‘Dumbed down’ or ‘gentrified’?

Tertiary education of journalists and the readability of Australian newspapers.

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November 2003

5210 words
About the researchers ...

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Grant Dobinson, formerly an associate lecturer in journalism, completed his Bachelor of Arts at the University of Queensland and is now a freelance print/web designer and editorial consultant. His interests include style development, print design and web usability. He has taught desktop publishing, photojournalism and multimedia design.

This paper was written when both researchers were working for the University of Queensland.
Abstract

As standards of education have risen inside and outside Australian newsrooms, has there been an impact on the language of news? Two University of Queensland academics have been comparing today’s news-writing styles with those of 15 and 30 years ago. Their research uncovered how the language of “hard news” and that of “editorials” have fared by examining a national, a State-based and a regