%)	14634 (5.67%)	12532 (4.77%)	12815 (4.8%)	13606 (4.69%)	12440 (4.18%)	9882 (3.94%)
5	690 (0.27%)	331 (0.14%)	334 (0.13%)	211 (0.08%)	152 (0.06%)	134 (0.05%)	138 (0.05%)	95 (0.04%)

Table C.14: Persuasive Devices

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	2317 (0.9%)	1886 (0.79%)	3525 (1.37%)	5182 (1.97%)	6678 (2.5%)	5645 (1.94%)	11573 (3.89%)	9750 (3.88%)
1	42997 (16.63%)	36339 (15.17%)	50717 (19.66%)	49882 (18.97%)	45017 (16.85%)	53316 (18.37%)	49620 (16.68%)	41888 (16.68%)
2	138176 (53.44%)	142950 (59.66%)	148335 (57.49%)	155240 (59.04%)	150579 (56.36%)	175975 (60.62%)	179753 (60.43%)	152338 (60.68%)
3	69112 (26.73%)	55194 (23.04%)	52649 (20.41%)	50526 (19.22%)	62877 (23.53%)	53747 (18.51%)	54812 (18.43%)	45763 (18.23%)
4	5981 (2.31%)	3219 (1.34%)	2780 (1.08%)	2111 (0.8%)	2018 (0.76%)	1620 (0.56%)	1718 (0.58%)	1332 (0.53%)

Table C.15: Vocabulary

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	871 (0.34%)	770 (0.32%)	1172 (0.45%)	1227 (0.47%)	827 (0.31%)	729 (0.25%)	1554 (0.52%)	1423 (0.57%)
1	3925 (1.52%)	4134 (1.73%)	3825 (1.48%)	4053 (1.54%)	2980 (1.12%)	2941 (1.01%)	3979 (1.34%)	3333 (1.33%)
2	139840 (54.08%)	148389 (61.94%)	147720 (57.25%)	165423 (62.91%)	170021 (63.64%)	196199 (67.58%)	206017 (69.25%)	174670 (69.57%)
3	98122 (37.95%)	75961 (31.7%)	93910 (36.4%)	83976 (31.94%)	85954 (32.17%)	82846 (28.54%)	79341 (26.67%)	66321 (26.42%)
4	15249 (5.9%)	9907 (4.14%)	10963 (4.25%)	8049 (3.06%)	7249 (2.71%)	7428 (2.56%)	6483 (2.18%)	5257 (2.09%)
5	576 (0.22%)	427 (0.18%)	416 (0.16%)	213 (0.08%)	138 (0.05%)	160 (0.06%)	102 (0.03%)	67 (0.03%)

Table C.16: Cohesion

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	1063 (0.41%)	938 (0.39%)	1358 (0.53%)	1452 (0.55%)	933 (0.35%)	859 (0.3%)	1761 (0.59%)	1609 (0.64%)
1	16825 (6.51%)	14760 (6.16%)	14018 (5.43%)	18204 (6.92%)	10889 (4.08%)	12532 (4.32%)	15247 (5.13%)	12724 (5.07%)
2	179578 (69.45%)	175263 (73.15%)	188065 (72.89%)	202754 (77.11%)	201477 (75.41%)	225083 (77.53%)	235898 (79.3%)	200178 (79.73%)
3	59048 (22.84%)	47288 (19.74%)	53292 (20.66%)	39829 (15.15%)	53211 (19.92%)	51292 (17.67%)	44117 (14.83%)	36225 (14.43%)
4	2069 (0.8%)	1339 (0.56%)	1273 (0.49%)	702 (0.27%)	659 (0.25%)	537 (0.18%)	453 (0.15%)	335 (0.13%)

Table C.17: Paragraphing

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	26548 (10.27%)	24450 (10.21%)	25054 (9.71%)	31197 (11.86%)	25479 (9.54%)	32293 (11.12%)	37599 (12.64%)	30704 (12.23%)
1	104559 (40.44%)	119462 (49.86%)	127361 (49.36%)	139980 (53.24%)	122446 (45.83%)	129953 (44.76%)	143717 (48.31%)	121328 (48.32%)
2	112777 (43.61%)	87017 (36.32%)	98472 (38.17%)	86524 (32.91%)	113394 (42.44%)	122701 (42.27%)	111436 (37.46%)	95120 (37.89%)
3	14699 (5.68%)	8659 (3.61%)	7119 (2.76%)	5240 (1.99%)	5850 (2.19%)	5356 (1.84%)	4724 (1.59%)	3919 (1.56%)

Table C.18: Sentence Structure

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	1205 (0.47%)	1029 (0.43%)	1610 (0.62%)	1780 (0.68%)	1202 (0.45%)	1022 (0.35%)	2101 (0.71%)	1907 (0.76%)
1	9546 (3.69%)	7656 (3.2%)	8651 (3.35%)	10393 (3.95%)	7041 (2.64%)	8755 (3.02%)	12249 (4.12%)	10458 (4.17%)
2	77113 (29.82%)	69771 (29.12%)	74920 (29.04%)	94068 (35.78%)	76717 (28.71%)	103832 (35.77%)	119877 (40.3%)	101637 (40.48%)
3	121266 (46.9%)	117263 (48.94%)	126480 (49.02%)	125667 (47.79%)	139720 (52.3%)	141897 (48.88%)	134674 (45.27%)	113343 (45.14%)
4	44627 (17.26%)	40011 (16.7%)	42639 (16.53%)	29031 (11.04%)	40420 (15.13%)	32945 (11.35%)	27255 (9.16%)	22701 (9.04%)
5	4605 (1.78%)	3694 (1.54%)	3553 (1.38%)	1947 (0.74%)	2022 (0.76%)	1811 (0.62%)	1286 (0.43%)	1000 (0.4%)
6	221 (0.09%)	164 (0.07%)	153 (0.06%)	55 (0.02%)	47 (0.02%)	41 (0.01%)	34 (0.01%)	25 (0.01%)

Table C.19: Punctuation

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	1706 (0.66%)	1491 (0.62%)	1963 (0.76%)	2171 (0.83%)	1756 (0.66%)	1721 (0.59%)	2935 (0.99%)	2392 (0.95%)
1	16674 (6.45%)	15178 (6.34%)	15341 (5.95%)	17022 (6.47%)	16515 (6.18%)	20949 (7.22%)	24278 (8.16%)	19365 (7.71%)
2	101013 (39.06%)	100384 (41.9%)	100084 (38.79%)	105351 (40.07%)	103172 (38.62%)	132217 (45.54%)	136646 (45.94%)	116303 (46.32%)
3	117091 (45.28%)	103940 (43.38%)	118988 (46.12%)	121362 (46.16%)	123859 (46.36%)	117876 (40.6%)	118046 (39.68%)	99896 (39.79%)
4	20873 (8.07%)	17598 (7.35%)	20452 (7.93%)	16236 (6.17%)	20769 (7.77%)	16618 (5.72%)	14776 (4.97%)	12463 (4.96%)
5	1226 (0.47%)	997 (0.42%)	1178 (0.46%)	799 (0.3%)	1098 (0.41%)	922 (0.32%)	795 (0.27%)	652 (0.26%)

Table C.20: Spelling

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	819 (0.32%)	731 (0.31%)	1116 (0.43%)	1179 (0.45%)	813 (0.3%)	693 (0.24%)	1533 (0.52%)	1409 (0.56%)
1	3427 (1.33%)	3374 (1.41%)	3784 (1.47%)	4189 (1.59%)	3133 (1.17%)	3571 (1.23%)	4167 (1.4%)	3634 (1.45%)
2	34426 (13.31%)	28819 (12.03%)	30319 (11.75%)	35144 (13.37%)	31162 (11.66%)	35546 (12.24%)	36892 (12.4%)	32137 (12.8%)
3	121735 (47.08%)	111353 (46.48%)	116314 (45.08%)	128701 (48.95%)	116044 (43.43%)	131161 (45.18%)	133824 (44.99%)	112532 (44.82%)
4	88177 (34.1%)	82944 (34.62%)	93451 (36.22%)	83596 (31.79%)	100722 (37.7%)	102030 (35.15%)	101275 (34.04%)	85323 (33.98%)
5	9365 (3.62%)	11602 (4.84%)	12269 (4.76%)	9721 (3.7%)	14662 (5.49%)	16430 (5.66%)	18876 (6.35%)	15297 (6.09%)
6	634 (0.25%)	765 (0.32%)	753 (0.29%)	411 (0.16%)	633 (0.24%)	872 (0.3%)	909 (0.31%)	739 (0.29%)

Year 7

Table C.21: Audience

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	216 (0.08%)	208 (0.08%)	555 (0.21%)	351 (0.15%)	679 (0.26%)	692 (0.26%)	1128 (0.4%)	1076 (0.46%)
1	2623 (1%)	2338 (0.89%)	2996 (1.15%)	2909 (1.21%)	2924 (1.13%)	2806 (1.05%)	2776 (0.99%)	2476 (1.05%)
2	25230 (9.64%)	33183 (12.62%)	27353 (10.49%)	25342 (10.52%)	35337 (13.69%)	29810 (11.16%)	35437 (12.68%)	30712 (13.05%)
3	108773 (41.55%)	118129 (44.91%)	123898 (47.52%)	113166 (46.97%)	120215 (46.56%)	120970 (45.29%)	139423 (49.89%)	118012 (50.13%)
4	91791 (35.07%)	84827 (32.25%)	86025 (32.99%)	81205 (33.71%)	81812 (31.68%)	90764 (33.98%)	85096 (30.45%)	70593 (29.99%)
5	28812 (11.01%)	22020 (8.37%)	17901 (6.87%)	16514 (6.85%)	16023 (6.21%)	20314 (7.61%)	14625 (5.23%)	11823 (5.02%)
6	4327 (1.65%)	2314 (0.88%)	2008 (0.77%)	1427 (0.59%)	1224 (0.47%)	1727 (0.65%)	967 (0.35%)	707 (0.3%)

Table C.22: Text Structure

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	1295 (0.49%)	1536 (0.58%)	3005 (1.15%)	2557 (1.06%)	8716 (3.38%)	4938 (1.85%)	4962 (1.78%)	4516 (1.92%)
1	22628 (8.64%)	24217 (9.21%)	21313 (8.17%)	20820 (8.64%)	23680 (9.17%)	28086 (10.52%)	30883 (11.05%)	25976 (11.03%)
2	103737 (39.63%)	119306 (45.36%)	108961 (41.79%)	110357 (45.81%)	112264 (43.48%)	112836 (42.25%)	135081 (48.34%)	114226 (48.52%)
3	112703 (43.05%)	104741 (39.82%)	112632 (43.2%)	96897 (40.22%)	104430 (40.44%)	109246 (40.9%)	100258 (35.88%)	84070 (35.71%)
4	21409 (8.18%)	13219 (5.03%)	14825 (5.69%)	10283 (4.27%)	9124 (3.53%)	11977 (4.48%)	8268 (2.96%)	6611 (2.81%)

Table C.23: Ideas

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	658 (0.25%)	610 (0.23%)	1072 (0.41%)	780 (0.32%)	1065 (0.41%)	1159 (0.43%)	1530 (0.55%)	1444 (0.61%)
1	3546 (1.35%)	3308 (1.26%)	4209 (1.61%)	4503 (1.87%)	5821 (2.25%)	5328 (1.99%)	4194 (1.5%)	3714 (1.58%)
2	35656 (13.62%)	39768 (15.12%)	36750 (14.09%)	33921 (14.08%)	42737 (16.55%)	32914 (12.32%)	42086 (15.06%)	36202 (15.38%)
3	153450 (58.62%)	168055 (63.89%)	168977 (64.81%)	157659 (65.44%)	168526 (65.27%)	171782 (64.32%)	184789 (66.13%)	155791 (66.18%)
4	62222 (23.77%)	48169 (18.31%)	46830 (17.96%)	41948 (17.41%)	38306 (14.83%)	53043 (19.86%)	44717 (16%)	36638 (15.56%)
5	6240 (2.38%)	3109 (1.18%)	2898 (1.11%)	2103 (0.87%)	1759 (0.68%)	2857 (1.07%)	2136 (0.76%)	1610 (0.68%)

Table C.24: Persuasive Devices

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	1468 (0.56%)	1544 (0.59%)	3183 (1.22%)	2661 (1.1%)	9238 (3.58%)	5122 (1.92%)	5190 (1.86%)	4739 (2.01%)
1	21152 (8.08%)	20641 (7.85%)	28258 (10.84%)	22719 (9.43%)	33096 (12.82%)	24461 (9.16%)	26095 (9.34%)	22468 (9.54%)
2	106493 (40.68%)	124781 (47.44%)	124550 (47.77%)	114962 (47.72%)	111496 (43.18%)	125045 (46.82%)	137996 (49.38%)	116660 (49.56%)
3	108588 (41.48%)	101611 (38.63%)	92471 (35.47%)	90086 (37.39%)	94976 (36.78%)	101086 (37.85%)	101114 (36.18%)	84400 (35.85%)
4	24071 (9.2%)	14442 (5.49%)	12274 (4.71%)	10486 (4.35%)	9408 (3.64%)	11369 (4.26%)	9057 (3.24%)	7132 (3.03%)

Table C.25: Vocabulary

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	494 (0.19%)	455 (0.17%)	836 (0.32%)	594 (0.25%)	873 (0.34%)	1030 (0.39%)	1373 (0.49%)	1306 (0.55%)
1	1789 (0.68%)	2274 (0.86%)	2006 (0.77%)	1985 (0.82%)	2036 (0.79%)	1948 (0.73%)	1929 (0.69%)	1691 (0.72%)
2	79440 (30.35%)	103580 (39.38%)	91531 (35.1%)	93088 (38.64%)	102161 (39.56%)	110760 (41.47%)	120390 (43.08%)	102102 (43.37%)
3	123259 (47.09%)	115703 (43.99%)	125315 (48.06%)	112326 (46.62%)	118643 (45.95%)	117851 (44.13%)	124449 (44.53%)	104411 (44.35%)
4	51014 (19.49%)	37638 (14.31%)	37761 (14.48%)	30803 (12.79%)	32481 (12.58%)	32964 (12.34%)	29577 (10.58%)	24507 (10.41%)
5	5776 (2.21%)	3369 (1.28%)	3287 (1.26%)	2118 (0.88%)	2020 (0.78%)	2530 (0.95%)	1734 (0.62%)	1382 (0.59%)

Table C.26: Cohesion

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	579 (0.22%)	529 (0.2%)	969 (0.37%)	709 (0.29%)	950 (0.37%)	1110 (0.42%)	1475 (0.53%)	1397 (0.59%)
1	7757 (2.96%)	8124 (3.09%)	7089 (2.72%)	7775 (3.23%)	6692 (2.59%)	7191 (2.69%)	7430 (2.66%)	6416 (2.73%)
2	136711 (52.23%)	148263 (56.37%)	148079 (56.79%)	146291 (60.72%)	155923 (60.39%)	159109 (59.57%)	177366 (63.47%)	151128 (64.2%)
3	104891 (40.07%)	98602 (37.49%)	97500 (37.39%)	81471 (33.82%)	89818 (34.78%)	94305 (35.31%)	89350 (31.97%)	73445 (31.2%)
4	11834 (4.52%)	7501 (2.85%)	7099 (2.72%)	4668 (1.94%)	4831 (1.87%)	5368 (2.01%)	3831 (1.37%)	3013 (1.28%)

Table C.27: Paragraphing

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	15259 (5.83%)	15424 (5.86%)	15004 (5.75%)	14884 (6.18%)	15988 (6.19%)	18098 (6.78%)	21478 (7.69%)	18201 (7.73%)
1	70313 (26.86%)	93525 (35.56%)	93743 (35.95%)	91729 (38.08%)	93243 (36.11%)	86031 (32.21%)	99335 (35.55%)	83988 (35.68%)
2	135427 (51.73%)	127023 (48.29%)	130648 (50.11%)	117215 (48.65%)	132796 (51.43%)	143835 (53.85%)	142128 (50.86%)	119631 (50.82%)
3	40773 (15.58%)	27047 (10.28%)	21341 (8.18%)	17086 (7.09%)	16187 (6.27%)	19119 (7.16%)	16511 (5.91%)	13579 (5.77%)

Table C.28: Sentence Structure

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	662 (0.25%)	577 (0.22%)	1119 (0.43%)	852 (0.35%)	1204 (0.47%)	1240 (0.46%)	1655 (0.59%)	1555 (0.66%)
1	4634 (1.77%)	4304 (1.64%)	4437 (1.7%)	4894 (2.03%)	4422 (1.71%)	5006 (1.87%)	6182 (2.21%)	5322 (2.26%)
2	41808 (15.97%)	42763 (16.26%)	43680 (16.75%)	49094 (20.38%)	47353 (18.34%)	54761 (20.5%)	69955 (25.03%)	59257 (25.17%)
3	109257 (41.74%)	115911 (44.07%)	115481 (44.29%)	114637 (47.58%)	120985 (46.85%)	123427 (46.21%)	131231 (46.96%)	110219 (46.82%)
4	82924 (31.68%)	81409 (30.95%)	80296 (30.8%)	61219 (25.41%)	73531 (28.48%)	70699 (26.47%)	62388 (22.33%)	52384 (22.25%)
5	20542 (7.85%)	16854 (6.41%)	14664 (5.62%)	9684 (4.02%)	10198 (3.95%)	11307 (4.23%)	7686 (2.75%)	6380 (2.71%)
6	1945 (0.74%)	1201 (0.46%)	1059 (0.41%)	534 (0.22%)	521 (0.2%)	643 (0.24%)	355 (0.13%)	282 (0.12%)

Table C.29: Punctuation

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	996 (0.38%)	889 (0.34%)	1304 (0.5%)	1132 (0.47%)	1541 (0.6%)	1653 (0.62%)	2242 (0.8%)	1934 (0.82%)
1	8865 (3.39%)	9880 (3.76%)	9056 (3.47%)	8853 (3.67%)	10783 (4.18%)	12314 (4.61%)	14494 (5.19%)	11766 (5%)
2	71088 (27.16%)	82135 (31.23%)	73732 (28.28%)	69078 (28.67%)	73755 (28.56%)	91004 (34.07%)	102924 (36.83%)	87056 (36.98%)
3	132438 (50.59%)	127076 (48.31%)	133303 (51.13%)	127098 (52.76%)	132408 (51.28%)	127323 (47.67%)	129719 (46.42%)	109178 (46.38%)
4	43580 (16.65%)	39625 (15.07%)	39786 (15.26%)	32258 (13.39%)	36828 (14.26%)	31695 (11.87%)	27578 (9.87%)	23412 (9.95%)
5	4805 (1.84%)	3414 (1.3%)	3555 (1.36%)	2495 (1.04%)	2899 (1.12%)	3094 (1.16%)	2495 (0.89%)	2053 (0.87%)

Table C.30: Spelling

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	463 (0.18%)	424 (0.16%)	811 (0.31%)	562 (0.23%)	845 (0.33%)	988 (0.37%)	1356 (0.49%)	1292 (0.55%)
1	1359 (0.52%)	1536 (0.58%)	1642 (0.63%)	1720 (0.71%)	1720 (0.67%)	1815 (0.68%)	1695 (0.61%)	1500 (0.64%)
2	12706 (4.85%)	12278 (4.67%)	12512 (4.8%)	12235 (5.08%)	12163 (4.71%)	12189 (4.56%)	13505 (4.83%)	11960 (5.08%)
3	79567 (30.4%)	81117 (30.84%)	78314 (30.04%)	79393 (32.95%)	68937 (26.7%)	74176 (27.77%)	80260 (28.72%)	67345 (28.61%)
4	125218 (47.83%)	120139 (45.68%)	122181 (46.86%)	108506 (45.04%)	115111 (44.58%)	118715 (44.45%)	118781 (42.5%)	100803 (42.82%)
5	37593 (14.36%)	42657 (16.22%)	41078 (15.75%)	35565 (14.76%)	55348 (21.43%)	53837 (20.16%)	58744 (21.02%)	48271 (20.51%)
6	4866 (1.86%)	4868 (1.85%)	4198 (1.61%)	2933 (1.22%)	4090 (1.58%)	5363 (2.01%)	5111 (1.83%)	4228 (1.8%)

Year 9

Table C.31: Audience

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	438 (0.18%)	357 (0.14%)	862 (0.34%)	693 (0.27%)	1067 (0.42%)	1005 (0.4%)	1714 (0.67%)	1636 (0.77%)
1	1969 (0.8%)	1882 (0.74%)	2400 (0.95%)	2164 (0.85%)	2169 (0.86%)	2130 (0.85%)	1963 (0.77%)	1726 (0.81%)
2	14817 (6.04%)	19710 (7.8%)	15306 (6.05%)	14525 (5.72%)	21321 (8.47%)	15413 (6.17%)	17373 (6.8%)	15178 (7.13%)
3	67017 (27.31%)	79024 (31.28%)	78153 (30.88%)	76360 (30.09%)	79208 (31.45%)	70740 (28.3%)	85344 (33.41%)	72597 (34.12%)
4	88181 (35.93%)	92432 (36.59%)	99873 (39.46%)	102755 (40.49%)	97098 (38.56%)	99043 (39.62%)	101995 (39.93%)	84522 (39.72%)
5	55507 (22.62%)	48326 (19.13%)	45707 (18.06%)	48289 (19.03%)	43137 (17.13%)	51541 (20.62%)	41062 (16.08%)	32781 (15.41%)
6	17487 (7.13%)	10918 (4.32%)	10812 (4.27%)	8969 (3.53%)	7814 (3.1%)	10136 (4.05%)	5981 (2.34%)	4337 (2.04%)

Table C.32: Text Structure

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	1302 (0.53%)	1645 (0.65%)	2855 (1.13%)	2536 (1%)	6700 (2.66%)	3807 (1.52%)	4012 (1.57%)	3724 (1.75%)
1	15105 (6.15%)	17002 (6.73%)	14126 (5.58%)	14207 (5.6%)	15031 (5.97%)	15810 (6.32%)	16555 (6.48%)	14048 (6.6%)
2	66748 (27.2%)	80441 (31.84%)	70429 (27.83%)	77139 (30.4%)	75384 (29.94%)	69396 (27.76%)	83830 (32.82%)	70960 (33.35%)
3	111758 (45.54%)	116985 (46.3%)	122887 (48.55%)	124423 (49.03%)	124852 (49.58%)	123742 (49.5%)	123648 (48.41%)	102622 (48.23%)
4	50503 (20.58%)	36576 (14.48%)	42816 (16.92%)	35450 (13.97%)	29847 (11.85%)	37253 (14.9%)	27387 (10.72%)	21423 (10.07%)

Table C.33: Ideas

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	797 (0.32%)	756 (0.3%)	1308 (0.52%)	1091 (0.43%)	1398 (0.56%)	1393 (0.56%)	2066 (0.81%)	1943 (0.91%)
1	2607 (1.06%)	2813 (1.11%)	3357 (1.33%)	3224 (1.27%)	4138 (1.64%)	3859 (1.54%)	2857 (1.12%)	2542 (1.19%)
2	21018 (8.56%)	24070 (9.53%)	20740 (8.19%)	19851 (7.82%)	24871 (9.88%)	17197 (6.88%)	20946 (8.2%)	18070 (8.49%)
3	107164 (43.67%)	129320 (51.19%)	128654 (50.83%)	131409 (51.79%)	135530 (53.82%)	122082 (48.83%)	136172 (53.31%)	115184 (54.13%)
4	90440 (36.85%)	81890 (32.41%)	85168 (33.65%)	86178 (33.96%)	75580 (30.01%)	91316 (36.53%)	82874 (32.44%)	67181 (31.57%)
5	23390 (9.53%)	13800 (5.46%)	13886 (5.49%)	12002 (4.73%)	10297 (4.09%)	14161 (5.66%)	10517 (4.12%)	7857 (3.69%)

Table C.34: Persuasive Devices

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	1414 (0.58%)	1629 (0.64%)	2967 (1.17%)	2622 (1.03%)	7109 (2.82%)	3963 (1.59%)	4131 (1.62%)	3831 (1.8%)
1	13598 (5.54%)	13920 (5.51%)	17074 (6.75%)	14510 (5.72%)	22059 (8.76%)	14046 (5.62%)	14538 (5.69%)	12544 (5.9%)
2	69587 (28.35%)	86213 (34.12%)	85001 (33.58%)	82536 (32.53%)	78868 (31.32%)	78793 (31.52%)	87881 (34.4%)	74496 (35.01%)
3	108111 (44.05%)	114265 (45.23%)	112603 (44.49%)	119857 (47.23%)	115545 (45.89%)	119532 (47.81%)	122110 (47.81%)	101380 (47.65%)
4	52706 (21.48%)	36622 (14.5%)	35468 (14.01%)	34230 (13.49%)	28233 (11.21%)	33674 (13.47%)	26772 (10.48%)	20526 (9.65%)

Table C.35: Vocabulary

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	669 (0.27%)	567 (0.22%)	1089 (0.43%)	899 (0.35%)	1209 (0.48%)	1272 (0.51%)	1878 (0.74%)	1787 (0.84%)
1	1440 (0.59%)	1908 (0.76%)	1662 (0.66%)	1468 (0.58%)	1577 (0.63%)	1582 (0.63%)	1494 (0.58%)	1285 (0.6%)
2	43427 (17.7%)	61223 (24.23%)	49722 (19.64%)	52935 (20.86%)	57956 (23.02%)	57413 (22.96%)	61081 (23.91%)	52026 (24.45%)
3	96743 (39.42%)	104084 (41.2%)	111881 (44.2%)	113982 (44.92%)	112554 (44.7%)	107411 (42.96%)	116685 (45.68%)	97540 (45.84%)
4	80444 (32.78%)	69897 (27.67%)	73637 (29.09%)	72300 (28.49%)	67699 (26.88%)	69349 (27.74%)	65085 (25.48%)	53037 (24.93%)
5	22693 (9.25%)	14970 (5.93%)	15122 (5.97%)	12171 (4.8%)	10819 (4.3%)	12981 (5.19%)	9209 (3.61%)	7102 (3.34%)

Table C.36: Cohesion

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	735 (0.3%)	649 (0.26%)	1180 (0.47%)	1001 (0.39%)	1281 (0.51%)	1346 (0.54%)	1995 (0.78%)	1884 (0.89%)
1	5025 (2.05%)	5536 (2.19%)	4788 (1.89%)	5033 (1.98%)	4409 (1.75%)	4461 (1.78%)	4568 (1.79%)	3934 (1.85%)
2	91644 (37.34%)	102441 (40.55%)	100262 (39.61%)	107047 (42.19%)	107817 (42.82%)	102465 (40.98%)	115751 (45.32%)	98569 (46.33%)
3	115446 (47.04%)	120652 (47.75%)	122623 (48.45%)	121016 (47.69%)	120158 (47.72%)	121738 (48.69%)	118513 (46.4%)	97160 (45.66%)
4	32566 (13.27%)	23371 (9.25%)	24260 (9.58%)	19658 (7.75%)	18149 (7.21%)	19998 (8%)	14605 (5.72%)	11230 (5.28%)

Table C.37: Paragraphing

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	12497 (5.09%)	12632 (5%)	12210 (4.82%)	12008 (4.73%)	11519 (4.57%)	12286 (4.91%)	14346 (5.62%)	12456 (5.85%)
1	46997 (19.15%)	63731 (25.23%)	64358 (25.43%)	65777 (25.92%)	62624 (24.87%)	53012 (21.2%)	60114 (23.53%)	50898 (23.92%)
2	117369 (47.82%)	122475 (48.48%)	129589 (51.2%)	132210 (52.1%)	138277 (54.91%)	141145 (56.46%)	141934 (55.57%)	118414 (55.65%)
3	68553 (27.93%)	53811 (21.3%)	46956 (18.55%)	43760 (17.24%)	39394 (15.64%)	43565 (17.43%)	39038 (15.28%)	31009 (14.57%)

Table C.38: Sentence Structure

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	757 (0.31%)	650 (0.26%)	1321 (0.52%)	1149 (0.45%)	1511 (0.6%)	1452 (0.58%)	2149 (0.84%)	2024 (0.95%)
1	3184 (1.3%)	2969 (1.18%)	3022 (1.19%)	3335 (1.31%)	2960 (1.18%)	3170 (1.27%)	4064 (1.59%)	3494 (1.64%)
2	24614 (10.03%)	25731 (10.18%)	24531 (9.69%)	31017 (12.22%)	28480 (11.31%)	31115 (12.45%)	41213 (16.13%)	34907 (16.41%)
3	74708 (30.44%)	83420 (33.02%)	82675 (32.66%)	93125 (36.7%)	91502 (36.34%)	88419 (35.37%)	99692 (39.03%)	82983 (39%)
4	90649 (36.94%)	95823 (37.93%)	99065 (39.14%)	91308 (35.98%)	97019 (38.53%)	92435 (36.97%)	85959 (33.65%)	71168 (33.45%)
5	43679 (17.8%)	38726 (15.33%)	37833 (14.95%)	30712 (12.1%)	27984 (11.11%)	29998 (12%)	20704 (8.11%)	16891 (7.94%)
6	7825 (3.19%)	5330 (2.11%)	4666 (1.84%)	3109 (1.23%)	2358 (0.94%)	3419 (1.37%)	1651 (0.65%)	1310 (0.62%)

Table C.39: Punctuation

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	972 (0.4%)	923 (0.37%)	1400 (0.55%)	1261 (0.5%)	1713 (0.68%)	1673 (0.67%)	2494 (0.98%)	2232 (1.05%)
1	6027 (2.46%)	6941 (2.75%)	6122 (2.42%)	6220 (2.45%)	6732 (2.67%)	7233 (2.89%)	8612 (3.37%)	6873 (3.23%)
2	47663 (19.42%)	58401 (23.12%)	51169 (20.22%)	51651 (20.35%)	50363 (20%)	61389 (24.55%)	68313 (26.74%)	57443 (27%)
3	116032 (47.28%)	117596 (46.55%)	124187 (49.06%)	129628 (51.08%)	127688 (50.71%)	121528 (48.61%)	125677 (49.2%)	104631 (49.17%)
4	63077 (25.7%)	59538 (23.57%)	60981 (24.09%)	56928 (22.43%)	57618 (22.88%)	50135 (20.05%)	44075 (17.26%)	36559 (17.18%)
5	11645 (4.75%)	9250 (3.66%)	9254 (3.66%)	8067 (3.18%)	7700 (3.06%)	8050 (3.22%)	6261 (2.45%)	5039 (2.37%)

Table C.40: Spelling

Score	2011 Count (%)	2012 Count (%)	2013 Count (%)	2014 Count (%)	2015 Count (%)	2017 Count (%)	2018 Count (%)	2018 paper Count (%)
0	633 (0.26%)	534 (0.21%)	1038 (0.41%)	867 (0.34%)	1190 (0.47%)	1233 (0.49%)	1861 (0.73%)	1773 (0.83%)
1	947 (0.39%)	1084 (0.43%)	1366 (0.54%)	1206 (0.48%)	1308 (0.52%)	1360 (0.54%)	1271 (0.5%)	1103 (0.52%)
2	6208 (2.53%)	6353 (2.51%)	6059 (2.39%)	6106 (2.41%)	5909 (2.35%)	5461 (2.18%)	5732 (2.24%)	5082 (2.39%)
3	42875 (17.47%)	46268 (18.31%)	43274 (17.1%)	46212 (18.21%)	37603 (14.93%)	36400 (14.56%)	39880 (15.61%)	33193 (15.6%)
4	107644 (43.86%)	105343 (41.7%)	108251 (42.77%)	105298 (41.5%)	95028 (37.74%)	92304 (36.92%)	88687 (34.72%)	75479 (35.47%)
5	70621 (28.78%)	77534 (30.69%)	79403 (31.37%)	82280 (32.42%)	98571 (39.14%)	96838 (38.73%)	103971 (40.7%)	84689 (39.8%)
6	16488 (6.72%)	15533 (6.15%)	13722 (5.42%)	11786 (4.64%)	12205 (4.85%)	16412 (6.56%)	14030 (5.49%)	11458 (5.38%)

Narrative writing

Year 3

Table C.41: Audience

Score	2016 count (%)	2019 count (%)
0	1004 (0.34%)	1007 (0.34%)
1	10953 (3.75%)	11707 (4.00%)
2	149839 (51.3%)	145836 (49.8%)
3	124724 (42.7%)	128839 (44.0%)
4	5037 (1.72%)	5010 (1.71%)
5	129 (0.04%)	90 (0.03%)

Table C.42: Text Structure

Score	2016 count (%)	2019 count (%)
0	4193 (1.43%)	6876 (2.35%)
1	76051 (26.0%)	62735 (21.4%)
2	189755 (65.0%)	205608 (70.2%)
3	21618 (7.41%)	17227 (5.88%)
4	69 (0.02%)	43 (0.01%)

Table C.43: Ideas

Score	2016 count (%)	2019 count (%)
0	2299 (0.78%)	2390 (0.81%)
1	31001 (10.6%)	22854 (7.81%)
2	155775 (53.4%)	152104 (52.0%)
3	101514 (34.8%)	114087 (39.0%)
4	1089 (0.37%)	1041 (0.35%)
5	8 (0.00%)	13 (0.00%)

Table C.44: Characters and Setting

Score	2016 count (%)	2019 count (%)
0	3868 (1.32%)	6713 (2.29%)
1	62558 (21.4%)	54438 (18.6%)
2	201804 (69.1%)	204558 (69.9%)
3	23322 (7.99%)	26679 (9.12%)
4	134 (0.04%)	101 (0.03%)

Table C.45: Vocabulary

Score	2016 count (%)	2019 count (%)
0	1969 (0.67%)	2025 (0.69%)
1	14097 (4.83%)	13316 (4.55%)
2	238012 (81.5%)	243011 (83.0%)
3	36667 (12.5%)	33373 (11.4%)
4	931 (0.31%)	758 (0.25%)
5	10 (0.00%)	6 (0.00%)

Table C.46: Cohesion

Score	2016 count (%)	2019 count (%)
0	2287 (0.78%)	2243 (0.76%)
1	38227 (13.1%)	34945 (11.9%)
2	235877 (80.8%)	244528 (83.6%)
3	15260 (5.23%)	10756 (3.67%)
4	35 (0.01%)	17 (0.00%)

Table C.47: Paragraphing

Score	2016 count (%)	2019 count (%)
0	147362 (50.5%)	153285 (52.4%)
1	138643 (47.5%)	134091 (45.8%)
2	5681 (1.94%)	5111 (1.74%)

Table C.48: Sentence Structure

Score	2016 count (%)	2019 count (%)
0	2882 (0.98%)	2997 (1.02%)
1	28194 (9.66%)	25323 (8.65%)
2	177300 (60.7%)	177946 (60.8%)
3	75993 (26.0%)	80174 (27.4%)
4	7170 (2.45%)	5960 (2.03%)
5	146 (0.05%)	87 (0.02%)
6	1 (0.00%)	2 (0.00%)

Table C.49: Punctuation

Score	2016 count (%)	2019 count (%)
0	6137 (2.10%)	6182 (2.11%)
1	74640 (25.5%)	72933 (24.9%)
2	162322 (55.6%)	158923 (54.3%)
3	46277 (15.8%)	51938 (17.7%)
4	2269 (0.77%)	2481 (0.84%)
5	41 (0.01%)	31 (0.01%)

Table C.50: Spelling

Score	2016 count (%)	2019 count (%)
0	1850 (0.63%)	1901 (0.64%)
1	14332 (4.91%)	13186 (4.50%)
2	95981 (32.9%)	90990 (31.1%)
3	143750 (49.2%)	146202 (49.9%)
4	34191 (11.7%)	38257 (13.0%)
5	1563 (0.53%)	1922 (0.65%)
6	19 (0.00%)	31 (0.01%)

Year 5

Table C.51: Audience

Score	2016 count (%)	2019 count (%)
0	455 (0.16%)	553 (0.19%)
1	2657 (0.95%)	3632 (1.22%)
2	66024 (23.67%)	72006 (24.27%)
3	170702 (61.19%)	176976 (59.66%)
4	35964 (12.89%)	39785 (13.41%)
5	3072 (1.1%)	3518 (1.19%)
6	85 (0.03%)	162 (0.05%)

Table C.52: Text Structure

Score	2016 count (%)	2019 count (%)
0	1633 (0.59%)	3012 (1.02%)
1	32780 (11.75%)	31833 (10.73%)
2	174050 (62.39%)	198555 (66.94%)
3	68968 (24.72%)	61814 (20.84%)
4	1528 (0.55%)	1418 (0.48%)

Table C.53: Ideas

Score	2016 count (%)	2019 count (%)
0	879 (0.32%)	982 (0.33%)
1	10730 (3.85%)	8379 (2.82%)
2	84133 (30.16%)	85309 (28.76%)
3	170903 (61.26%)	187153 (63.09%)
4	11998 (4.3%)	14387 (4.85%)
5	316 (0.11%)	422 (0.14%)

Table C.54: Characters and Setting

Score	2016 count (%)	2019 count (%)
0	1522 (0.55%)	2986 (1.01%)
1	19866 (7.12%)	20379 (6.87%)
2	176126 (63.14%)	181878 (61.31%)
3	78863 (28.27%)	88207 (29.74%)
4	2582 (0.93%)	3182 (1.07%)

Table C.55: Vocabulary

Score	2016 count (%)	2019 count (%)
0	760 (0.27%)	881 (0.3%)
1	3259 (1.17%)	4408 (1.49%)
2	163923 (58.76%)	183110 (61.73%)
3	99554 (35.69%)	96082 (32.39%)
4	11113 (3.98%)	11715 (3.95%)
5	350 (0.13%)	436 (0.15%)

Table C.56: Cohesion

Score	2016 count (%)	2019 count (%)
0	846 (0.3%)	938 (0.32%)
1	12242 (4.39%)	13316 (4.49%)
2	208904 (74.89%)	231541 (78.06%)
3	55991 (20.07%)	49931 (16.83%)
4	976 (0.35%)	906 (0.31%)

Table C.57: Paragraphing

Score	2016 count (%)	2019 count (%)
0	70014 (25.1%)	74362 (25.07%)
1	189068 (67.78%)	204374 (68.9%)
2	19877 (7.13%)	17896 (6.03%)

Table C.58: Sentence Structure

Score	2016 count (%)	2019 count (%)
0	1042 (0.37%)	1188 (0.4%)
1	7745 (2.78%)	8754 (2.95%)
2	107233 (38.44%)	116912 (39.41%)
3	124773 (44.73%)	133532 (45.02%)
4	35901 (12.87%)	34086 (11.49%)
5	2187 (0.78%)	2089 (0.7%)
6	78 (0.03%)	71 (0.02%)

Table C.59: Punctuation

Score	2016 count (%)	2019 count (%)
0	1791 (0.64%)	3100 (1.05%)
1	28558 (10.24%)	39731 (13.39%)
2	148372 (53.19%)	150046 (50.58%)
3	90730 (32.52%)	93387 (31.48%)
4	9179 (3.29%)	9881 (3.33%)
5	329 (0.12%)	487 (0.16%)

Table C.60: Spelling

Score	2016 count (%)	2019 count (%)
0	703 (0.25%)	835 (0.28%)
1	2933 (1.05%)	3158 (1.06%)
2	31291 (11.22%)	31253 (10.54%)
3	133263 (47.77%)	141043 (47.55%)
4	94525 (33.88%)	97125 (32.74%)
5	15670 (5.62%)	22304 (7.52%)
6	574 (0.21%)	914 (0.31%)

Year 7

Table C.61: Audience

Score	2016 count (%)	2019 count (%)
0	484 (0.18%)	786 (0.27%)
1	1663 (0.63%)	2062 (0.72%)
2	28524 (10.8%)	31262 (10.85%)
3	135339 (51.25%)	142149 (49.32%)
4	79644 (30.16%)	92035 (31.93%)
5	16891 (6.4%)	18359 (6.37%)
6	1556 (0.59%)	1570 (0.54%)

Table C.62: Text Structure

Score	2016 count (%)	2019 count (%)
0	2815 (1.07%)	4015 (1.39%)
1	17187 (6.51%)	17108 (5.94%)
2	129467 (49.02%)	142316 (49.38%)
3	105774 (40.05%)	116062 (40.27%)
4	8858 (3.35%)	8722 (3.03%)

Table C.63: Ideas

Score	2016 count (%)	2019 count (%)
0	863 (0.33%)	1219 (0.42%)
1	5129 (1.94%)	4809 (1.67%)
2	42210 (15.98%)	40210 (13.95%)
3	175064 (66.29%)	190286 (66.02%)
4	37758 (14.3%)	48319 (16.76%)
5	3077 (1.17%)	3380 (1.17%)

Table C.64: Characters and Setting

Score	2016 count (%)	2019 count (%)
0	2753 (1.04%)	4005 (1.39%)
1	9868 (3.74%)	9467 (3.28%)
2	112505 (42.6%)	118002 (40.94%)
3	124629 (47.19%)	141810 (49.2%)
4	14346 (5.43%)	14939 (5.18%)

Table C.65: Vocabulary

Score	2016 count (%)	2019 count (%)
0	781 (0.3%)	1135 (0.39%)
1	1909 (0.72%)	2329 (0.81%)
2	95613 (36.2%)	116894 (40.56%)
3	126777 (48%)	130367 (45.23%)
4	35857 (13.58%)	34911 (12.11%)
5	3164 (1.2%)	2587 (0.9%)

Table C.66: Cohesion

Score	2016 count (%)	2019 count (%)
0	838 (0.32%)	1173 (0.41%)
1	5758 (2.18%)	5904 (2.05%)
2	153643 (58.18%)	177282 (61.51%)
3	97562 (36.94%)	98701 (34.24%)
4	6300 (2.39%)	5163 (1.79%)

Table C.67: Paragraphing

Score	2016 count (%)	2019 count (%)
0	53029 (20.08%)	53536 (18.57%)
1	173041 (65.52%)	197129 (68.39%)
2	38031 (14.4%)	37558 (13.03%)

Table C.68: Sentence Structure

Score	2016 count (%)	2019 count (%)
0	940 (0.36%)	1295 (0.45%)
1	3777 (1.43%)	3945 (1.37%)
2	56002 (21.2%)	63900 (22.17%)
3	116408 (44.08%)	135086 (46.87%)
4	75679 (28.66%)	74627 (25.89%)
5	10659 (4.04%)	8806 (3.06%)
6	636 (0.24%)	564 (0.2%)

Table C.69: Punctuation

Score	2016 count (%)	2019 count (%)
0	1352 (0.51%)	2395 (0.83%)
1	14782 (5.6%)	22608 (7.84%)
2	112584 (42.63%)	122536 (42.51%)
3	113754 (43.07%)	118700 (41.18%)
4	20385 (7.72%)	20622 (7.15%)
5	1244 (0.47%)	1362 (0.47%)

Table C.70: Spelling

Score	2016 count (%)	2019 count (%)
0	716 (0.27%)	1063 (0.37%)
1	1270 (0.48%)	1408 (0.49%)
2	11470 (4.34%)	11238 (3.9%)
3	82402 (31.2%)	93510 (32.44%)
4	120549 (45.65%)	122032 (42.34%)
5	44676 (16.92%)	55549 (19.27%)
6	3018 (1.14%)	3423 (1.19%)

Year 9

Table C.71: Audience

Score	2016 count (%)	2019 count (%)
0	536 (0.23%)	1181 (0.46%)
1	1123 (0.48%)	1716 (0.67%)
2	13380 (5.73%)	15169 (5.92%)
3	82013 (35.09%)	80471 (31.41%)
4	91201 (39.02%)	103767 (40.5%)
5	38716 (16.57%)	46175 (18.02%)
6	6736 (2.88%)	7736 (3.02%)

Table C.72: Text Structure

Score	2016 count (%)	2019 count (%)
0	2157 (0.92%)	4389 (1.71%)
1	10012 (4.28%)	9719 (3.79%)
2	83235 (35.62%)	84170 (32.85%)
3	114137 (48.84%)	130474 (50.92%)
4	24164 (10.34%)	27463 (10.72%)

Table C.73: Ideas

Score	2016 count (%)	2019 count (%)
0	830 (0.36%)	1657 (0.65%)
1	3164 (1.35%)	3231 (1.26%)
2	20148 (8.62%)	18473 (7.21%)
3	133295 (57.04%)	134692 (52.57%)
4	65083 (27.85%)	84100 (32.82%)
5	11185 (4.79%)	14062 (5.49%)

Table C.74: Characters and Setting

Score	2016 count (%)	2019 count (%)
0	2174 (0.93%)	4470 (1.74%)
1	4931 (2.11%)	4836 (1.89%)
2	62035 (26.54%)	60200 (23.5%)
3	128241 (54.87%)	144244 (56.3%)
4	36324 (15.54%)	42465 (16.57%)

Table C.75: Vocabulary

Score	2016 count (%)	2019 count (%)
0	773 (0.33%)	1566 (0.61%)
1	1294 (0.55%)	1720 (0.67%)
2	47947 (20.52%)	56733 (22.14%)
3	109892 (47.02%)	116340 (45.41%)
4	62891 (26.91%)	69439 (27.1%)
5	10908 (4.67%)	10417 (4.07%)

Table C.76: Cohesion

Score	2016 count (%)	2019 count (%)
0	830 (0.36%)	1605 (0.63%)
1	3250 (1.39%)	3646 (1.42%)
2	97506 (41.72%)	113009 (44.11%)
3	114231 (48.88%)	121373 (47.37%)
4	17888 (7.65%)	16582 (6.47%)

Table C.77: Paragraphing

Score	2016 count (%)	2019 count (%)
0	43483 (18.61%)	44773 (17.47%)
1	140025 (59.92%)	156524 (61.09%)
2	50197 (21.48%)	54918 (21.43%)

Table C.78: Sentence Structure

Score	2016 count (%)	2019 count (%)
0	882 (0.38%)	1719 (0.67%)
1	2192 (0.94%)	2581 (1.01%)
2	29404 (12.58%)	34579 (13.5%)
3	82502 (35.3%)	97055 (37.88%)
4	92504 (39.58%)	97028 (37.87%)
5	23915 (10.23%)	21329 (8.32%)
6	2306 (0.99%)	1924 (0.75%)

Table C.79: Punctuation

Score	2016 count (%)	2019 count (%)
0	1121 (0.48%)	2400 (0.94%)
1	7976 (3.41%)	13185 (5.15%)
2	78457 (33.57%)	87162 (34.02%)
3	112966 (48.34%)	118440 (46.23%)
4	30392 (13%)	31713 (12.38%)
5	2793 (1.2%)	3315 (1.29%)

Table C.80: Spelling

Score	2016 count (%)	2019 count (%)
0	693 (0.3%)	1485 (0.58%)
1	798 (0.34%)	1080 (0.42%)
2	4680 (2%)	4751 (1.85%)
3	42482 (18.18%)	48570 (18.96%)
4	101396 (43.39%)	99643 (38.89%)
5	75841 (32.45%)	91915 (35.87%)
6	7815 (3.34%)	8771 (3.42%)

Appendix D:
Stacked bar graphs of criterion score categories by genre and Year level

Persuasive writing

Year 3

Figure D1: Audience

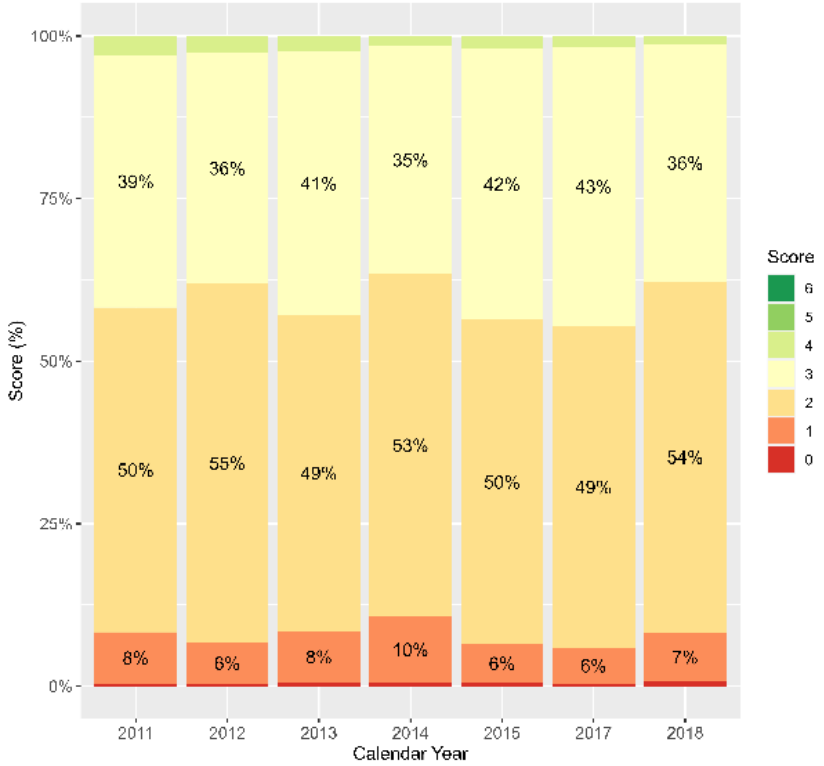


Figure D2: Text Structure

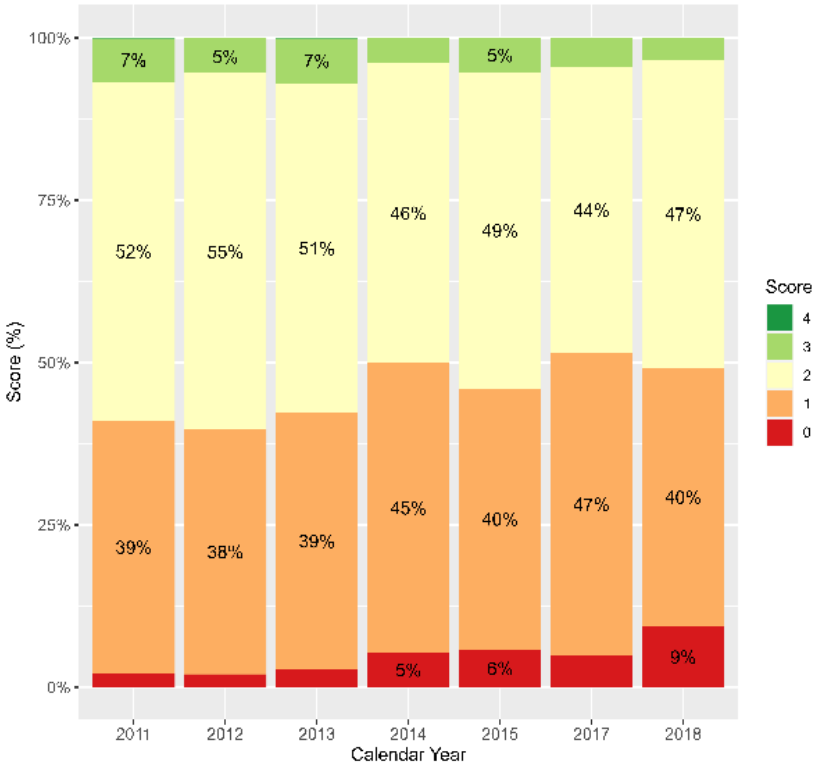


Figure D3: Ideas

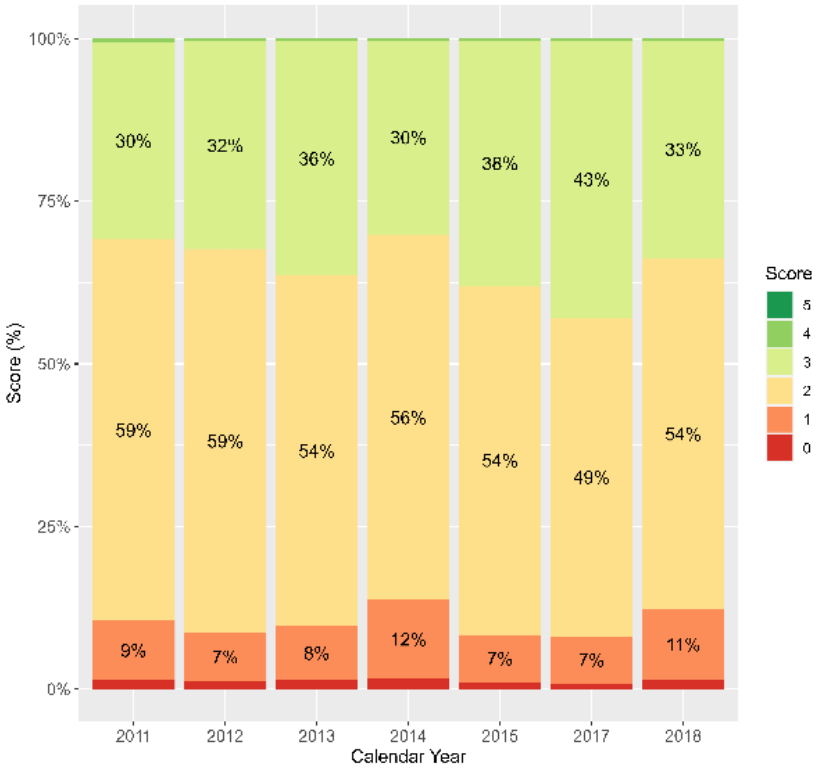


Figure D4: Persuasive Devices

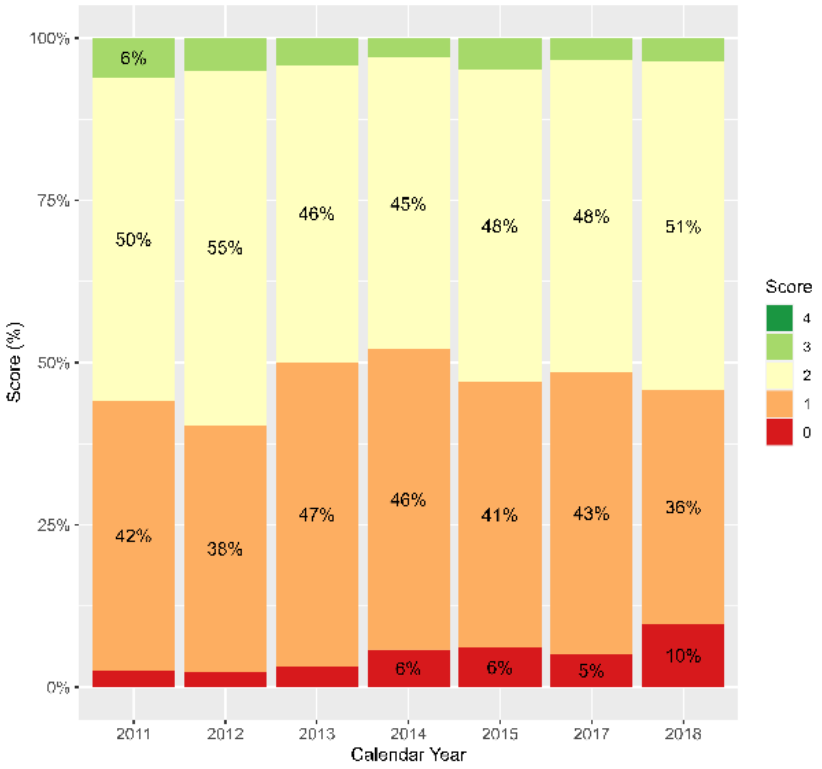


Figure D5: Vocabulary

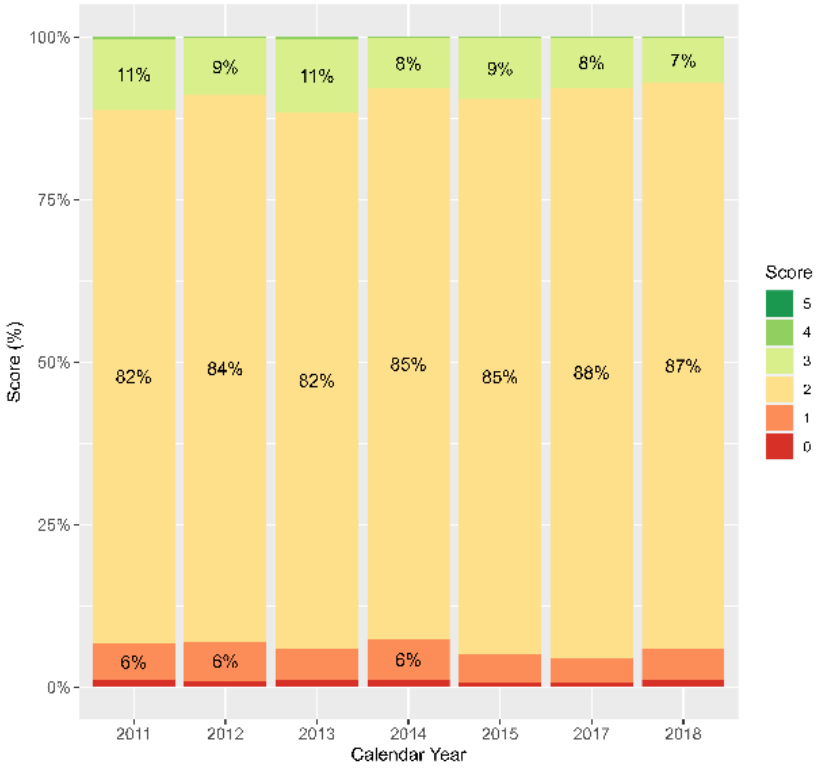


Figure D6: Cohesion

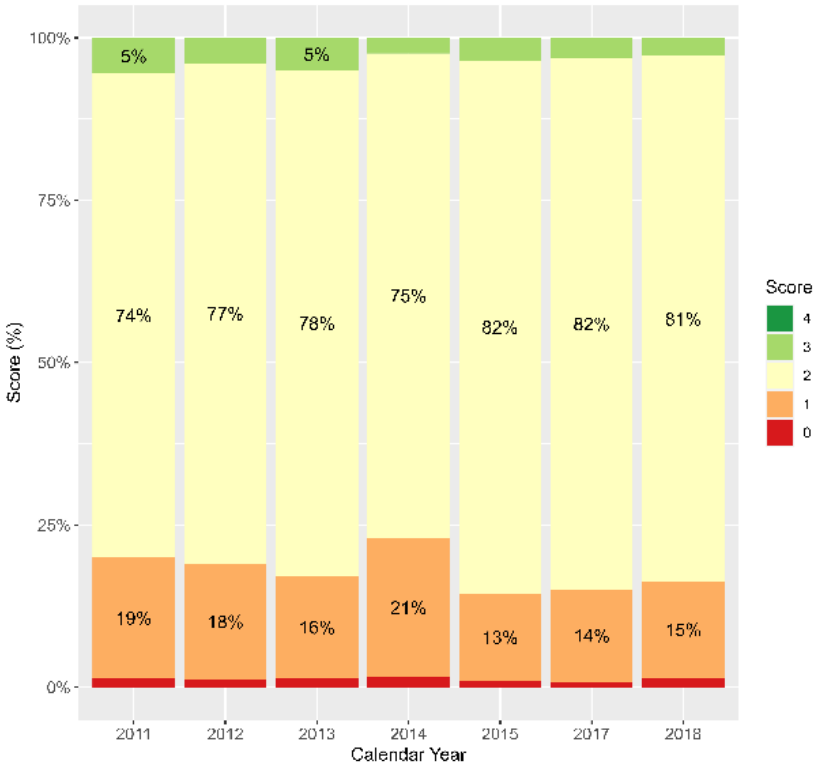


Figure D7: Paragraphing

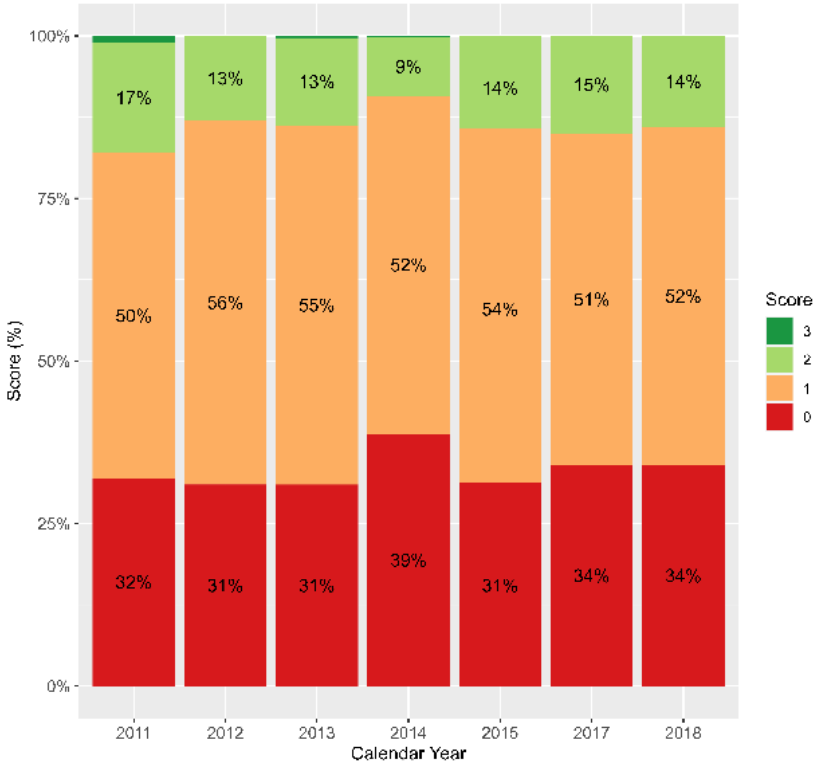


Figure D8: Sentence Structure

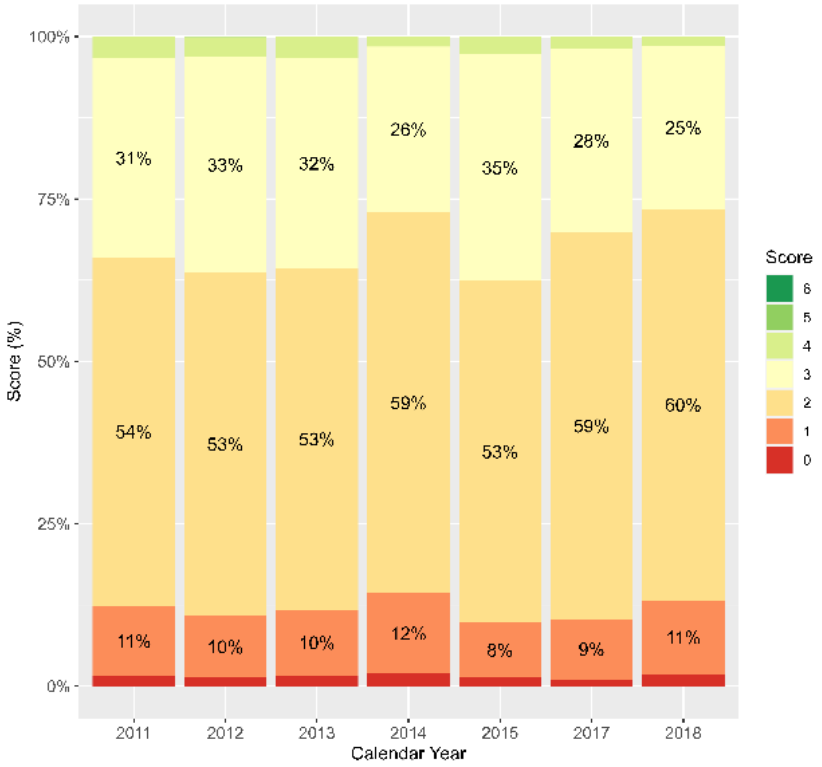


Figure D9: Punctuation

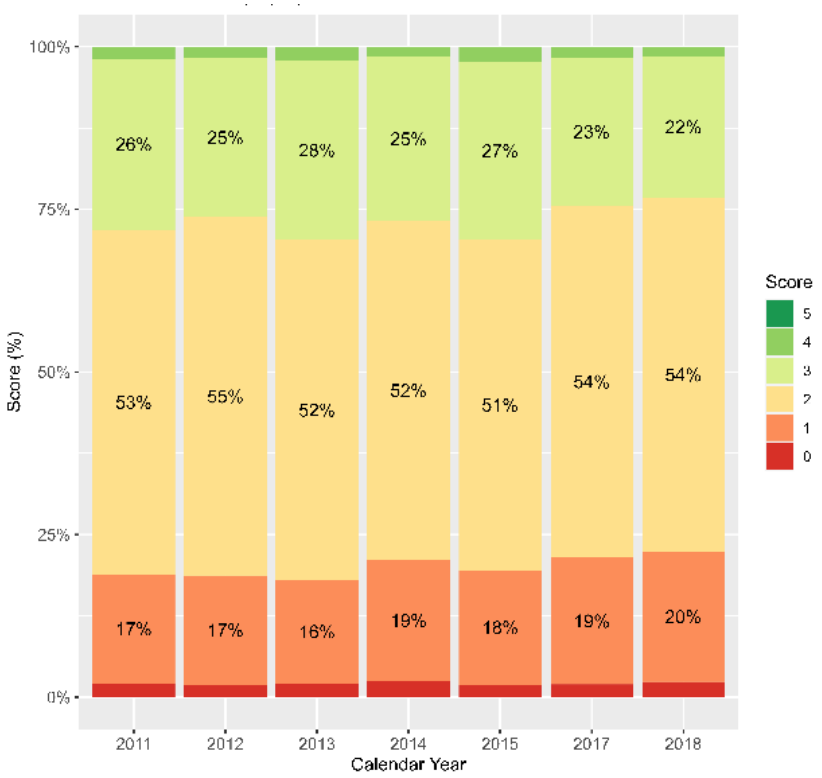
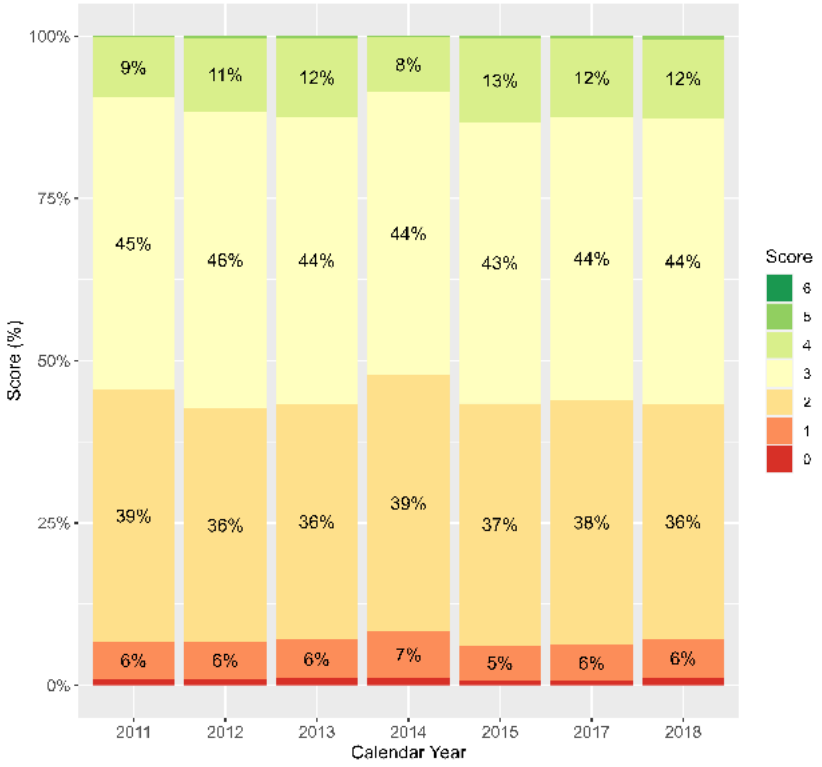


Figure D10: Spelling



Year 5

Figure D11: Audience

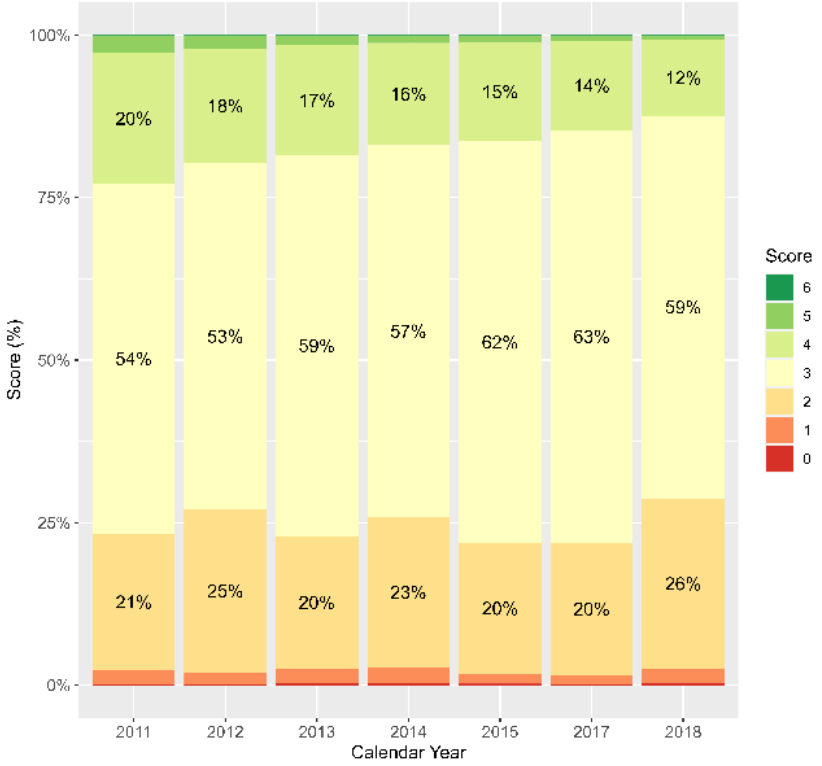


Figure D12: Text Structure

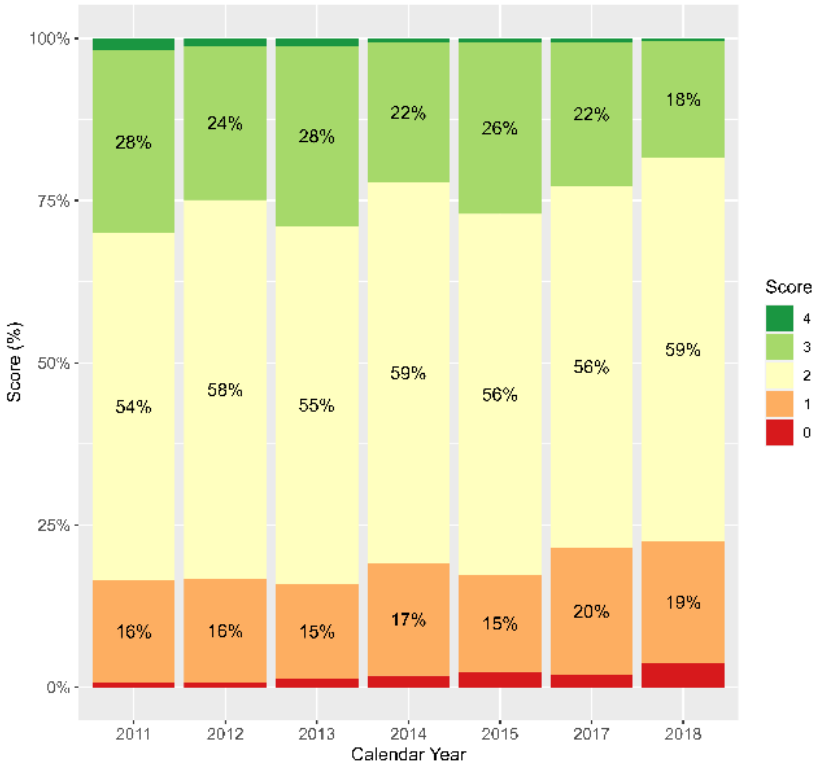


Figure D13: Ideas

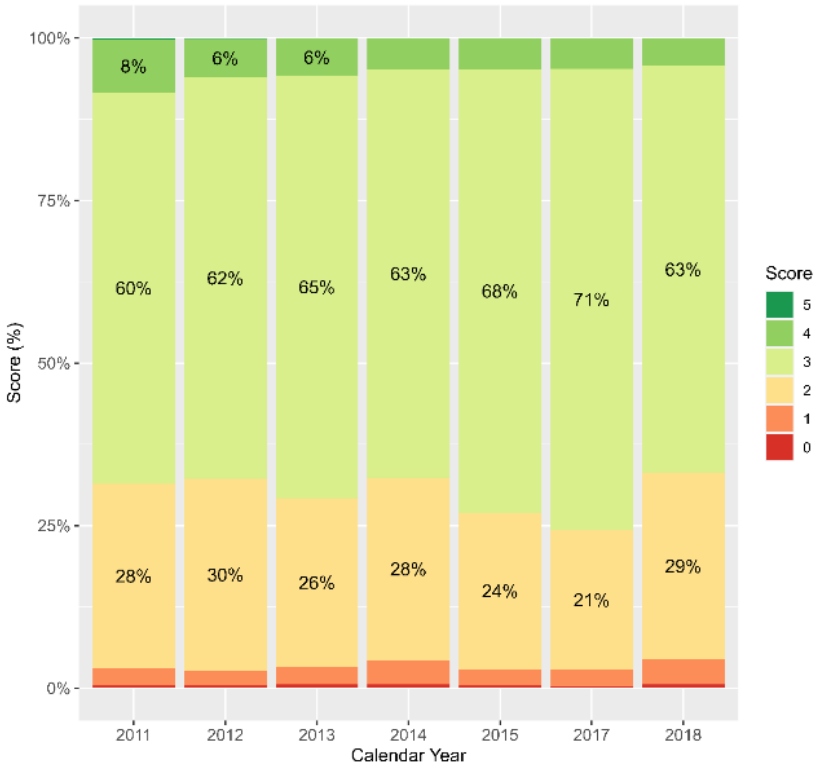


Figure D14: Persuasive Devices

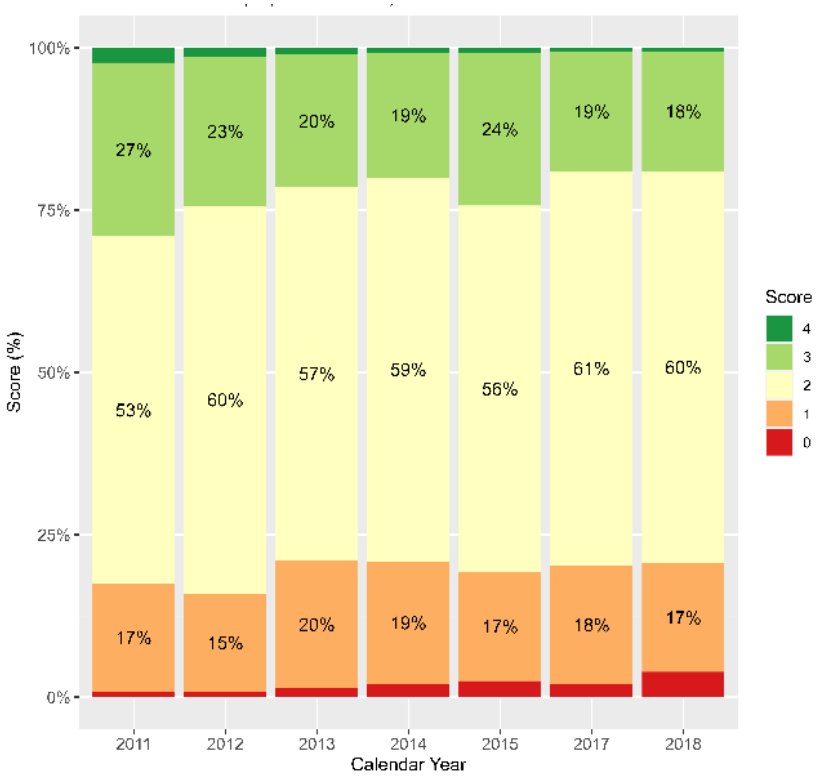


Figure D15: Vocabulary

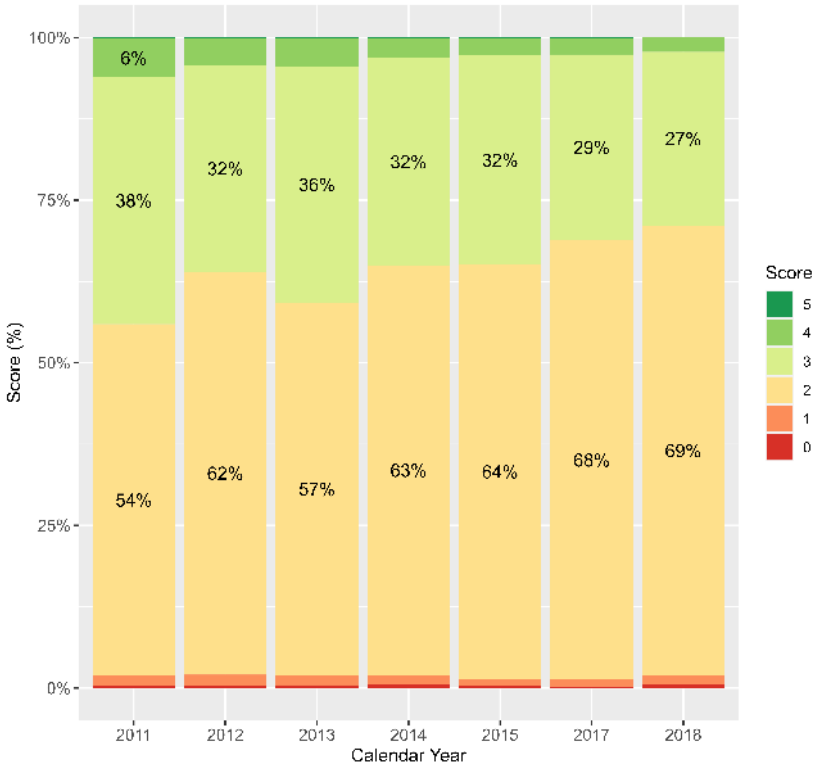


Figure D16: Cohesion

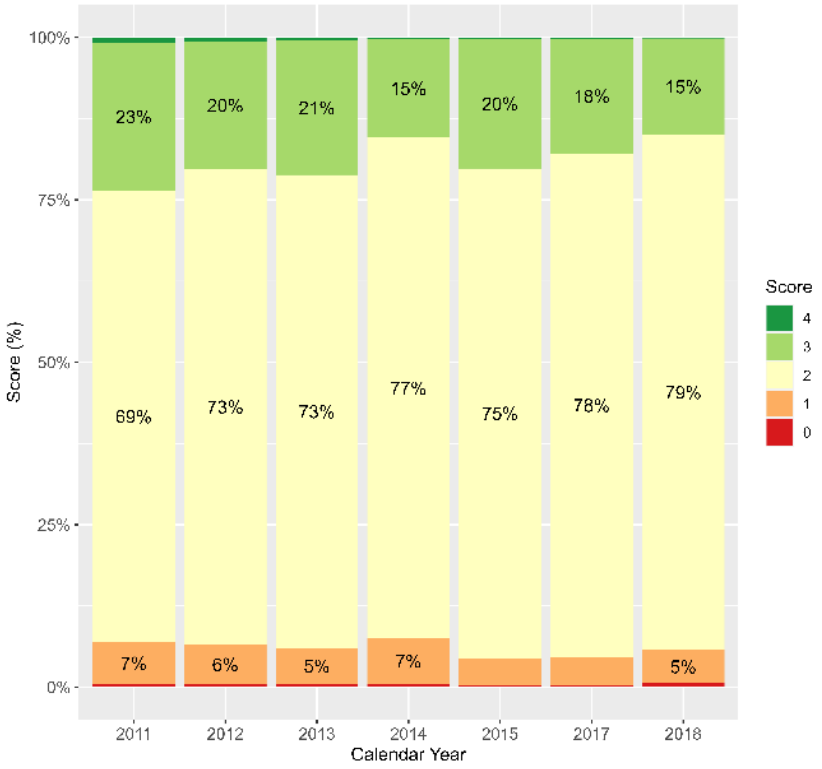


Figure D17: Paragraphing

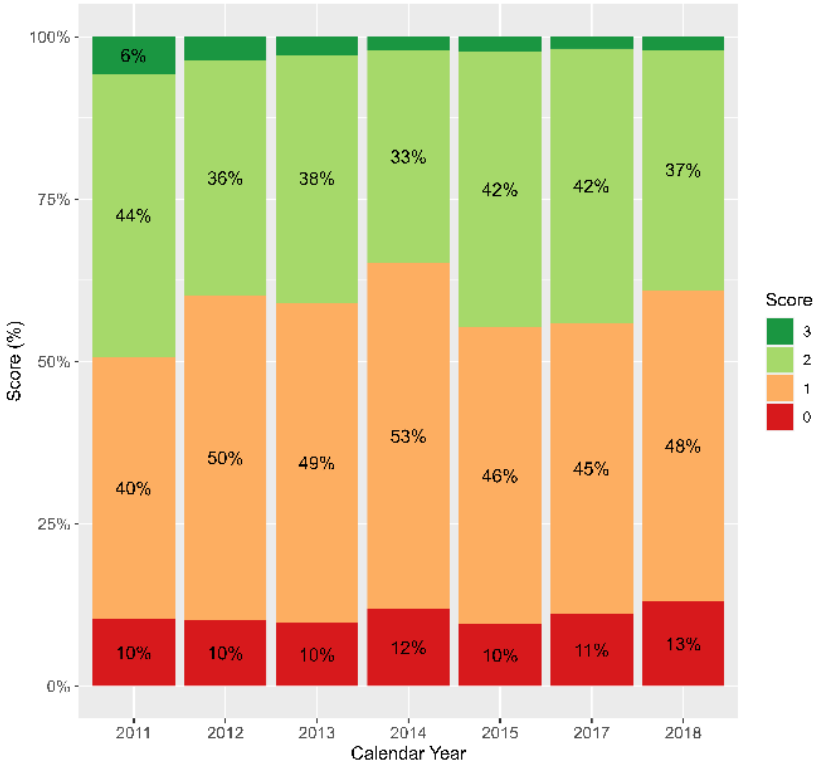


Figure D18: Sentence Structure

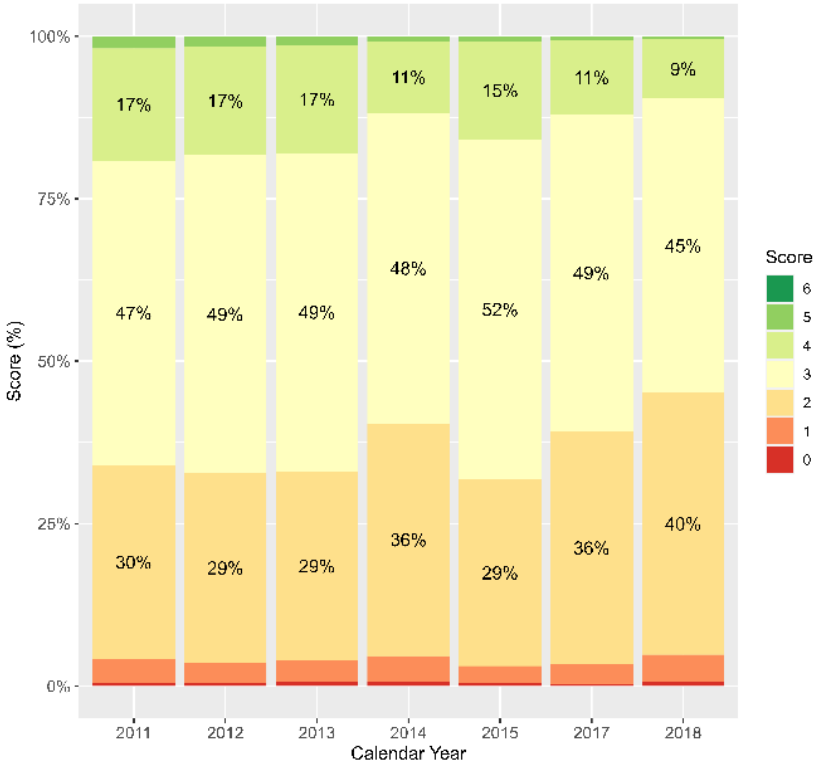


Figure D19: Punctuation

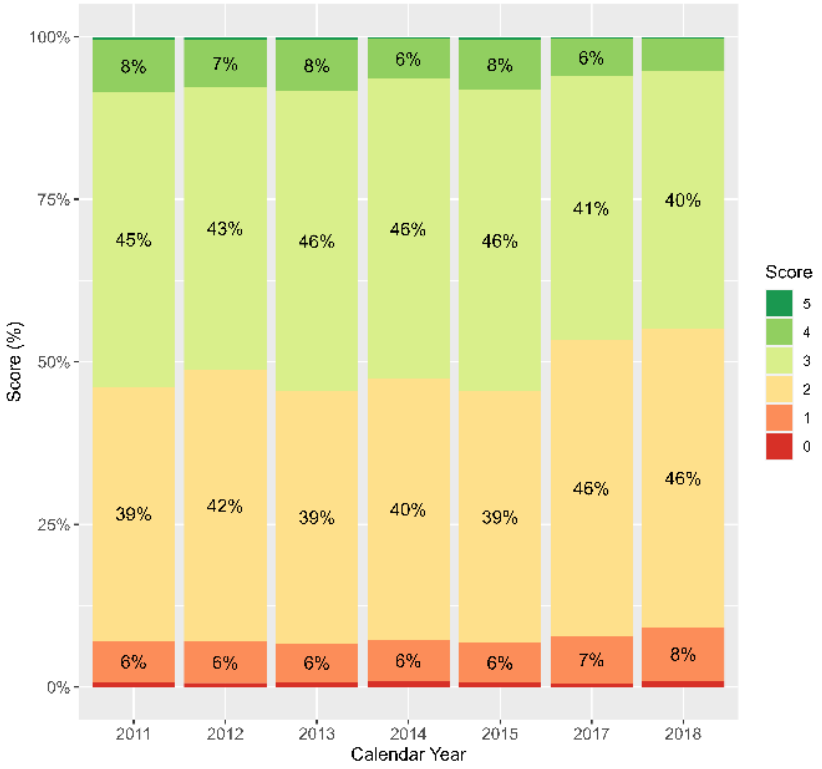
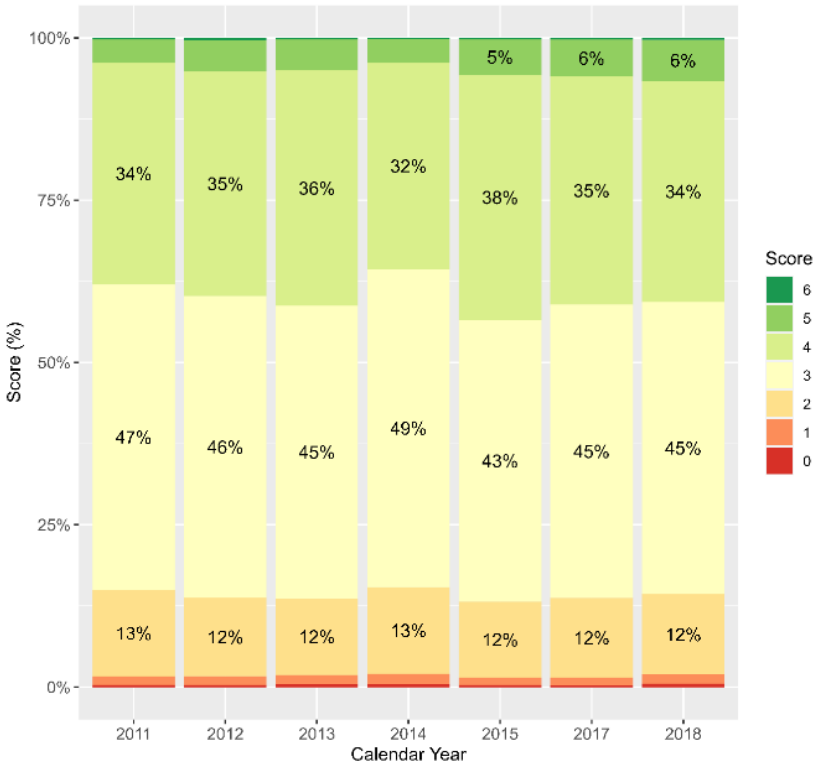


Figure D20: Spelling



Year 7

Figure D21: Audience

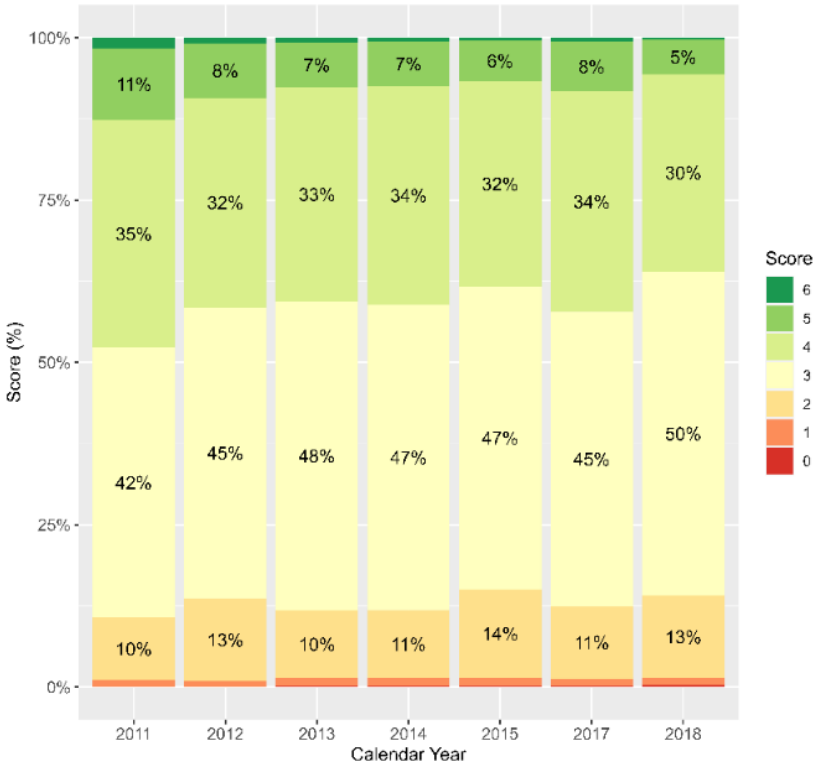


Figure D22: Text Structure

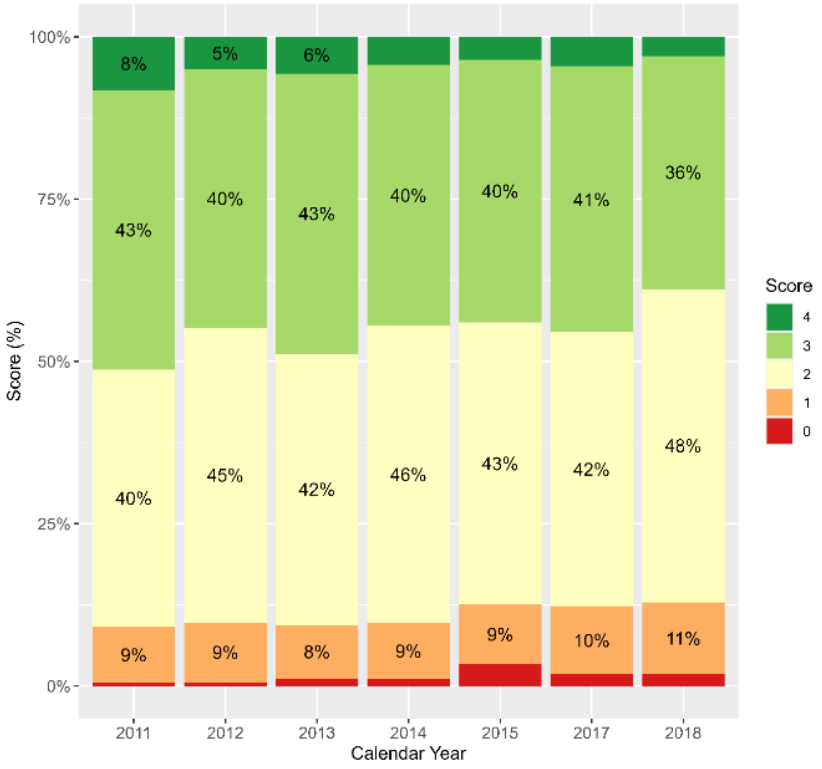


Figure D23: Ideas

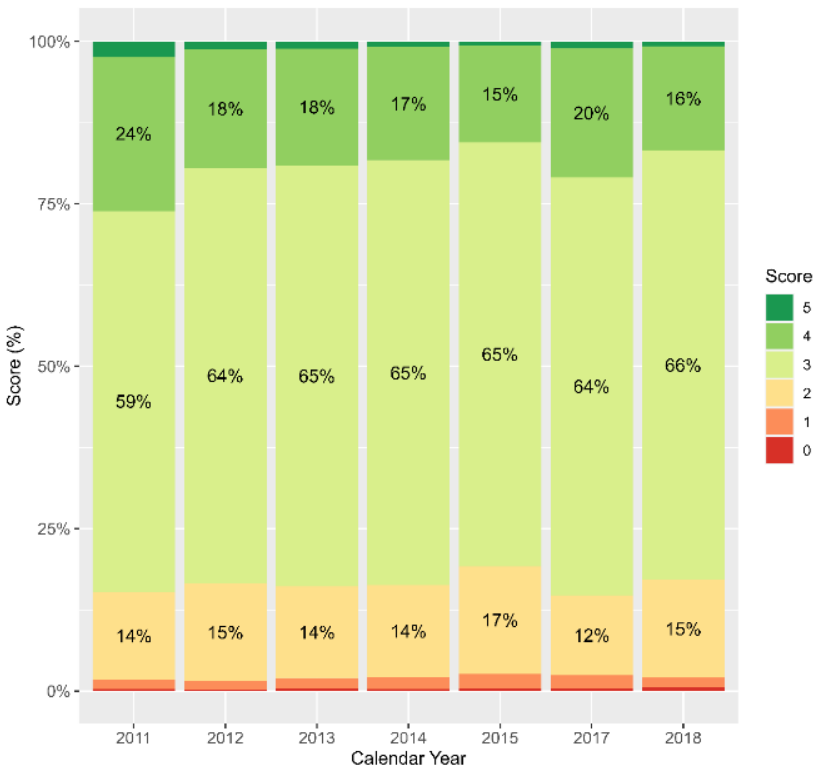


Figure D24: Persuasive Devices

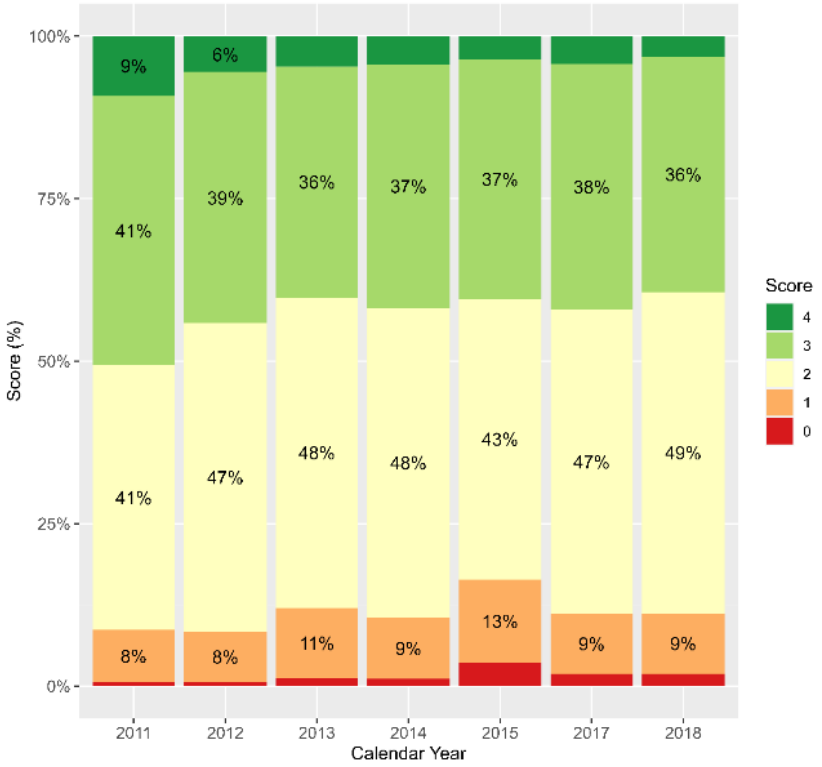


Figure D25: Vocabulary

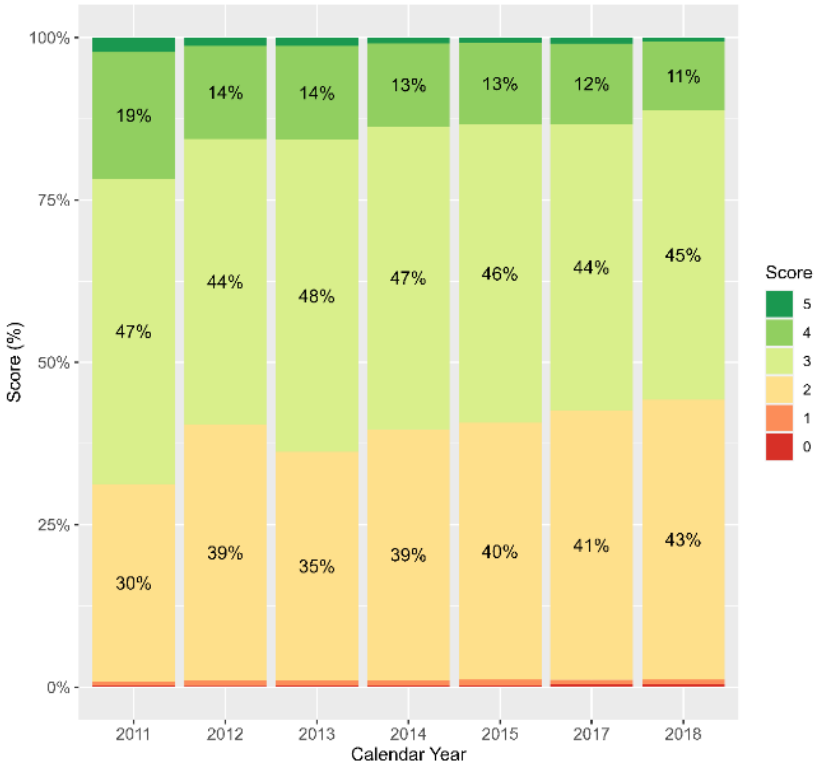


Figure D26: Cohesion

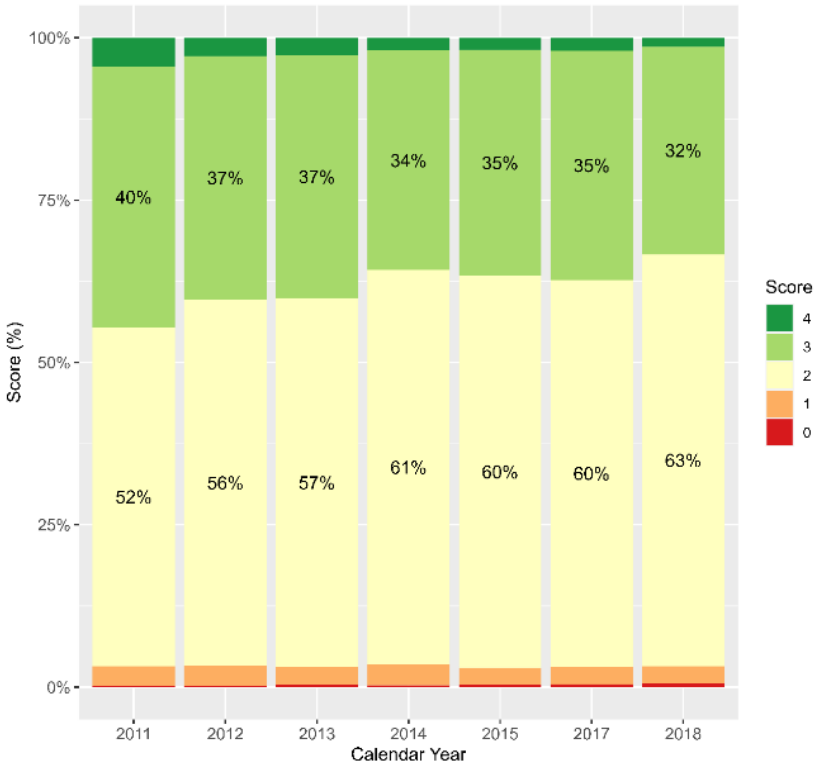


Figure D27: Paragraphing

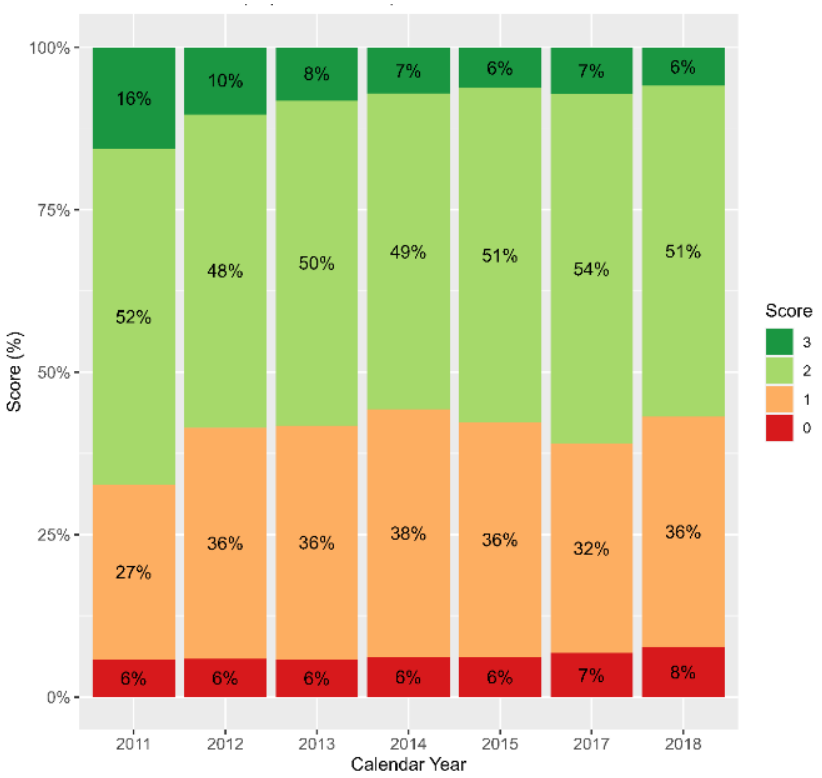


Figure D28: Sentence Structure

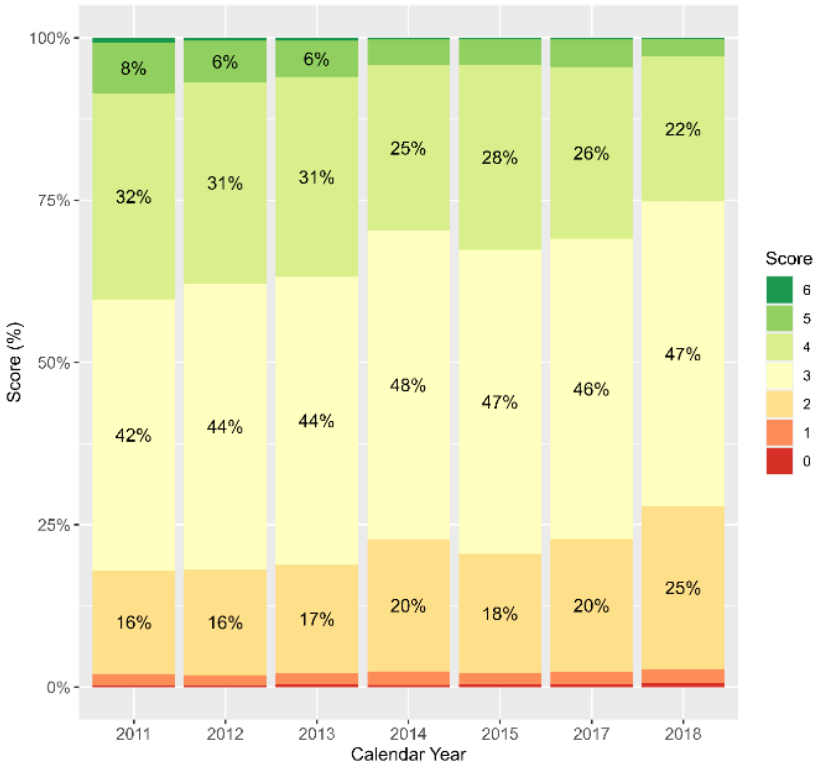


Figure D29: Punctuation

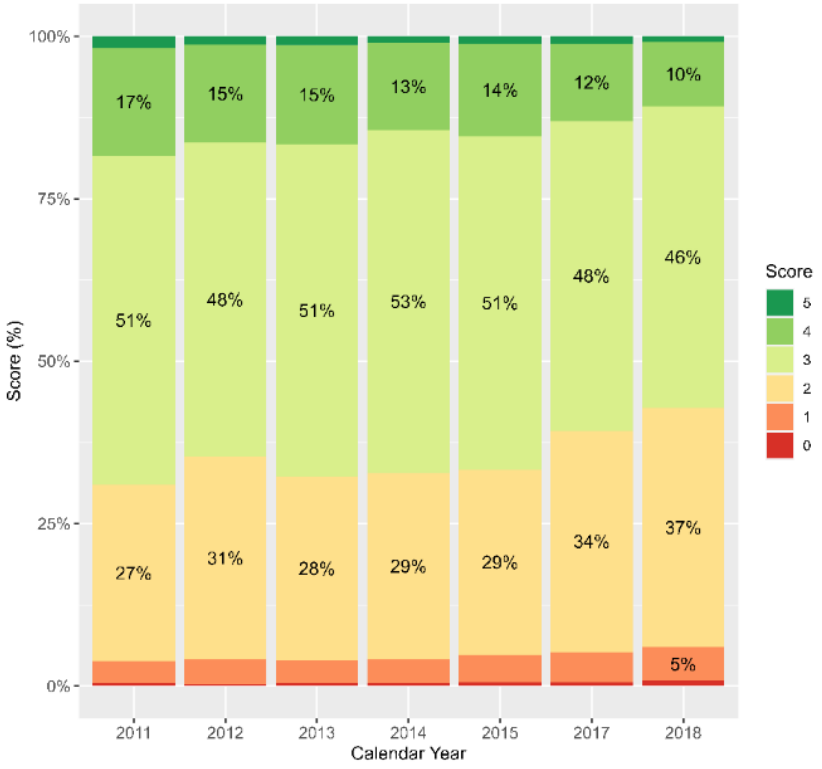


Figure D30: Spelling

Year 9

Figure D31: Audience

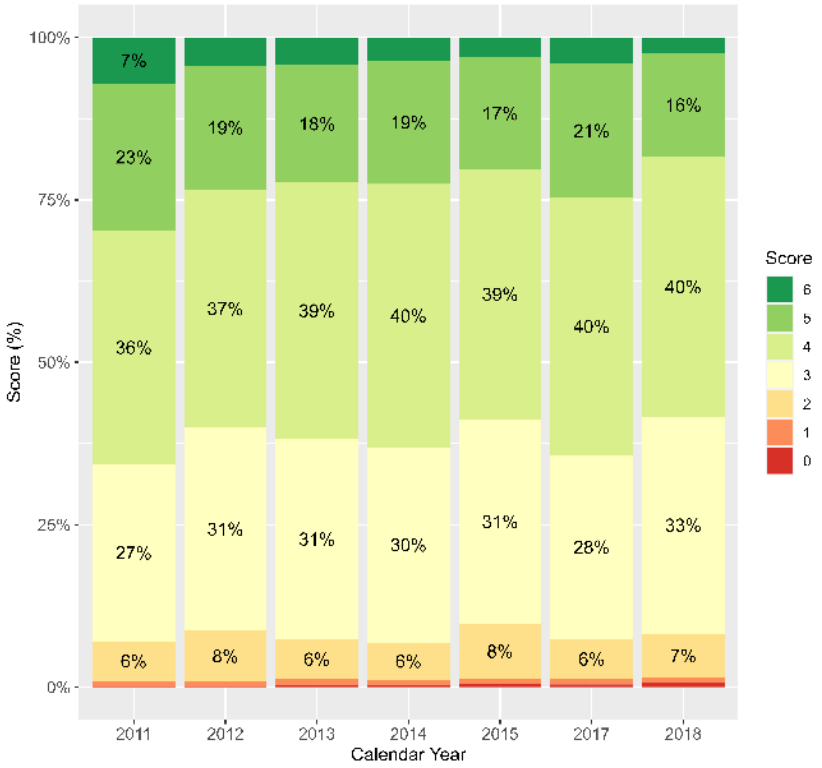


Figure D32: Text Structure

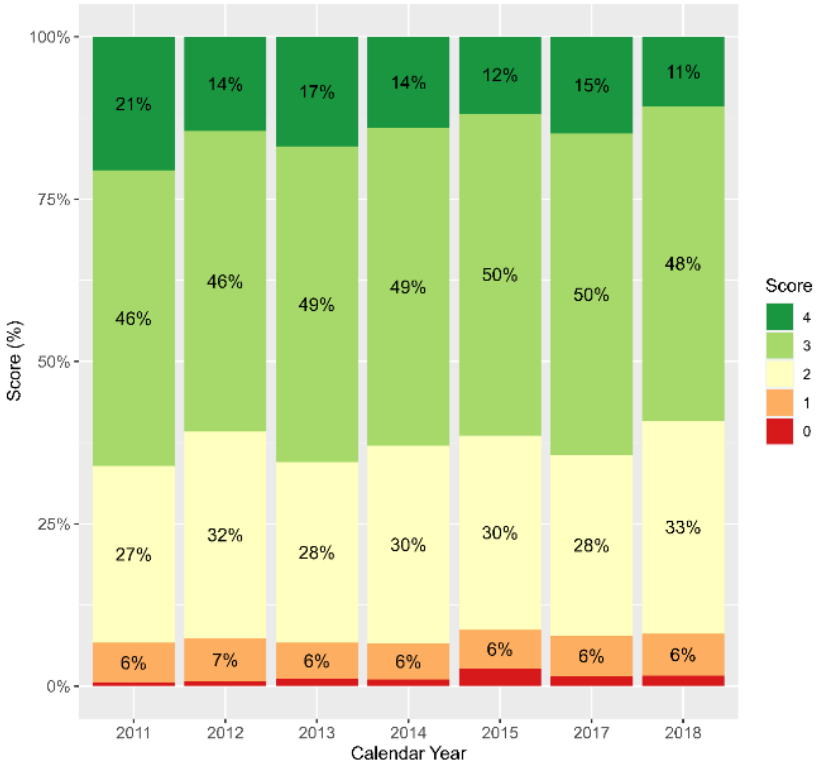


Figure D33: Ideas

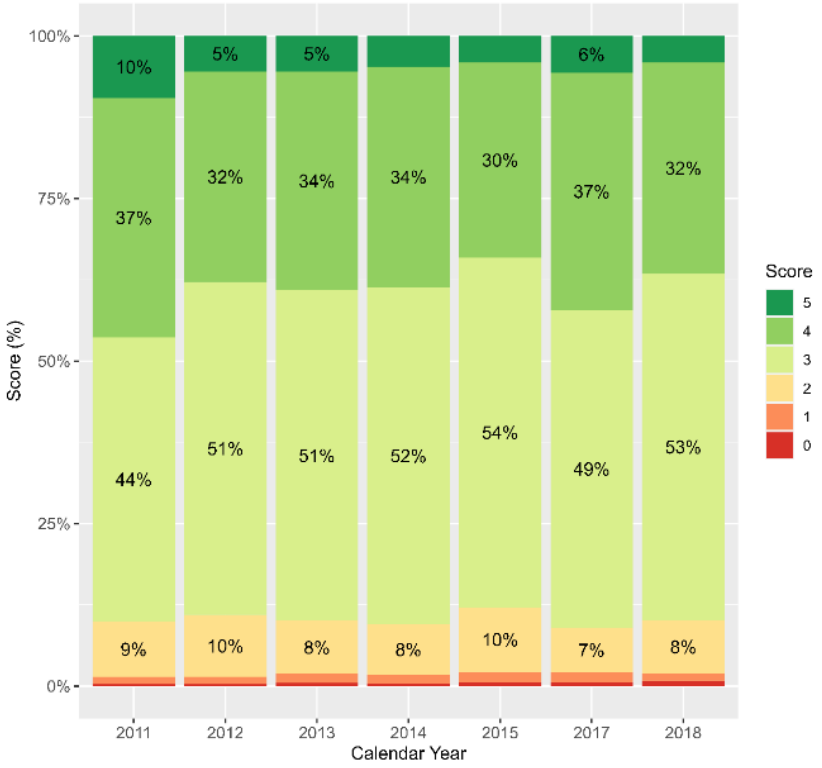


Figure D34: Persuasive Devices

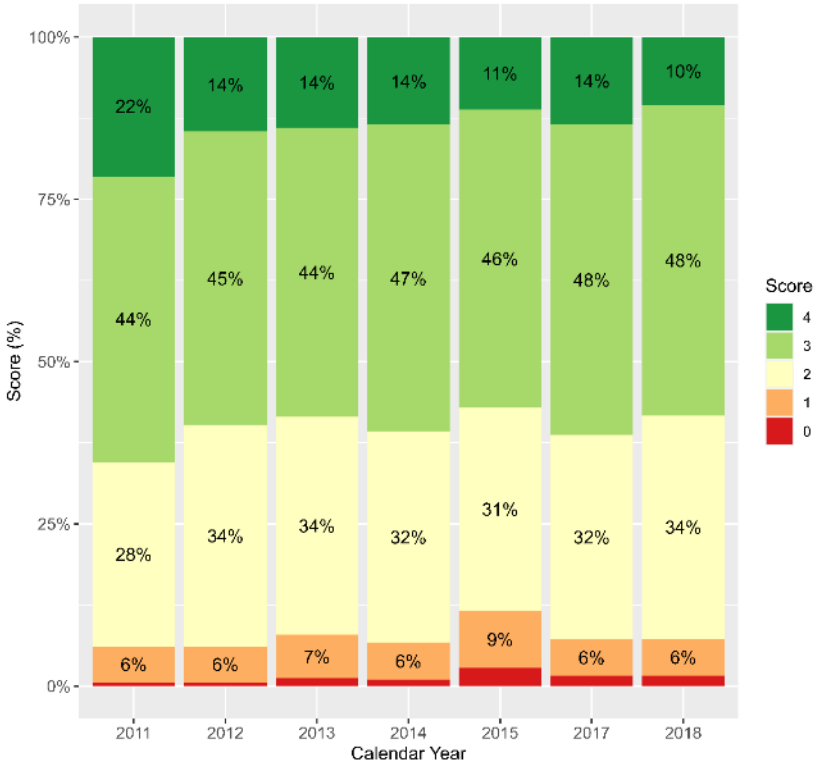


Figure D35: Vocabulary

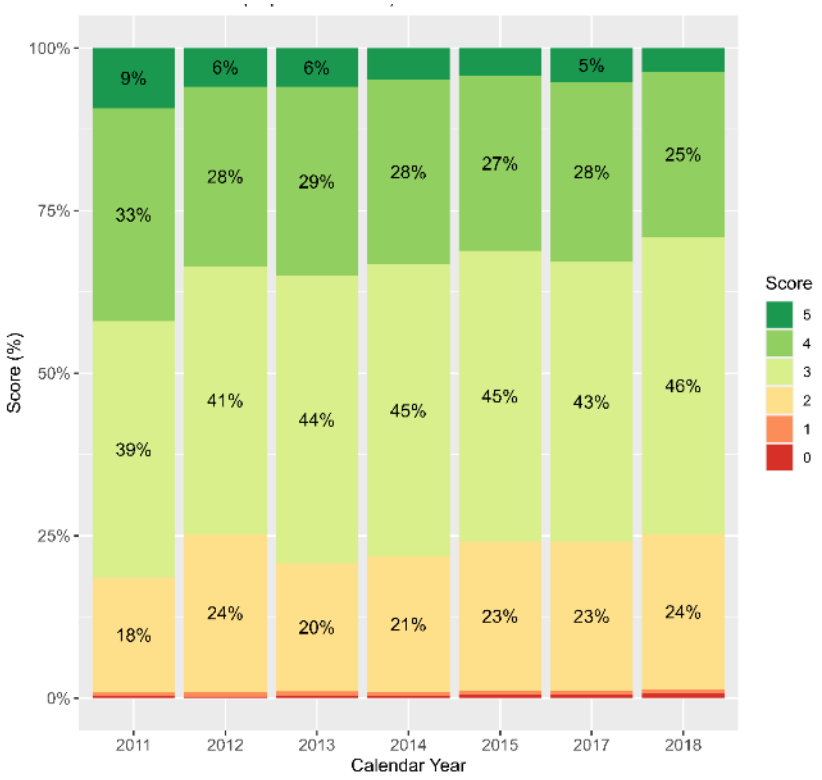


Figure D36: Cohesion

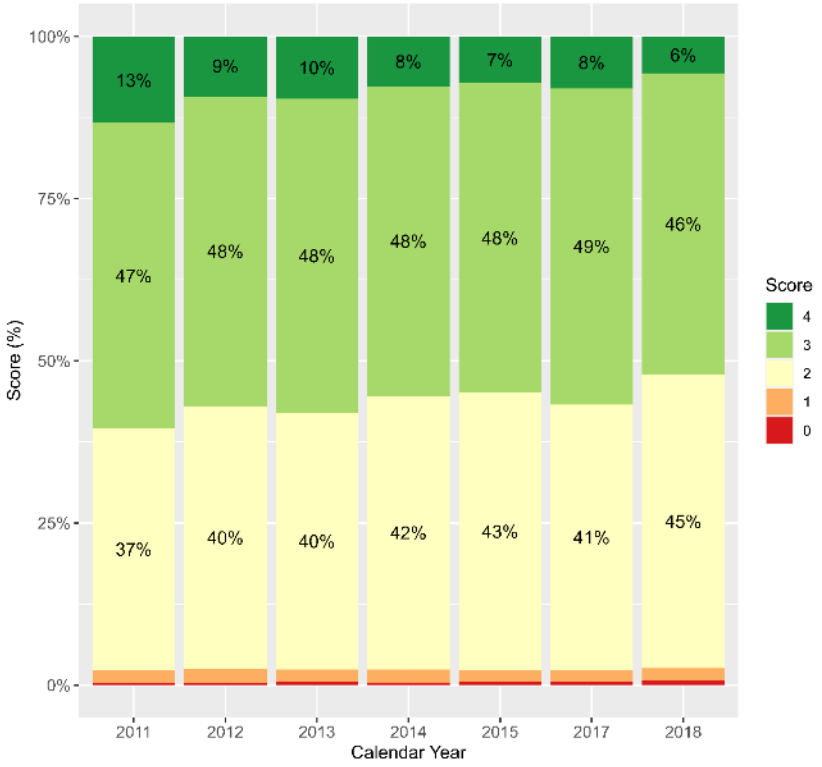


Figure D37: Paragraphing

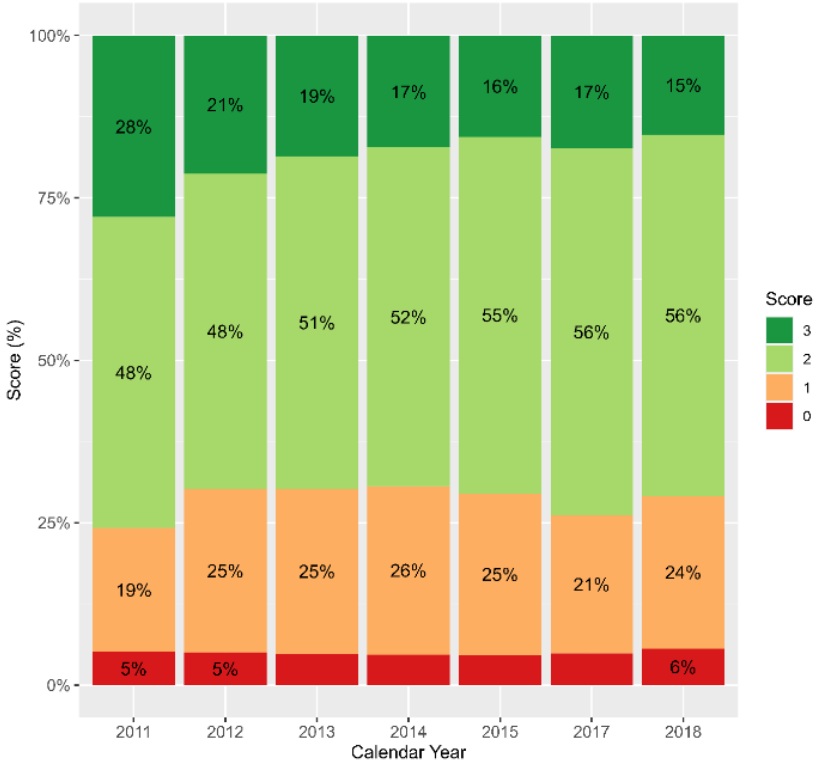


Figure D38: Sentence Structure

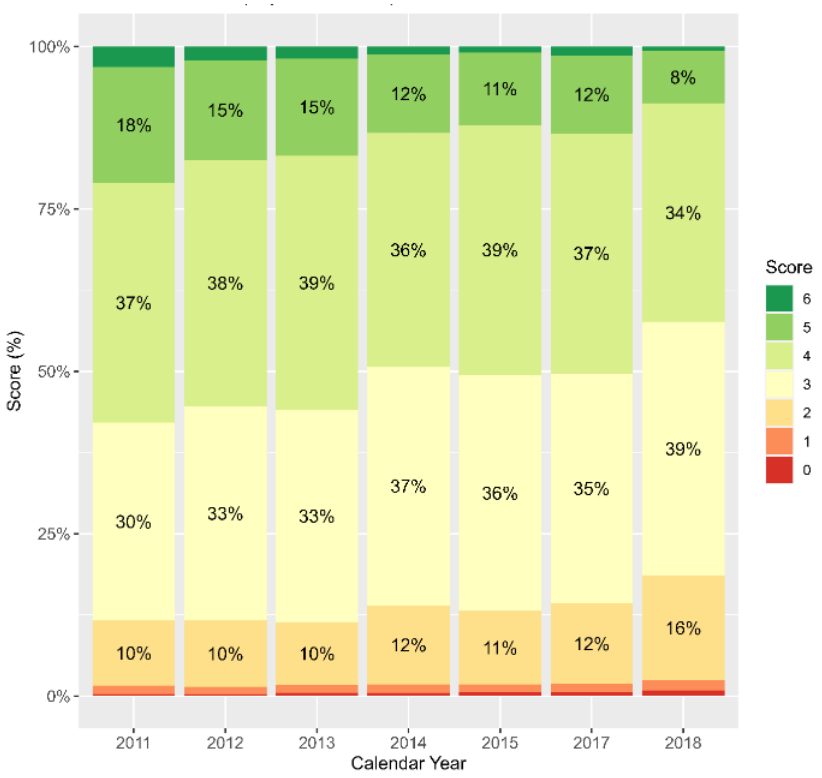


Figure D39: Punctuation

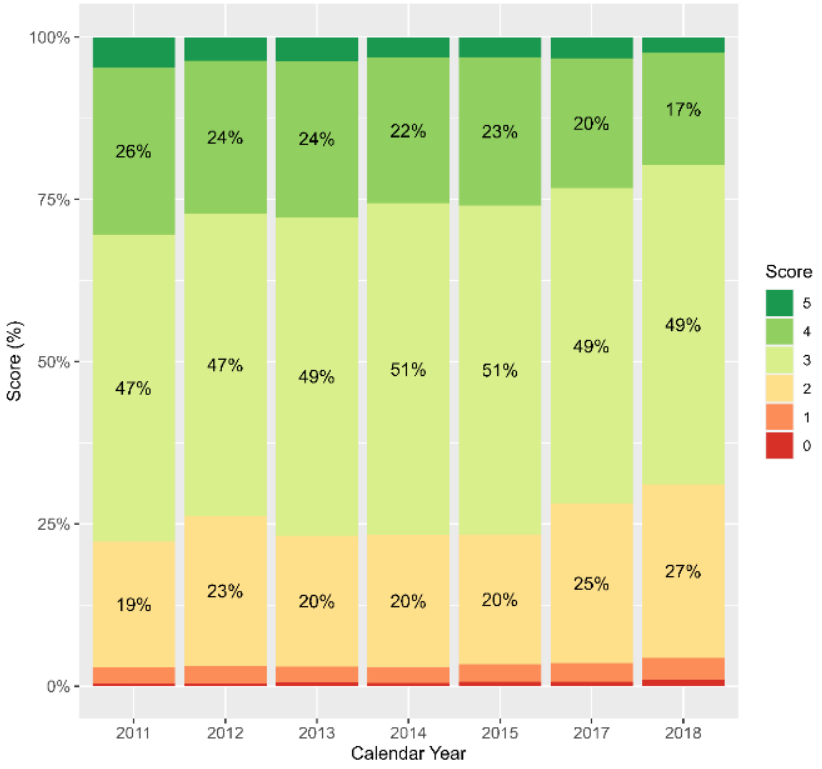


Figure D40: Spelling

Narrative writing

Year 3

Figure D41: Audience

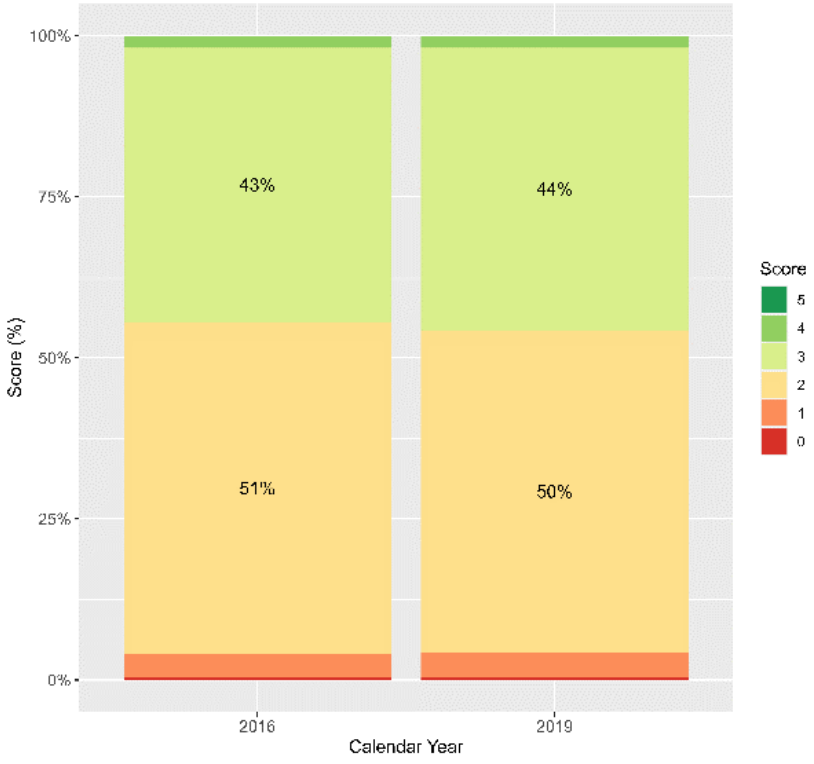


Figure D42: Text Structure

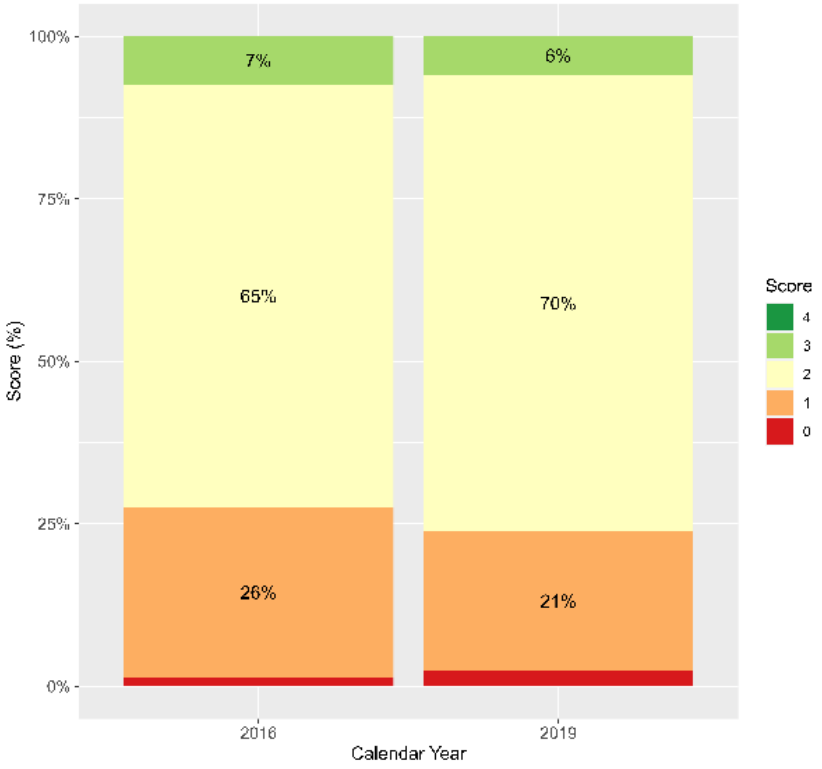


Figure D43: Ideas

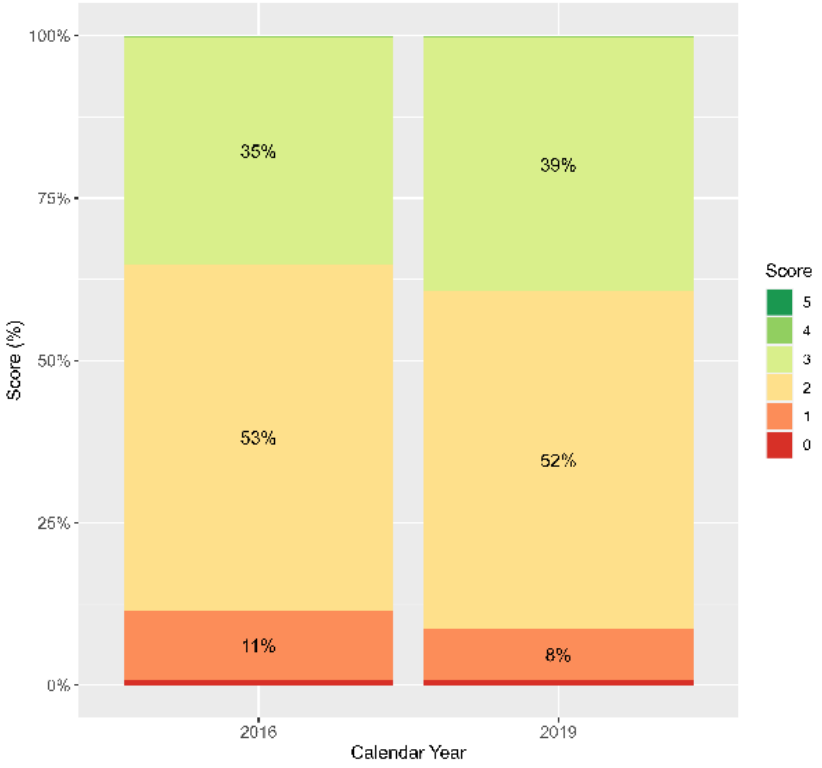


Figure D44: Characters and Setting

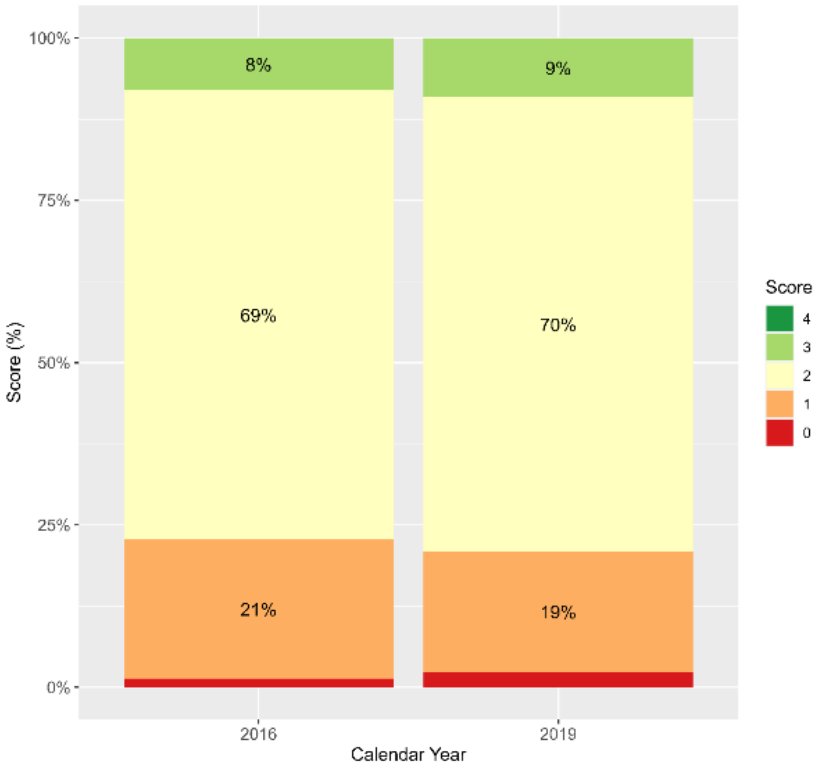


Figure D45: Vocabulary

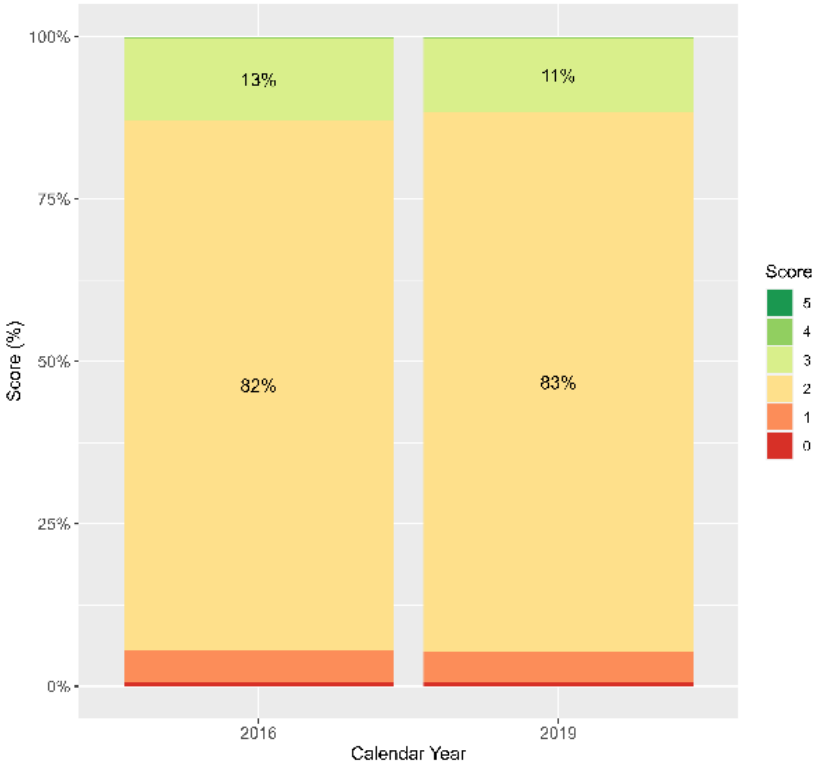


Figure D46: Cohesion

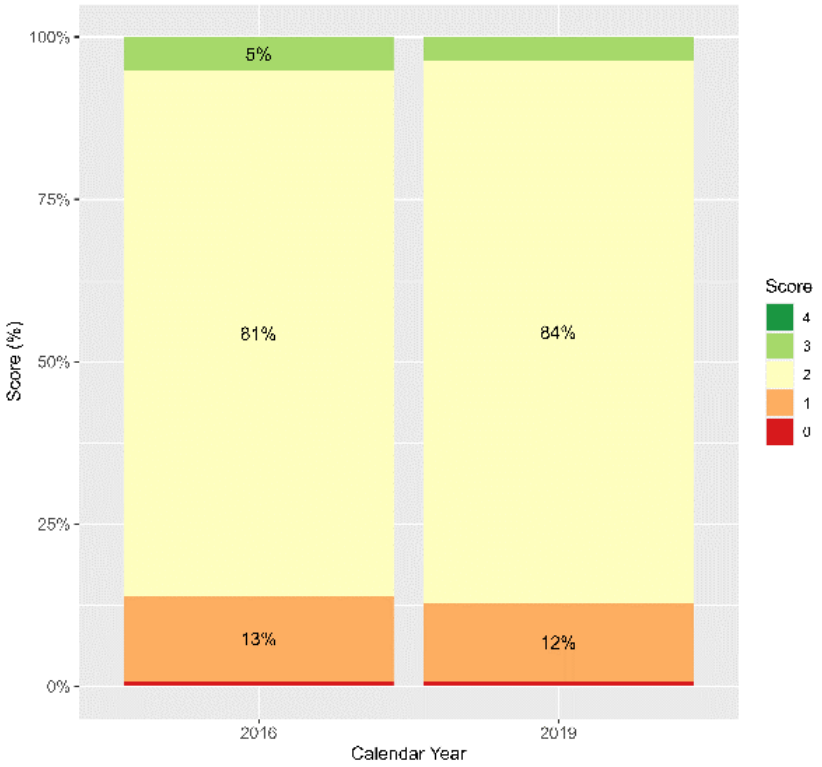


Figure D47: Paragraphing

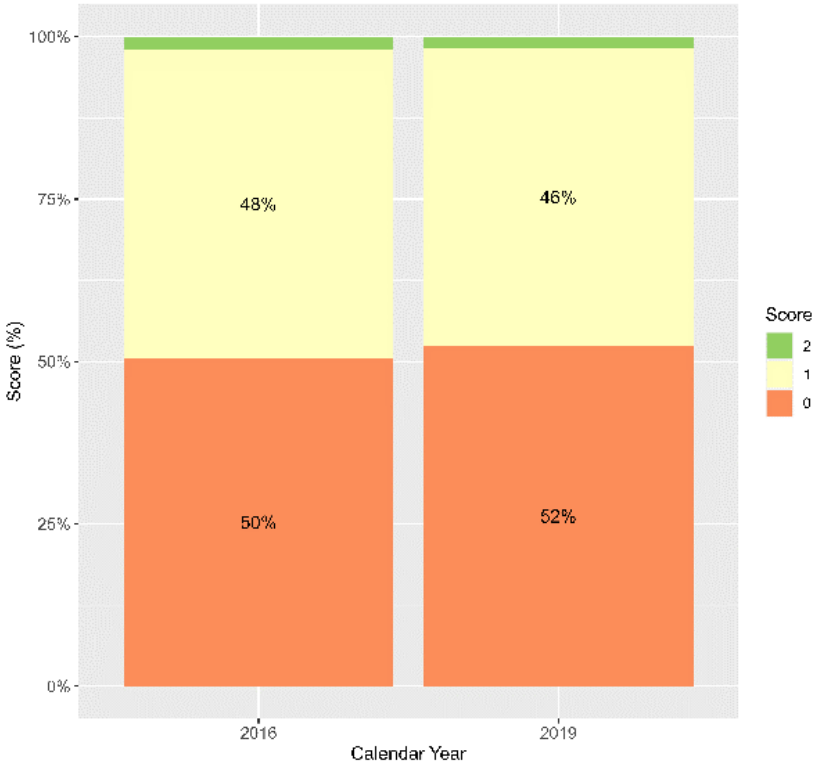


Figure D48: Sentence Structure

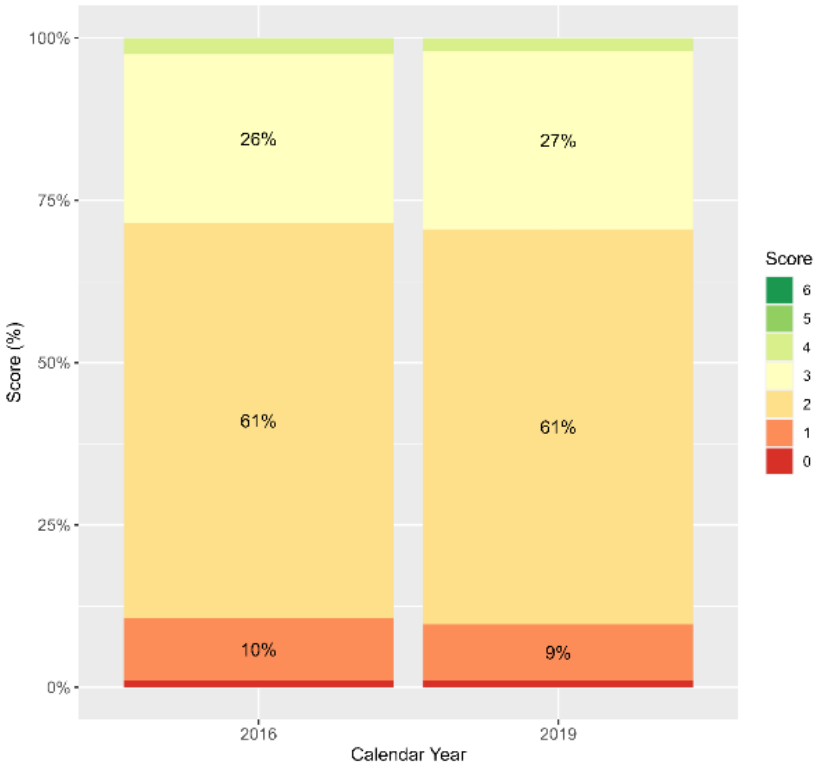


Figure D49: Punctuation

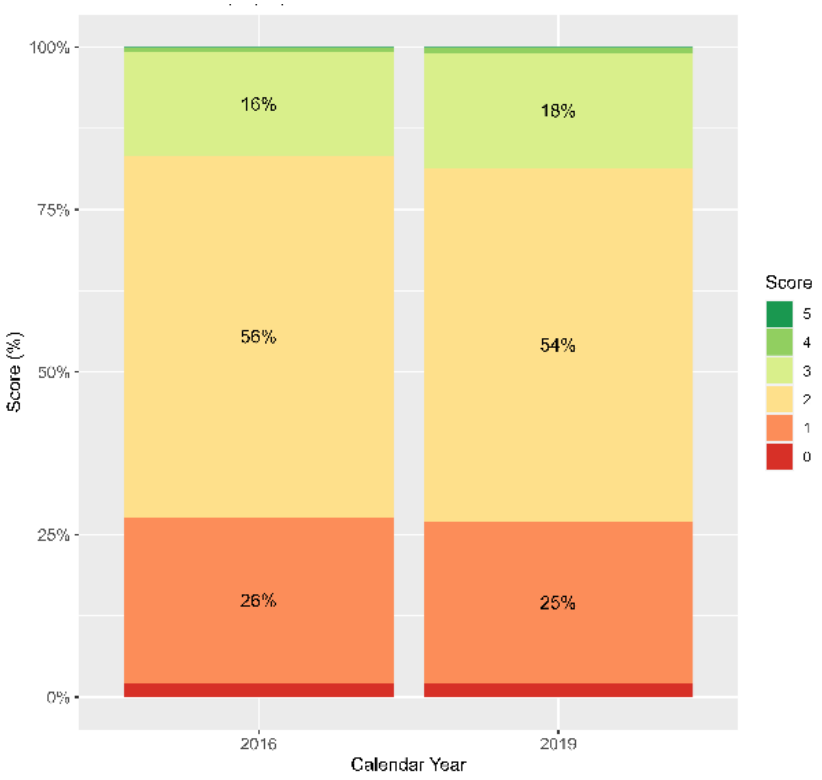
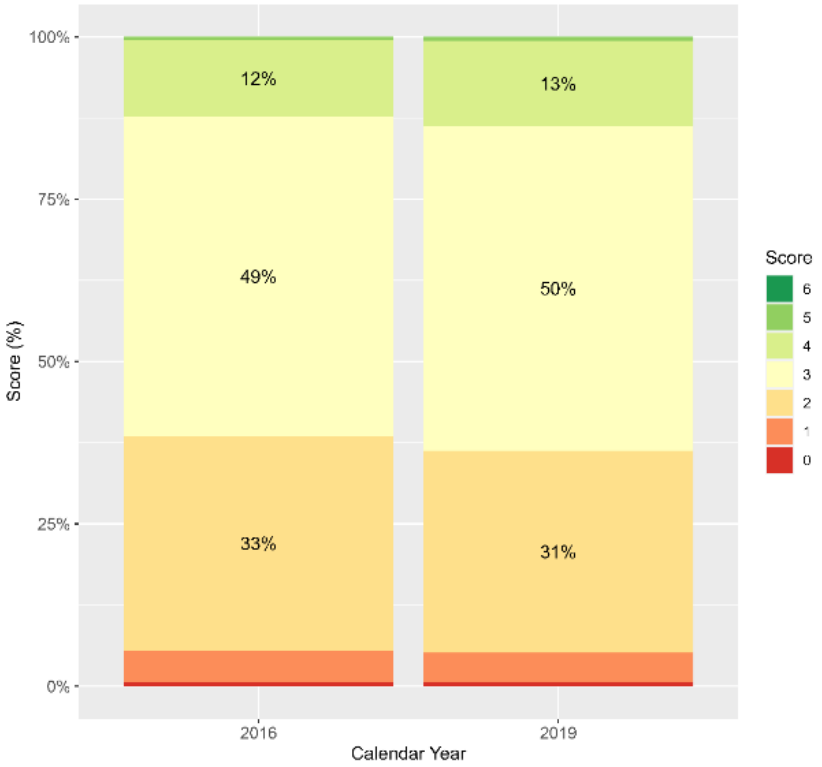


Figure D50: Spelling



Year 5

Figure D51: Audience

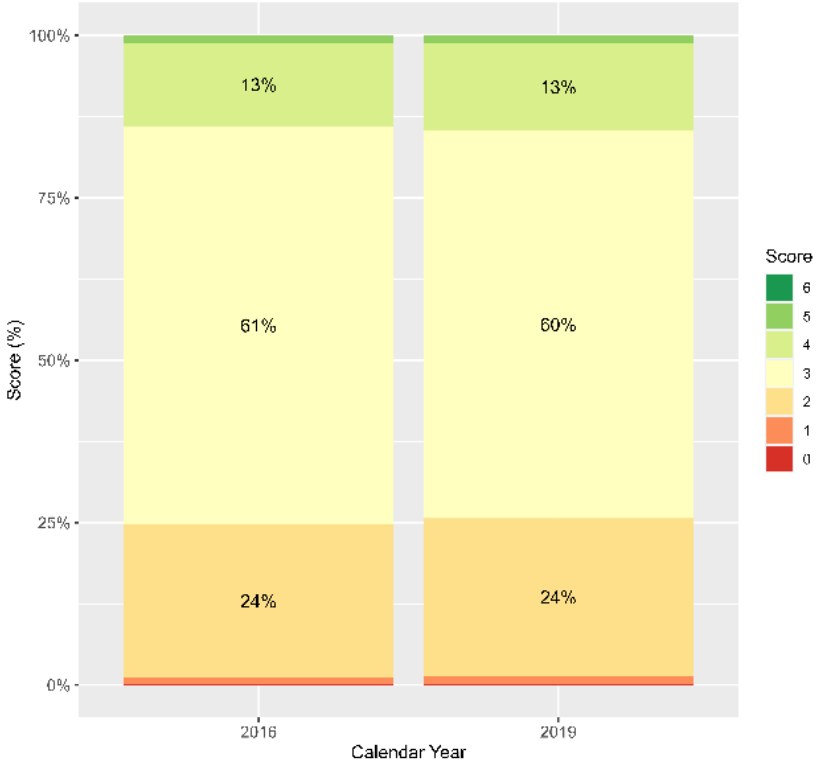


Figure D52: Text Structure

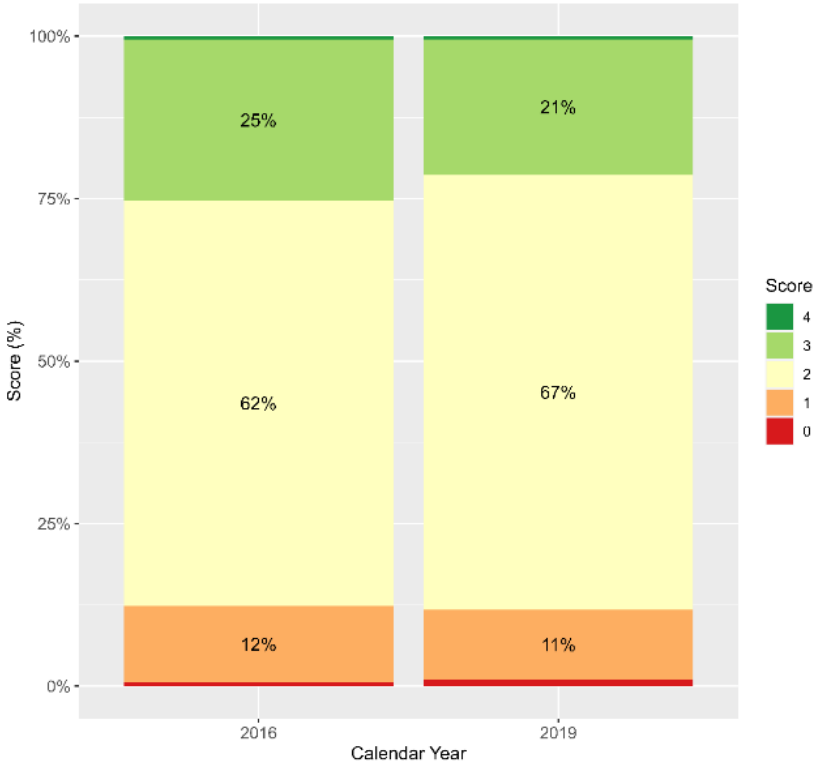


Figure D53: Ideas

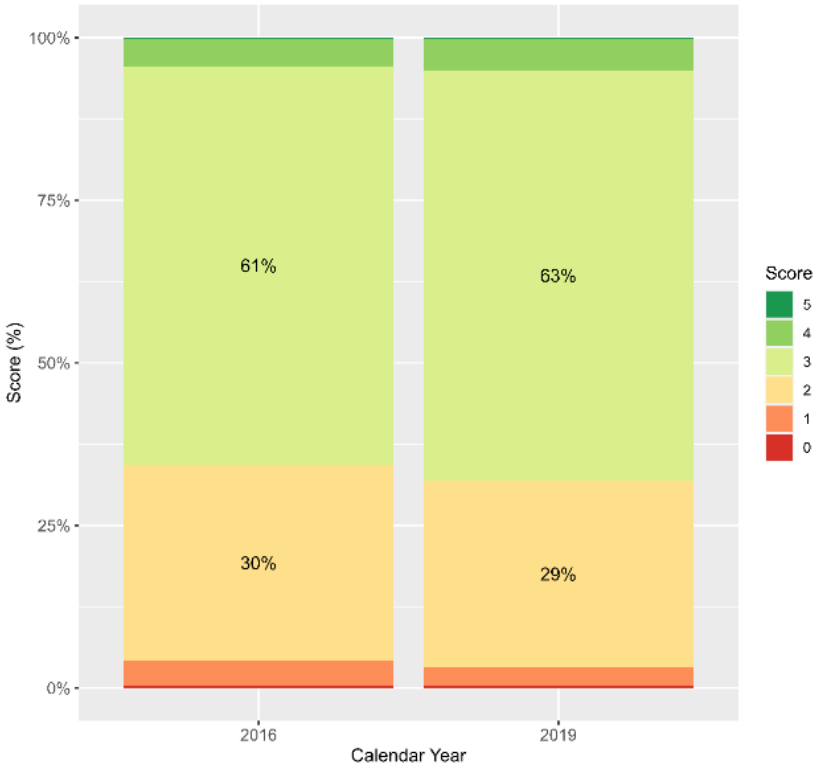


Figure D54: Characters and Setting

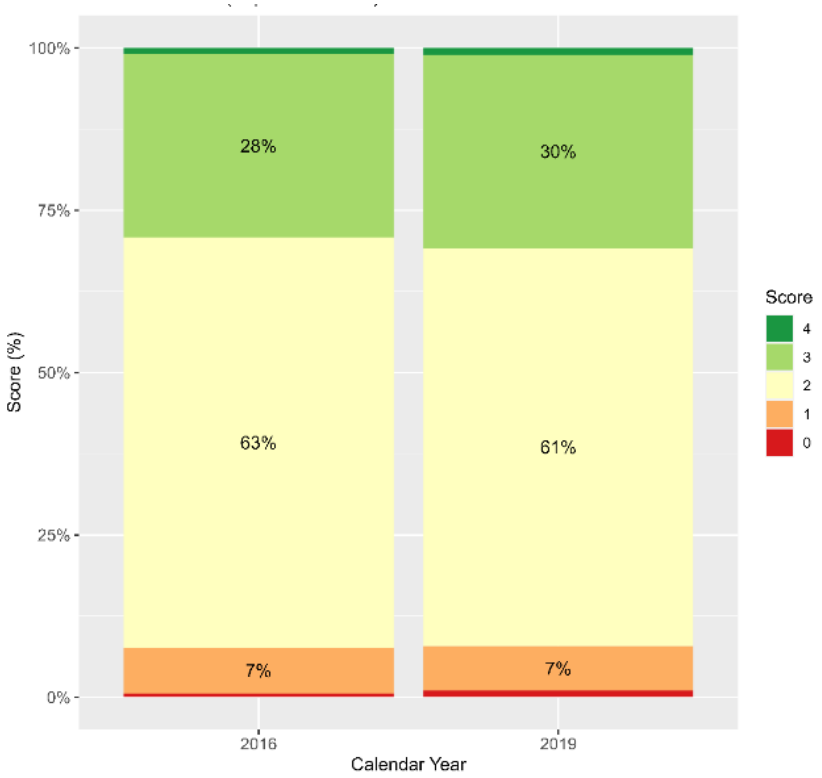


Figure D55: Vocabulary

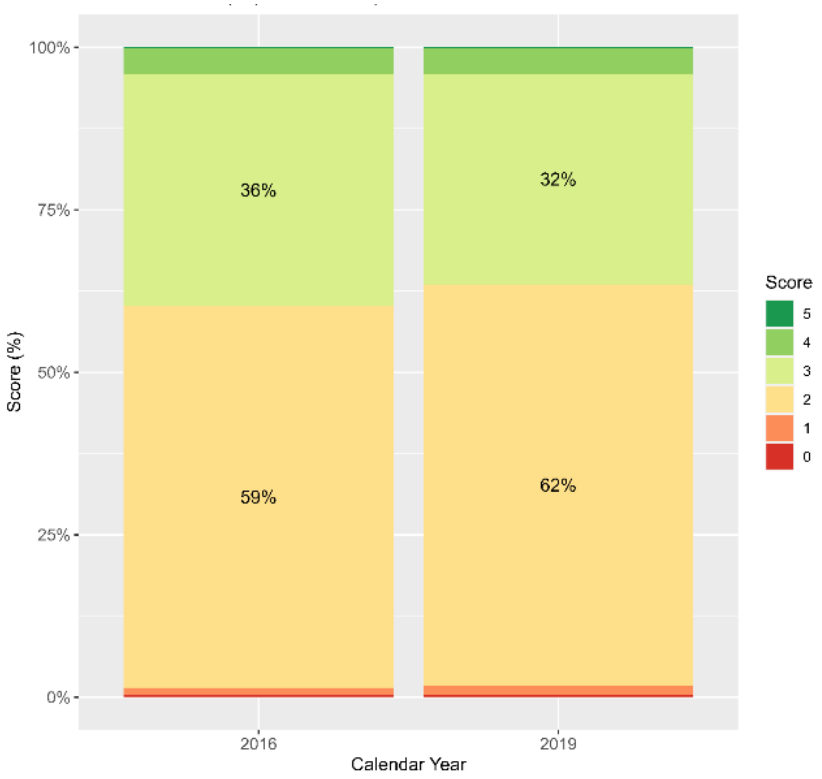


Figure D56: Cohesion

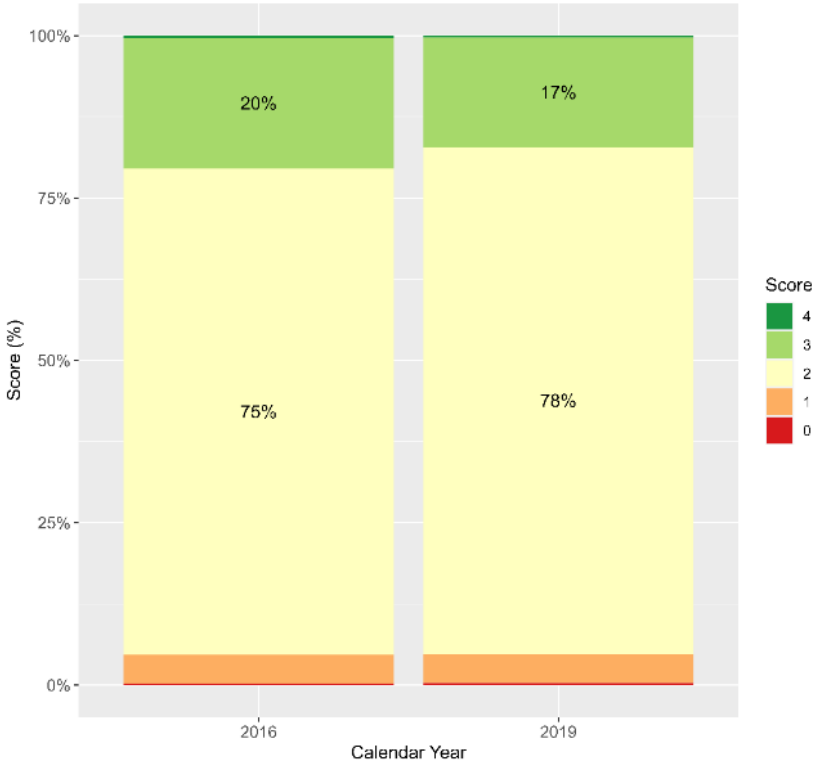


Figure D57: Paragraphing

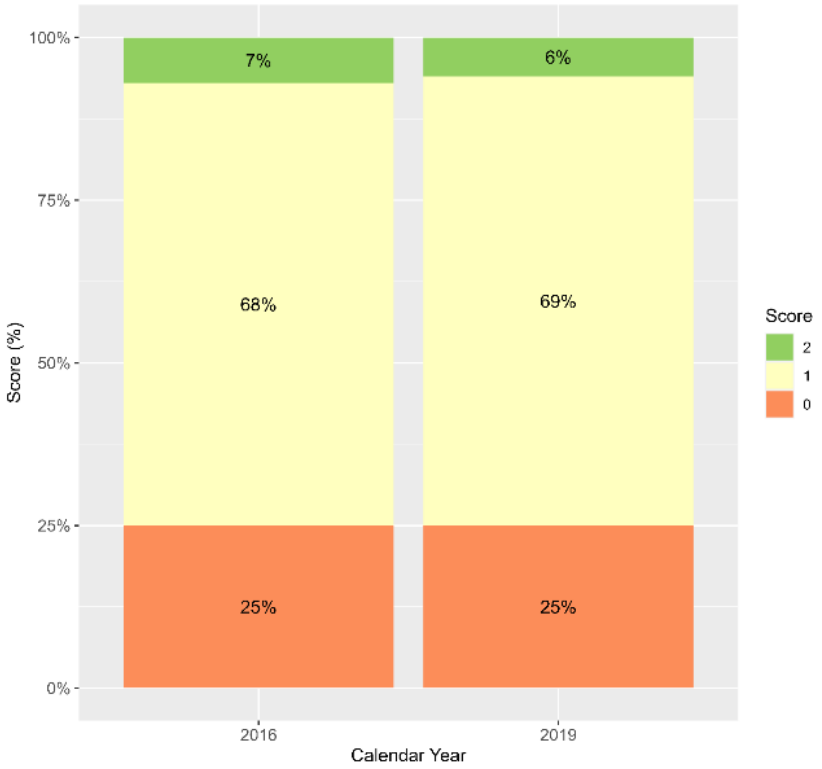


Figure D58: Sentence Structure

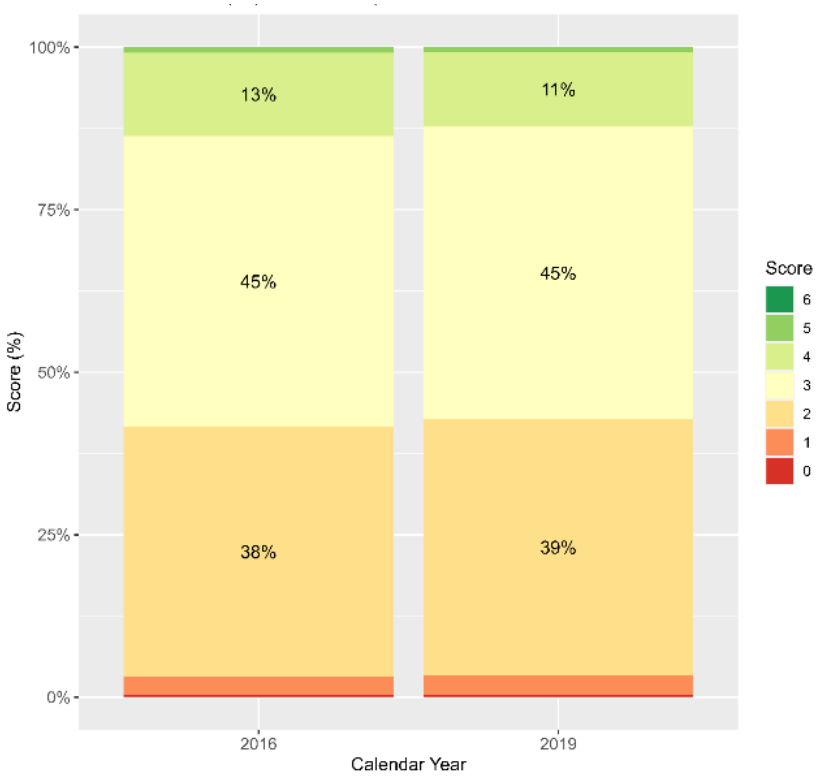


Figure D59: Punctuation

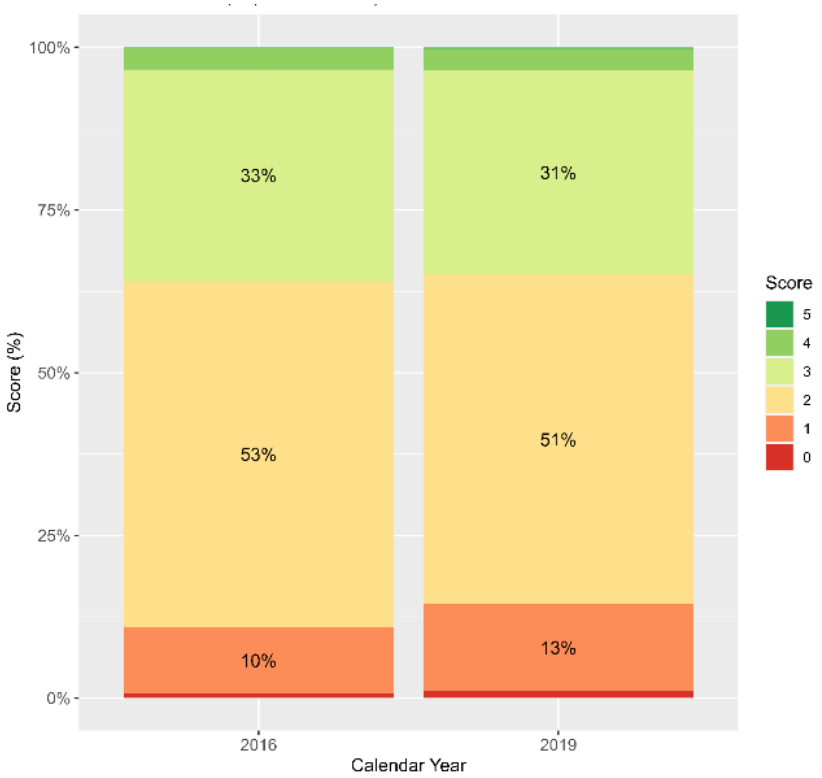
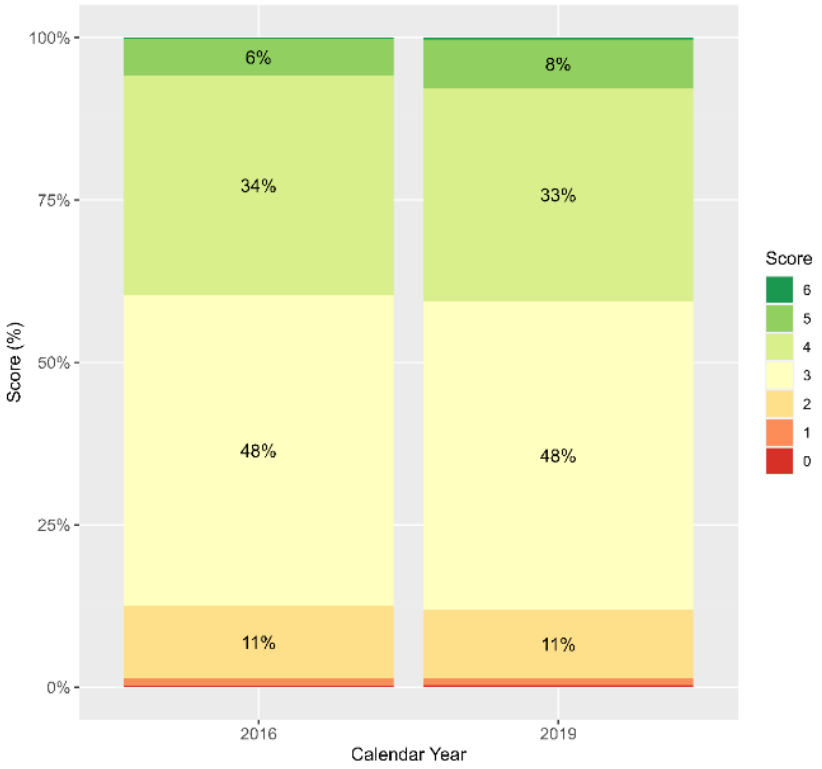


Figure D60: Spelling



Year 7

Figure D61: Audience

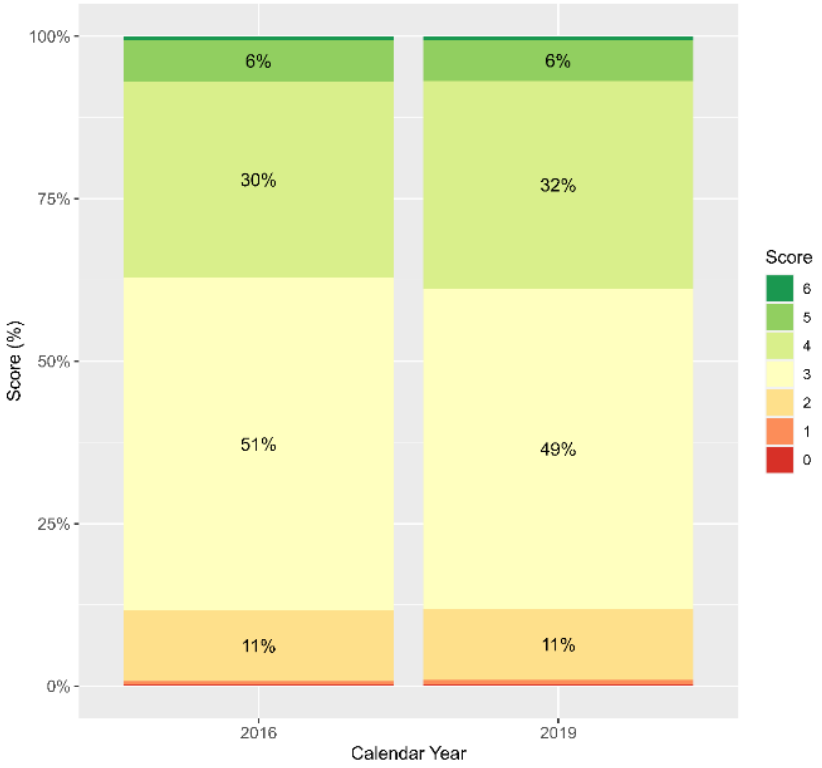


Figure D62: Text Structure

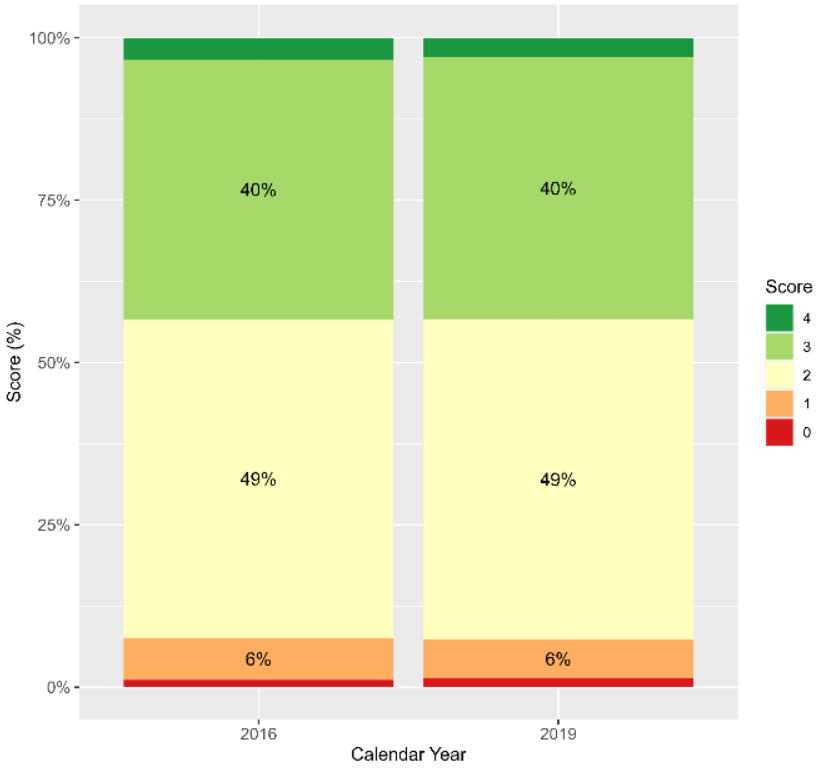


Figure D63: Ideas

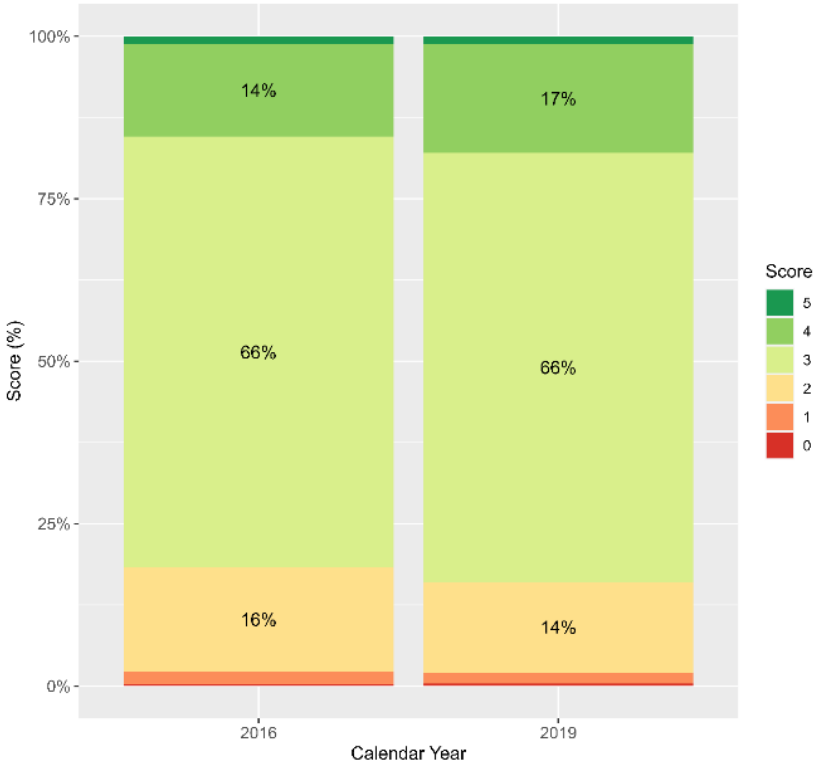


Figure D64: Characters and Setting

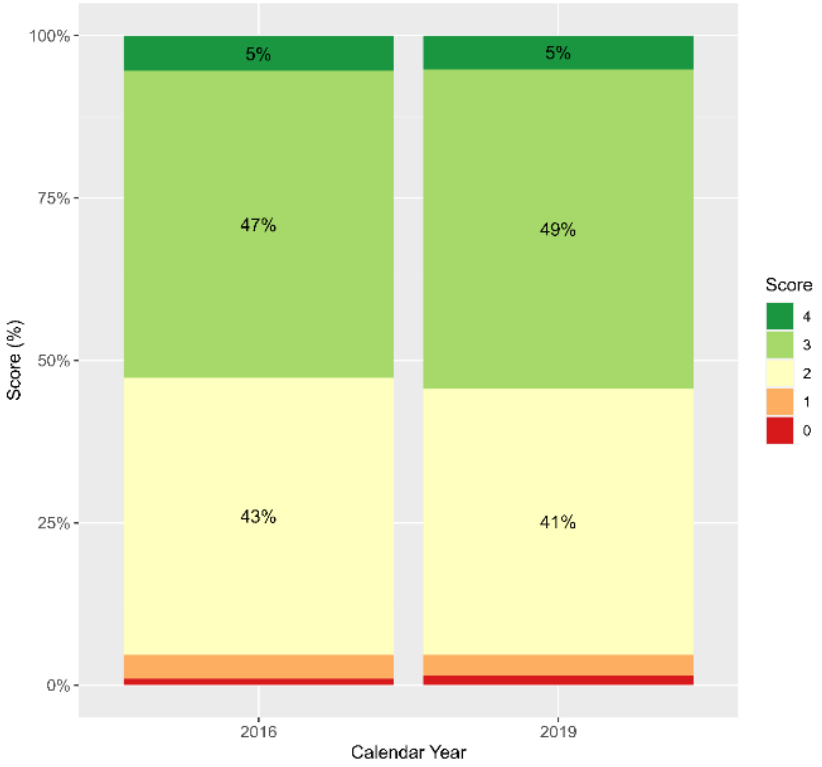


Figure D65: Vocabulary

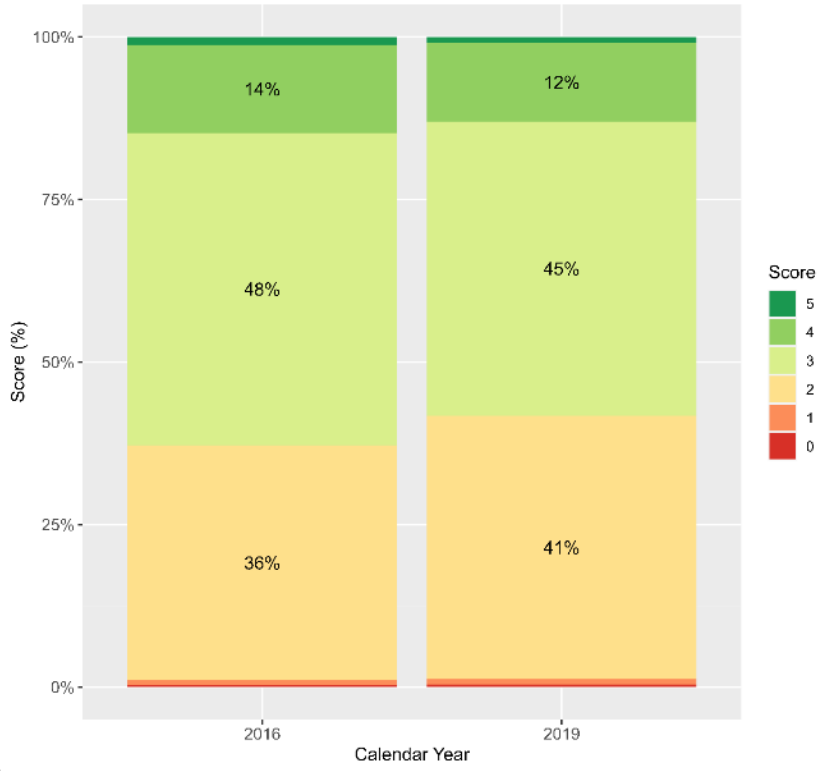


Figure D66: Cohesion

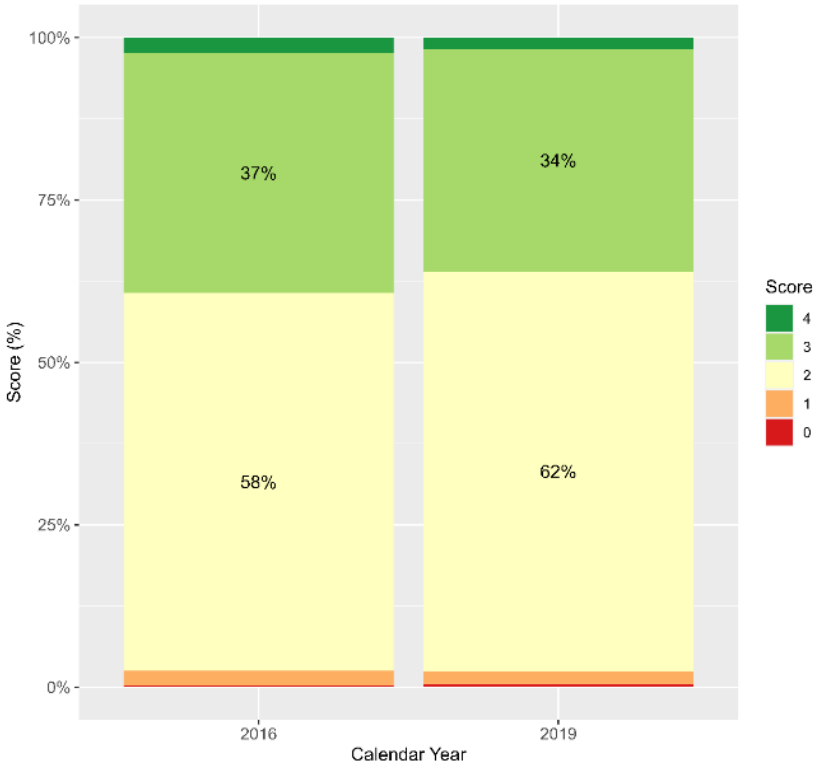


Figure D67: Paragraphing

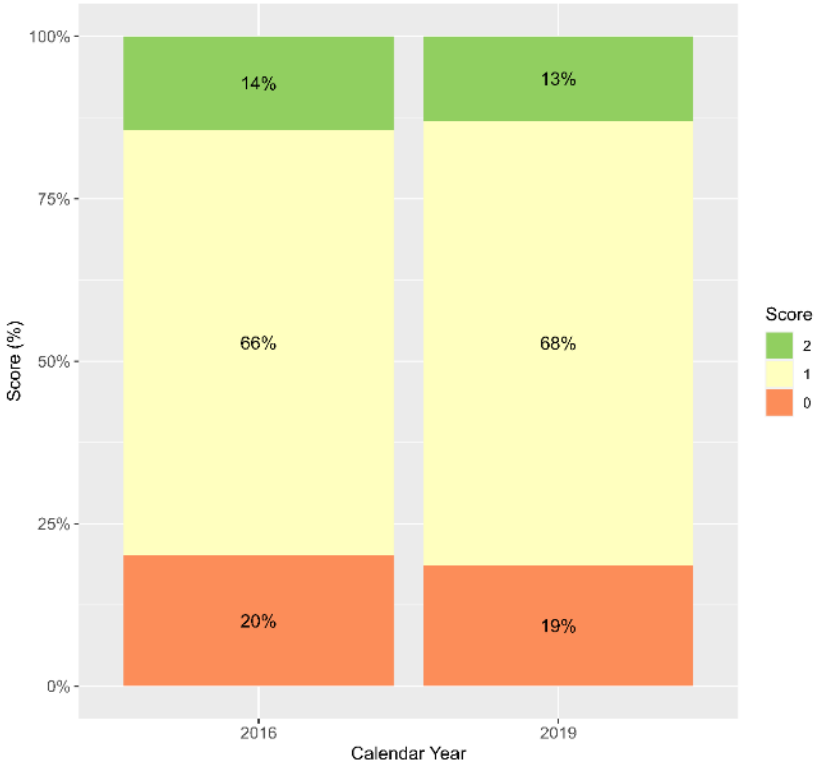


Figure D68: Sentence Structure

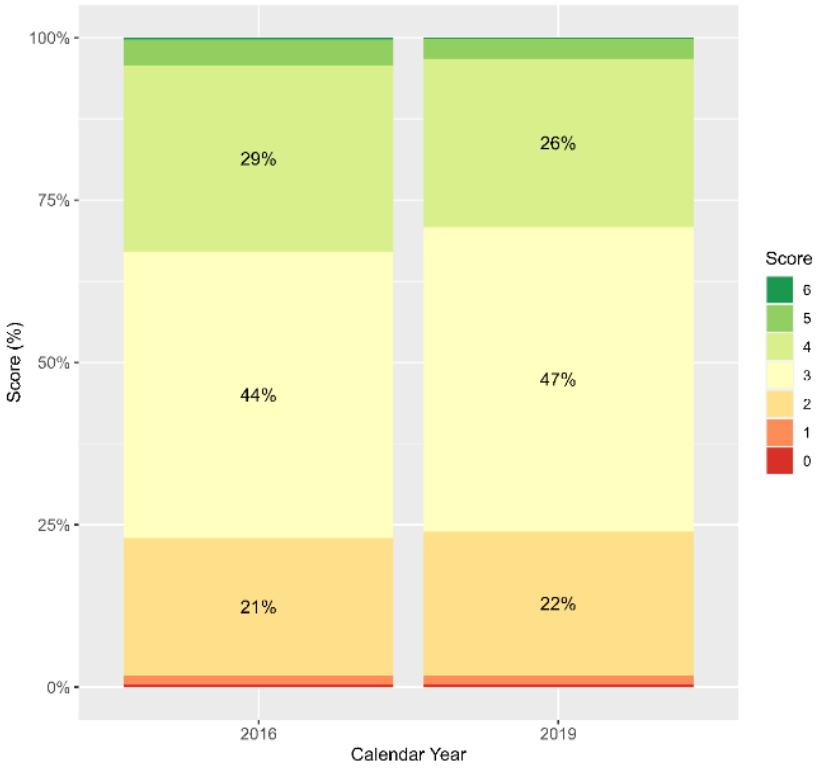


Figure D69: Punctuation

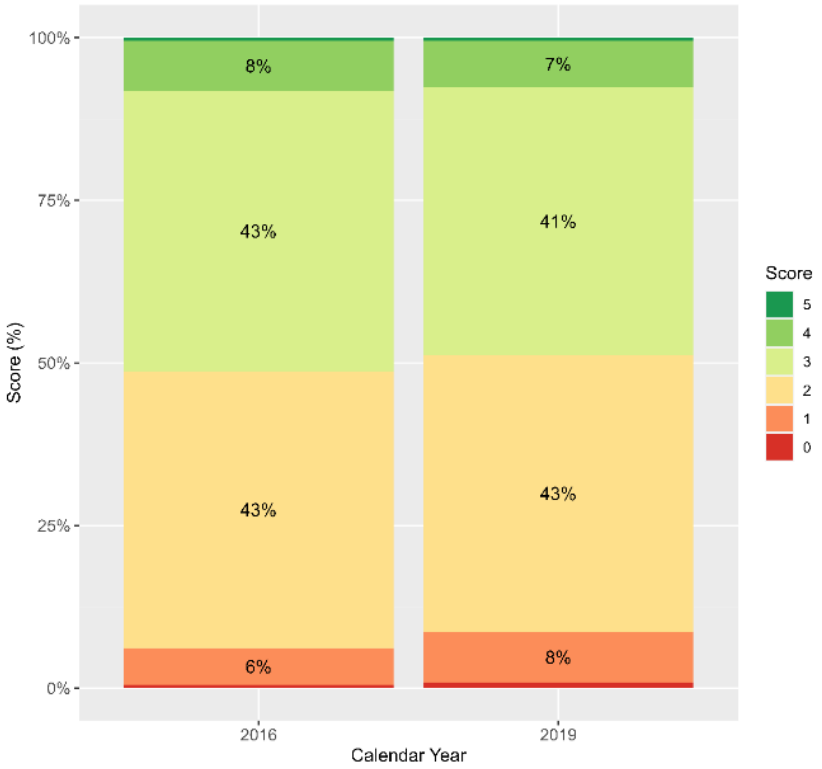
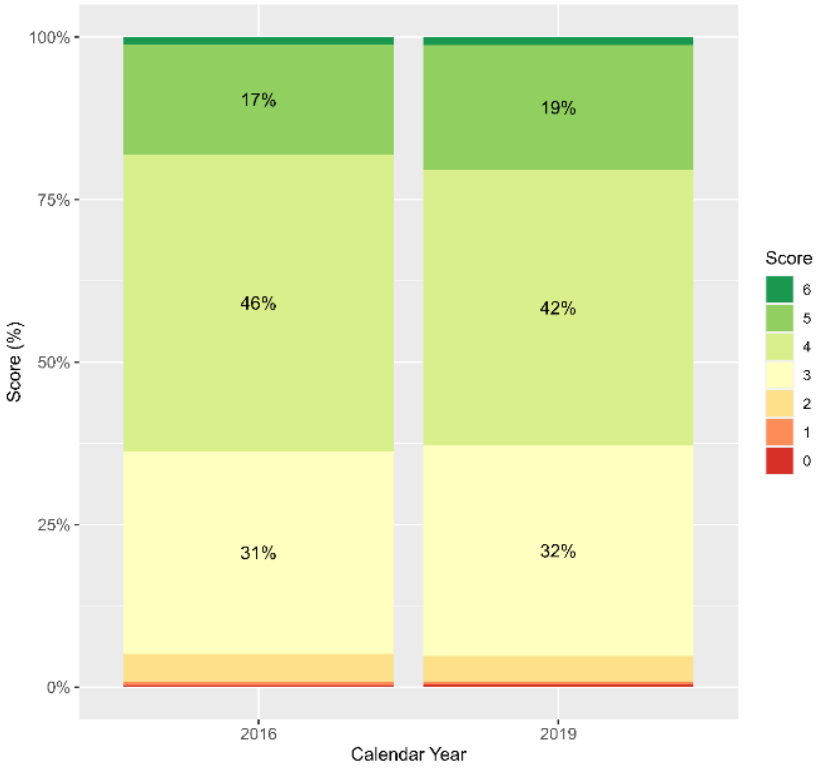


Figure D70: Spelling



Year 9

Figure D71: Audience

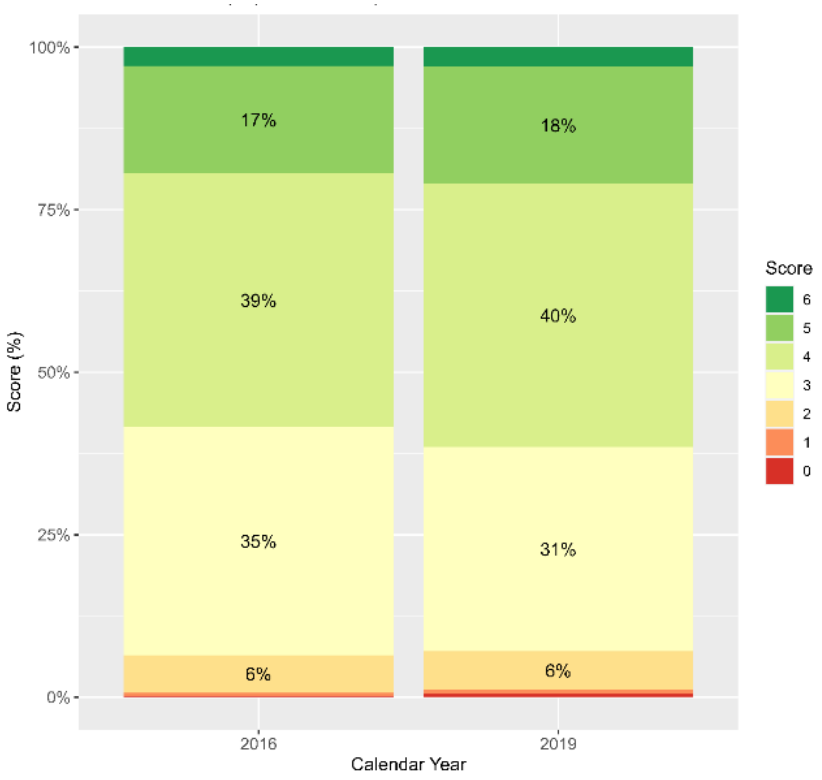


Figure D72: Text Structure

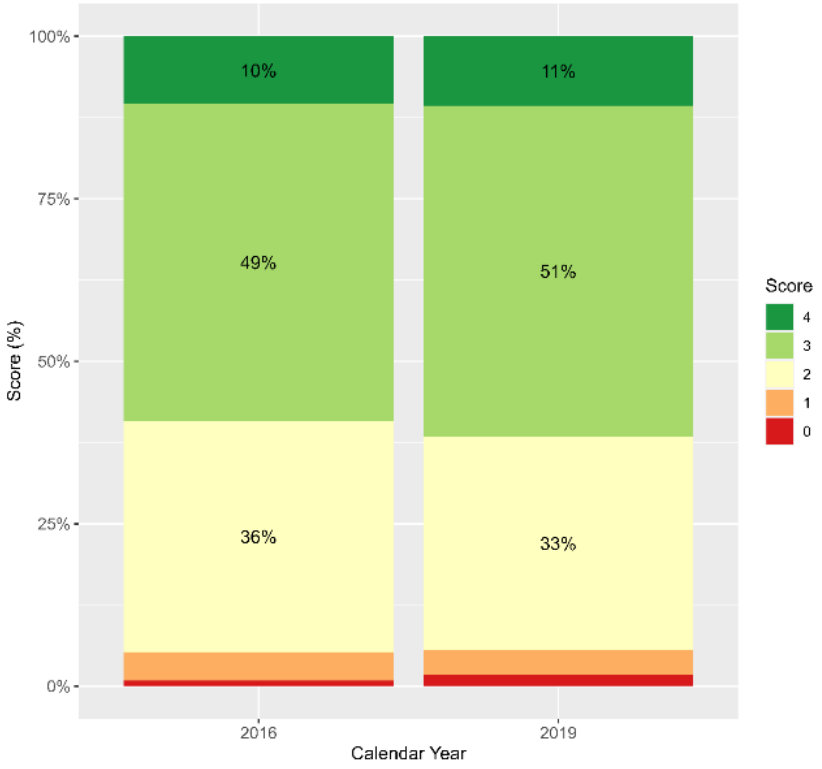


Figure D73: Ideas

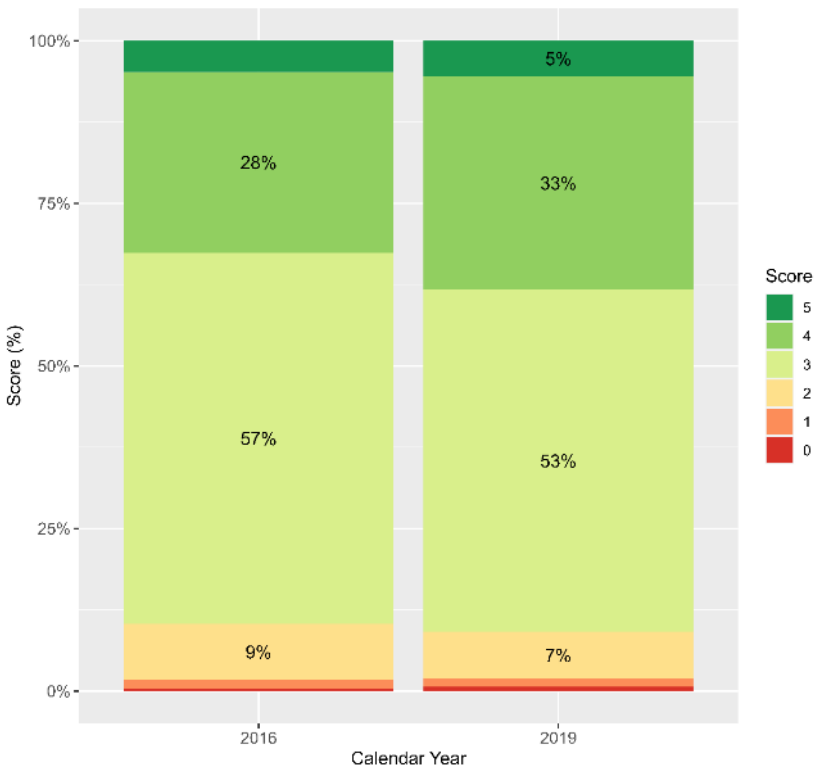


Figure D74: Characters and Setting

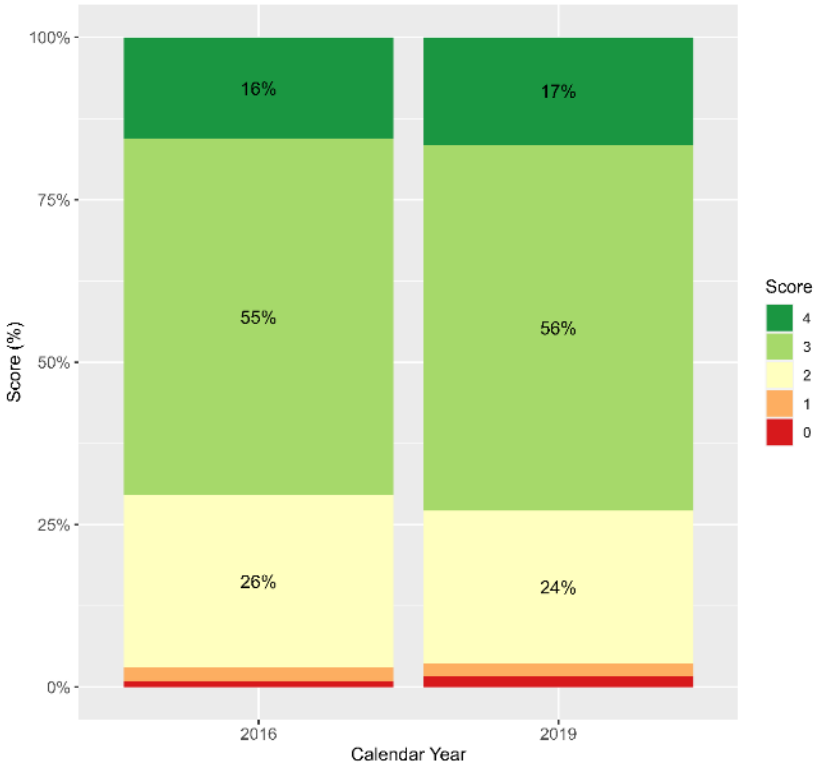


Figure D75: Vocabulary

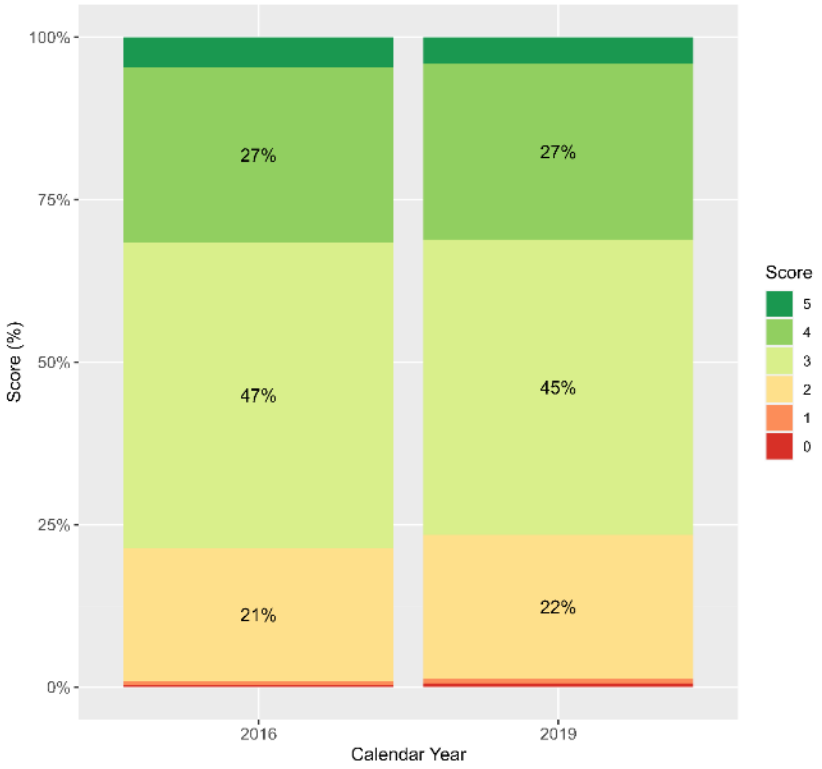


Figure D76: Cohesion

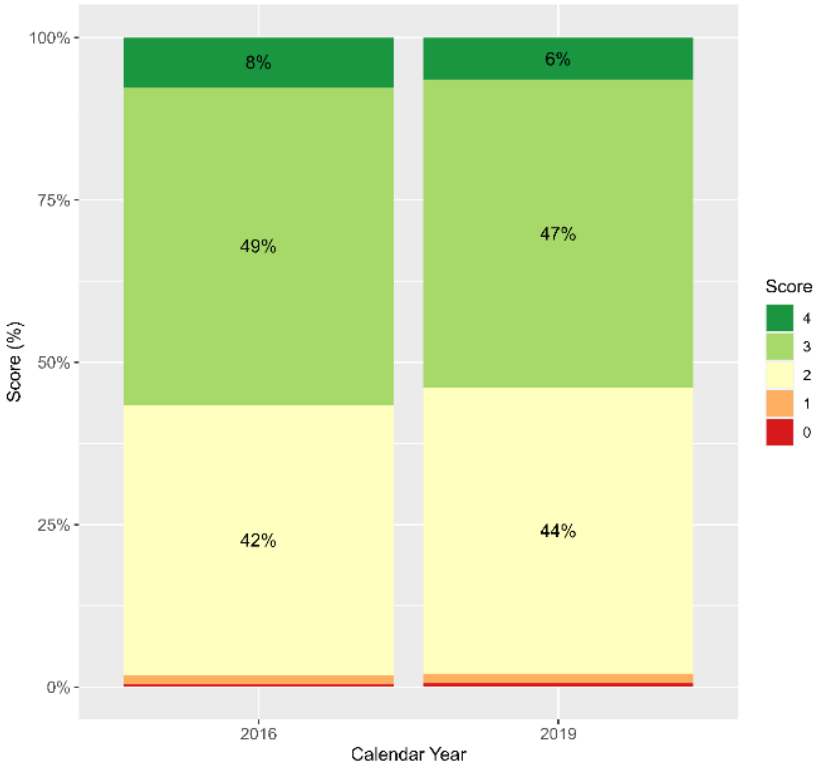


Figure D77: Paragraphing

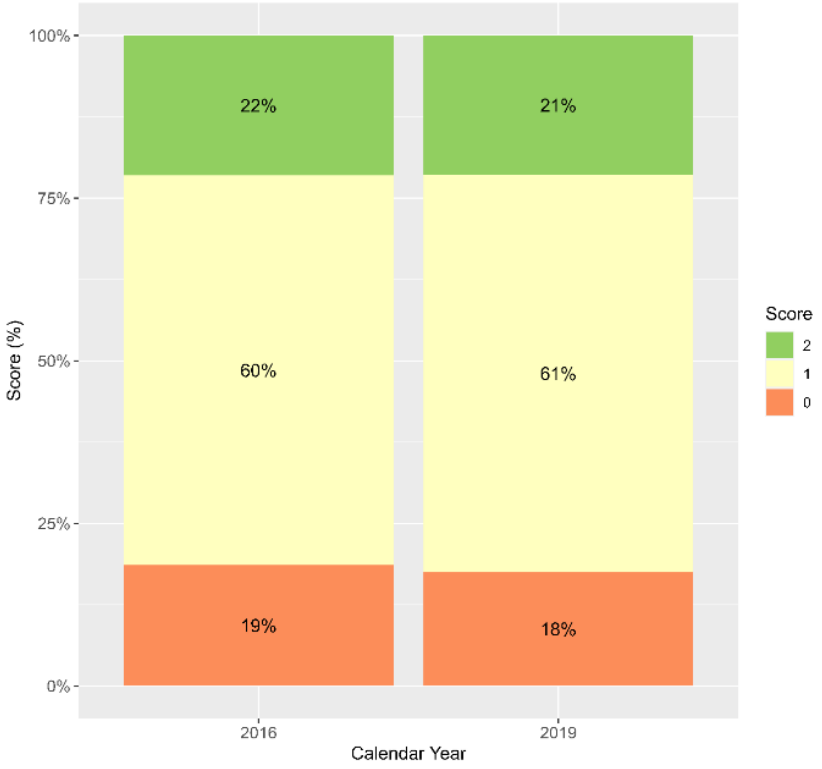


Figure D78: Sentence Structure

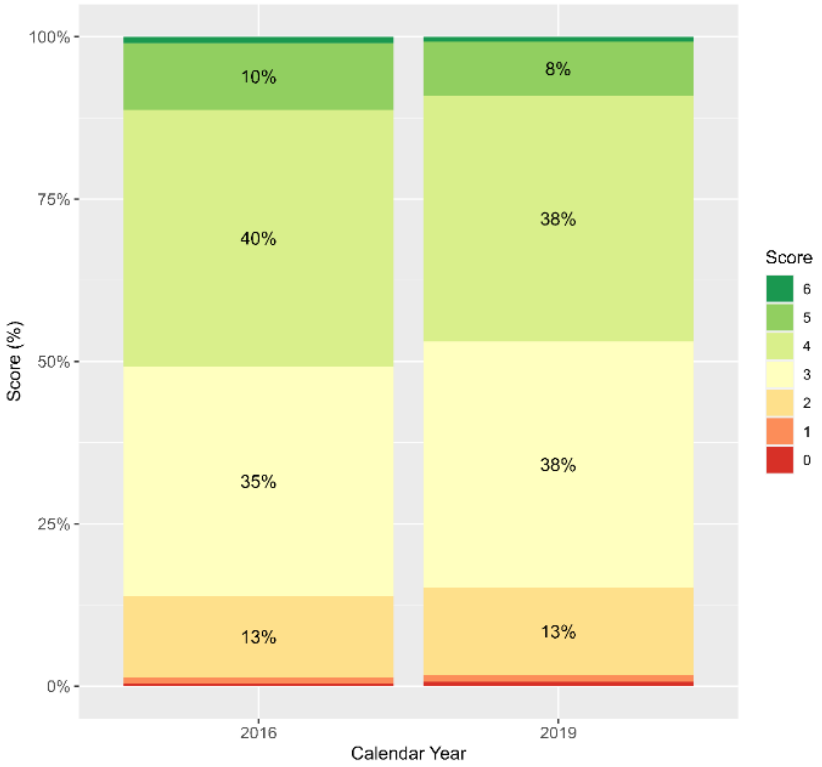


Figure D79: Punctuation

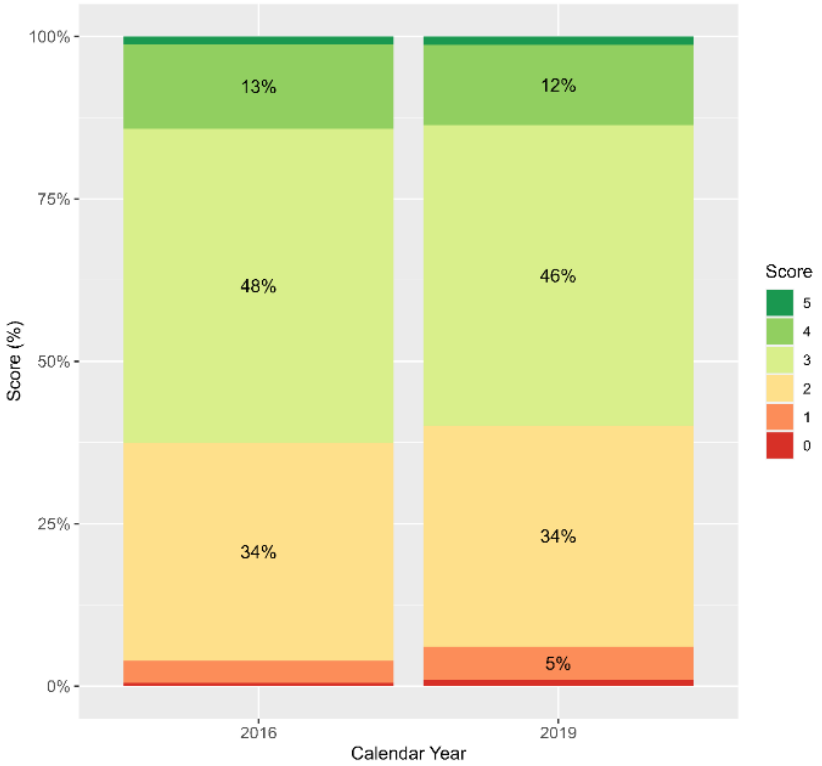
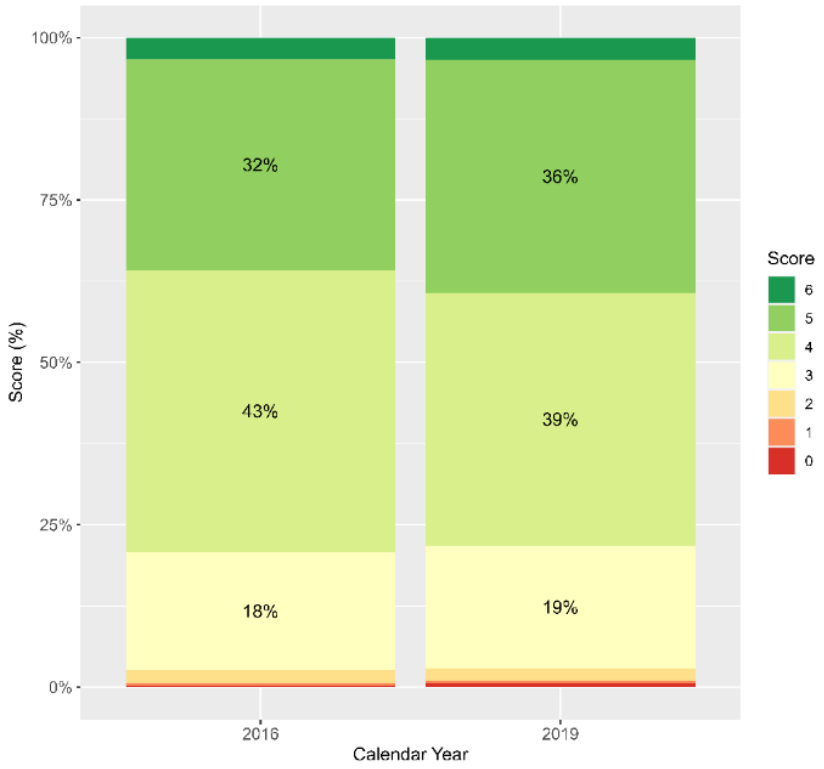


Figure D80: Spelling



Appendix E: Summary statistics of criterion scores and NAPLAN scores for Year 3 2011 cohort tracked to Year 9

Summary statistics of criterion scores for Year 3 2011 cohort for Persuasive writing

Table E.1: Audience

	Year 3 2011	Year 5 2013	Year 7 2015	Year 9 2017
mean	2.36	2.94	3.29	3.84
standard deviation	0.69	0.74	0.85	1.01
min	0	0	0	0
median	2	3	3	4
max	6	6	6	6
25th percentile	2	3	3	3
75th percentile	3	3	4	4

Table E.2: Text Structure

	Year 3 2011	Year 5 2013	Year 7 2015	Year 9 2017
mean	1.64	2.13	2.32	2.70
standard deviation	0.64	0.71	0.82	0.85
min	0	0	0	0
median	2	2	2	3
max	4	4	4	4
25th percentile	1	2	2	2
75th percentile	2	3	3	3

Table E.3: Ideas

	Year 3 2011	Year 5 2013	Year 7 2015	Year 9 2017
mean	2.20	2.73	2.94	3.36
standard deviation	0.66	0.64	0.68	0.80
min	0	0	0	0
median	2	3	3	3
max	5	5	5	5
25th percentile	2	2	3	3
75th percentile	3	3	3	4

Table E.4: Persuasive Devices

	Year 3 2011	Year 5 2013	Year 7 2015	Year 9 2017
mean	1.60	2.00	2.24	2.66
standard deviation	0.65	0.71	0.85	0.84
min	0	0	0	0
median	2	2	2	3
max	4	4	4	4
25th percentile	1	2	2	2
75th percentile	2	2	3	3

Table E.5: Vocabulary

	Year 3 2011	Year 5 2013	Year 7 2015	Year 9 2017
mean	2.04	2.43	2.72	3.12
standard deviation	0.47	0.63	0.73	0.88
min	0	0	0	0
median	2	2	3	3
max	5	5	5	5
25th percentile	2	2	2	3
75th percentile	2	3	3	4

Table E.6: Cohesion

	Year 3 2011	Year 5 2013	Year 7 2015	Year 9 2017
mean	1.84	2.15	2.35	2.62
standard deviation	0.52	0.53	0.58	0.68
min	0	0	0	0
median	2	2	2	3
max	4	4	4	4
25th percentile	2	2	2	2
75th percentile	2	2	3	3

Table E.7: Paragraphing

	Year 3 2011	Year 5 2013	Year 7 2015	Year 9 2017
mean	0.86	1.34	1.58	1.86
standard deviation	0.71	0.69	0.70	0.75
min	0	0	0	0
median	1	1	2	2
max	3	3	3	3
25th percentile	0	1	1	1
75th percentile	1	2	2	2

Table E.8: Sentence Structure

	Year 3 2011	Year 5 2013	Year 7 2015	Year 9 2017
mean	2.24	2.82	3.14	3.48
standard deviation	0.75	0.82	0.86	0.98
min	0	0	0	0
median	2	3	3	4
max	6	6	6	6
25th percentile	2	2	3	3
75th percentile	3	3	4	4

Table E.9: Punctuation

	Year 3 2011	Year 5 2013	Year 7 2015	Year 9 2017
mean	2.09	2.56	2.78	2.94
standard deviation	0.76	0.77	0.80	0.86
min	0	0	0	0
median	2	3	3	3
max	5	5	5	5
25th percentile	2	2	2	2
75th percentile	3	3	3	3

Table E.10: Spelling

	Year 3 2011	Year 5 2013	Year 7 2015	Year 9 2017
mean	2.56	3.31	3.85	4.29
standard deviation	0.78	0.84	0.91	0.96
min	0	0	0	0
median	3	3	4	4
max	6	6	6	6
25th percentile	2	3	3	4
75th percentile	3	4	4	5

Progression in average NAPLAN scores using cohort means from NAPLAN National Report

Figure E.1: Year 3 2011 cohort

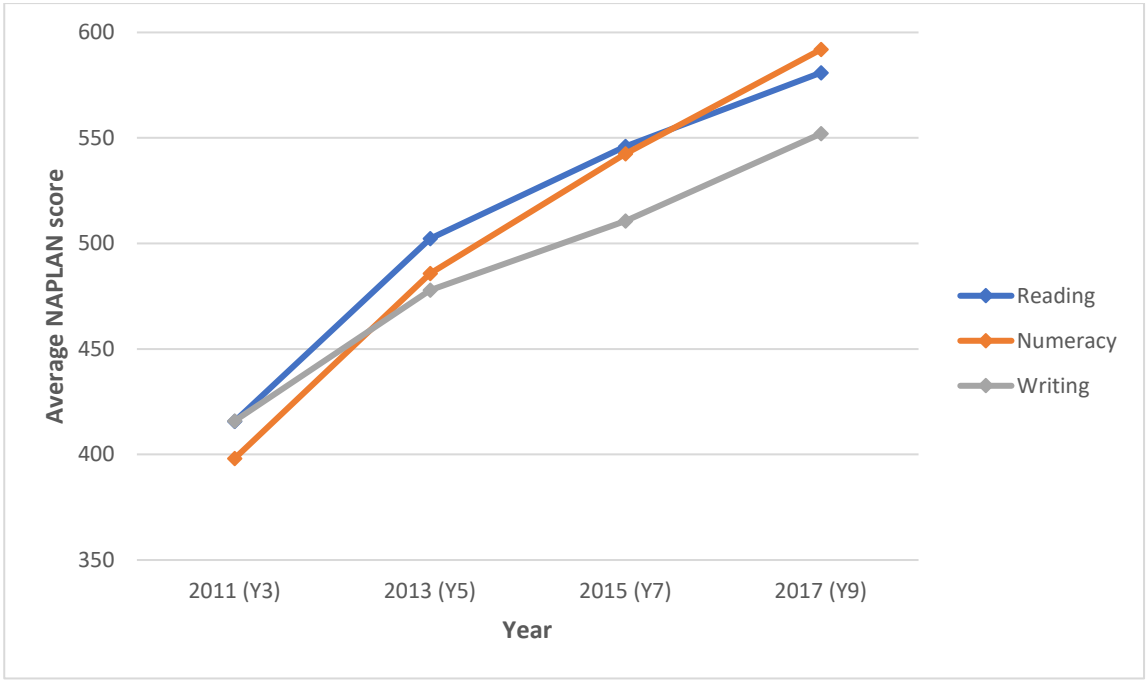


Figure E.1: Year 3 2012 cohort

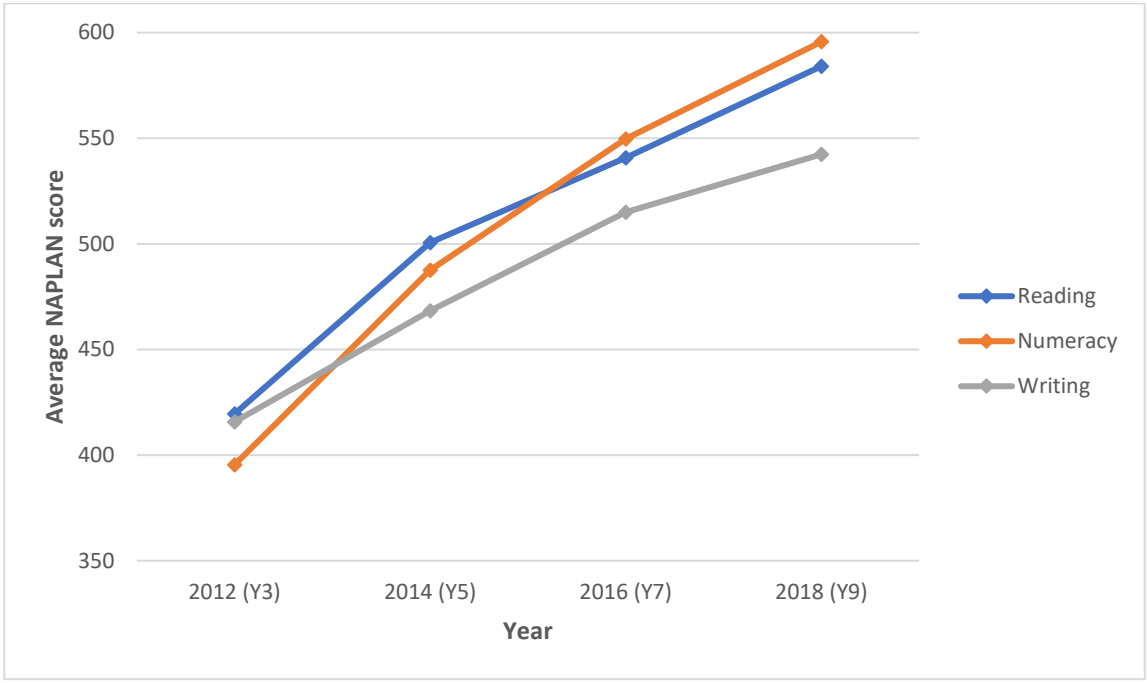


Figure E.1: Year 3 2013 cohort

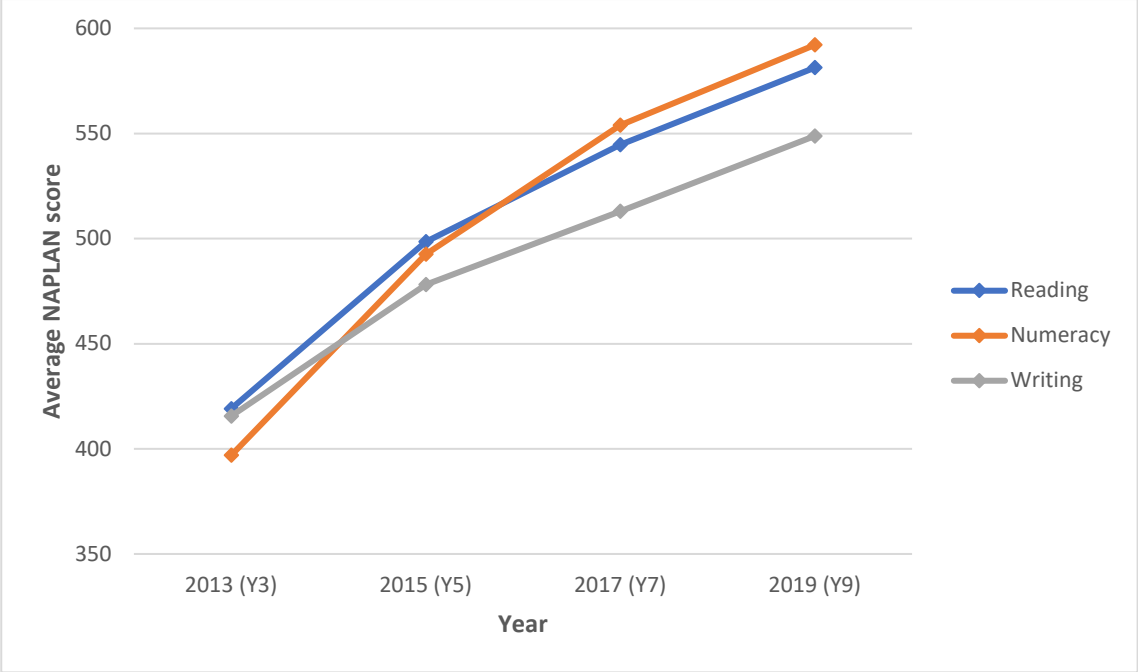
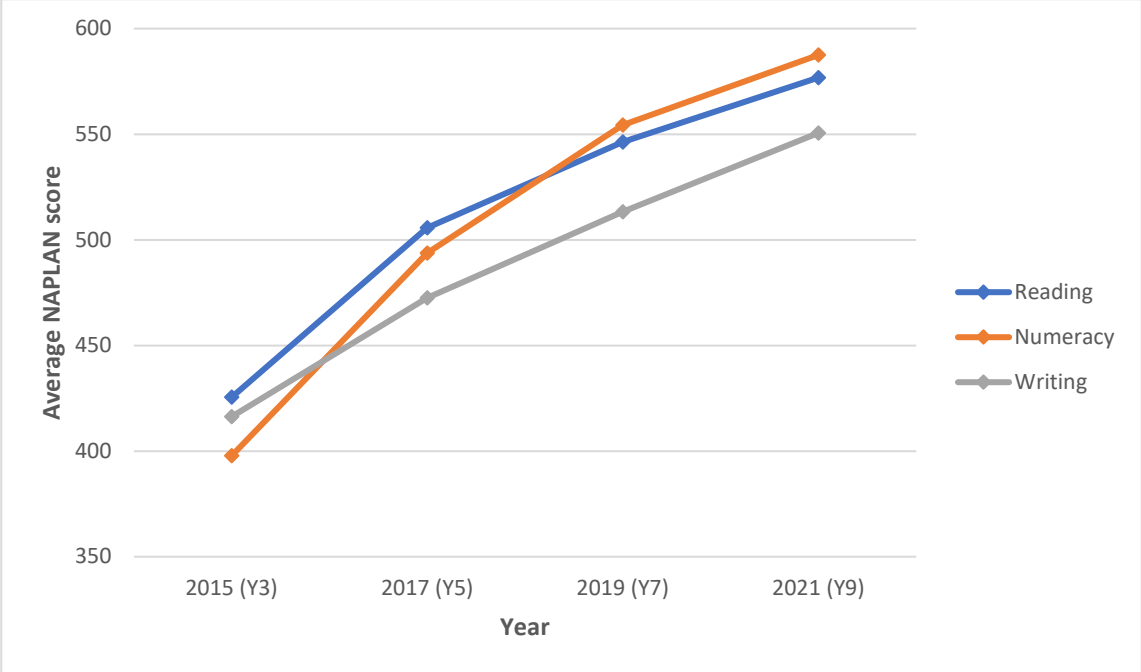


Figure E.1: Year 3 2015 cohort



Effect sizes on the growth of NAPLAN performance between Years 3 to 5, Years 5 to 7 and Years 7 and 9 using cohort means and standard deviations from ACARA national summary report

Table E.11: Year 3 2011 cohort

Domain	Year 3-5	Year 5-7	Year 7-9
Reading	1.13	0.66	0.52
Numeracy	1.23	0.81	0.75
Writing	0.90	0.45	0.51

Table E.12: Year 3 2012 cohort

Domain	Year 3-5	Year 5-7	Year 7-9
Reading	0.98	0.55	0.66
Numeracy	1.30	0.89	0.67
Writing	0.77	0.67	0.35

Table E.13: Year 3 2013 cohort

Domain	Year 3-5	Year 5-7	Year 7-9
Reading	1.00	0.63	0.54
Numeracy	1.43	0.88	0.57
Writing	0.91	0.49	0.46

Table E.14: Year 3 2015 cohort

Domain	Year 3-5	Year 5-7	Year 7-9
Reading	0.98	0.56	0.44
Numeracy	1.37	0.86	0.47
Writing	0.85	0.60	0.49

Means and standard deviations (SDs) of NAPLAN scores from Year 3 to Year 9 from NAPLAN National Report

Table E.15: Year 3 2011 cohort

Year level	Calendar year	Mean	SD
3	2011 (Y3)	415.9	67.1
5	2013 (Y5)	477.9	70.1
7	2015 (Y7)	510.6	76.0
9	2017 (Y9)	552.0	86.2

Table E.16: Year 3 2012 cohort

Year level	Calendar year	Mean	SD
3	2012 (Y3)	415.8	67.1
5	2014 (Y5)	468.3	69.7
7	2016 (Y7)	515.0	70.6
9	2018 (Y9)	542.4	83.3

Table E.17: Year 3 2013 cohort

Year level	Calendar year	Mean	SD
3	2013 (Y3)	415.6	70.5
5	2015 (Y5)	478.1	66.1
7	2017 (Y7)	512.9	76.0
9	2019 (Y9)	548.8	78.70

Table E.18: Year 3 2015 cohort

Year level	Calendar year	Mean	SD
3	2015 (Y3)	416.3	67.4
5	2017 (Y5)	472.5	64.4
7	2019 (Y7)	513.2	71.0
9	2021 (Y9)	550.6	82.1

Appendix F: Alignment of the National Literacy Learning Progressions (NLLP) to NAPLAN Writing criterion scores by year level

Table F.2: Audience

Criterion/Score	Percentage sample achieved			
	Year 3	Year 5	Year 7	Year 9
Score 0 – CrT 1-2	0.5%	0.2%	0.2%	0.3%
Score 1 – CrT 2-3	7.3%	2.0%	1.1%	0.8%
Score 2 – CrT 4-5	51.4%	22.3%	11.6%	6.7%
Score 3 – CrT 6-7	38.7%	58.3%	46.1%	30.4%
Score 4 – CrT 8-9	2.0%	15.7%	32.8%	38.7%
Score 5 – CrT 10	0.0%	1.4%	7.4%	18.9%
Score 6 – CrT 11	0.0%	0.1%	0.8%	4.1%

Table F.2: Text Structure

Criterion/Score	Percentage sample achieved			
	Year 3	Year 5	Year 3	Year 9
Score 0 – CrT 1-2	4.7%	1.9%	1.5%	1.3%
Score 1 – CrT 2-3	41.1%	16.8%	9.4%	6.1%
Score 2 – CrT 4-6	49.0%	56.7%	43.8%	29.7%
Score 3 – CrT 7 - 9	5.1%	23.8%	40.5%	48.1%
Score 4 – CrT 10-11	0.0%	0.9%	4.9%	14.7%

Table F.3: Ideas

Criterion/Score	Percentage sample achieved			
	Year 3	Year 5	Year 7	Year 9
Score 0 – CrT 1-2	1.3%	0.5%	0.4%	0.5%
Score 1 – CrT 2-3	8.9%	2.9%	1.7%	1.3%
Score 2 – CrT 4-5	54.7%	26.5%	14.4%	8.4%
Score 3 – CrT 6-7	34.7%	64.6%	64.1%	50.5%
Score 4 – CrT 8-9	0.4%	5.4%	18.3%	33.7%
Score 5 – CrT 10-11	0.0%	0.1%	1.2%	5.6%

Table F.4: Persuasive Devices

Criterion/Score	Percentage sample achieved			
	Year 3	Year 5	Year 7	Year 9
Score 0 – CrT 1-3	5.1%	2.0%	1.6%	1.4%
Score 1 – CrT 3-4	41.7%	17.5%	9.6%	6.2%
Score 2 – CrT 5-6	48.8%	58.2%	46.2%	32.3%
Score 3 – CrT 7-8	4.3%	21.3%	37.7%	46.1%
Score 4 – CrT 9-11	0.0%	1.0%	5.0%	14.1%

Table F.5: Vocabulary

Criterion/Score	Percentage sample achieved			
	Year 3	Year 5	Year 7	Year 9
Score 0 – CrT 1-2	1.0%	0.4%	0.3%	0.4%
Score 1 – CrT 2-3	5.0%	1.4%	0.8%	0.6%
Score 2 – CrT 4-5	84.9%	62.6%	38.3%	21.8%
Score 3 – CrT 6-7	8.8%	32.0%	45.7%	43.3%
Score 4 – CrT 8-9	0.2%	3.5%	13.8%	28.3%
Score 5 – CrT 10-11	0.0%	0.1%	1.1%	5.6%

Table F.6: Cohesion

Criterion/Score	Percentage sample achieved			
	Year 3	Year 5	Year 7	Year 9
Score 0 – CrT 1-2	1.2%	0.4%	0.3%	0.5%
Score 1 – CrT 3-4	16.5%	5.5%	2.8%	1.9%
Score 2 – CrT 5-6	78.5%	75.1%	58.5%	41.3%
Score 3 – CrT 7-8	3.7%	18.6%	35.8%	47.7%
Score 4 – CrT 9-11	0.0%	0.4%	2.5%	8.7%

Table F.7: Paragraphing

Criterion/Score	Percentage sample achieved			
	Year 3	Year 5	Year 7	Year 9
Score 0 – CrT 1-2	33.2%	10.8%	6.3%	5.0%
Score 1 – CrT 2-5	52.9%	47.4%	34.3%	23.6%
Score 2 – CrT 6-9	13.5%	39.1%	50.7%	52.4%
Score 3 – CrT 10-11	0.3%	2.8%	8.6%	19.0%

Table F.8: Sentence Structure

Criterion/Score	Percentage sample achieved			
	Year 3	Year 5	Year 7	Year 9
Score 0 CrT 1-3 GrA 1	1.5%	0.5%	0.4%	0.5%
Score 1 CrT 4-5 GrA 2	10.3%	3.4%	1.9%	1.3%
Score 2 CrT 5-6 GrA 3	55.9%	32.9%	19.1%	11.7%
Score 3 CrT 7-8 GrA 4-5	29.9%	48.4%	45.4%	34.8%
Score 4 CrT 7-8 GrA 5	2.4%	13.7%	28.0%	37.0%
Score 5 CrT 9-10 GrA 6	0.0%	1.0%	5.0%	13.0%
Score 6 CrT 11 GrA 7	0.0%	0.0%	0.3%	1.6%

Table F.9: Punctuation

Criterion/Score	Percentage sample achieved			
	Year 3	Year 5	Year 7	Year 9
Score 0	2.1%	0.7%	0.5%	0.6%
Score 1 – PuN 1	18.0%	6.7%	4.1%	2.7%
Score 2 – PuN 2	53.2%	41.6%	30.8%	22.1%
Score 3 – PuN 3	25.0%	43.8%	49.7%	48.9%
Score 4 – PuN 4-6	1.7%	6.8%	13.7%	22.3%
Score 5 – PuN 5-7	0.1%	0.4%	1.2%	3.4%

Table F.10: Spelling

Criterion/Score	Percentage sample achieved			
	Year 3	Year 5	Year 7	Year 9
Score 0 – SpG 1-2	1.0%	0.4%	0.3%	0.4%
Score 1 – SpG 3-4	5.9%	1.4%	0.6%	0.5%
Score 2 – SpG 5-6	37.3%	12.4%	4.8%	2.4%
Score 3 – SpG 7-8	44.2%	45.8%	29.6%	16.6%
Score 4 – SpG 9-10	11.2%	34.8%	45.3%	39.9%
Score 5 – SpG11-12	0.3%	5.0%	17.7%	34.6%
Score 6 – SpG 13-14	0.0%	0.3%	1.7%	5.7%

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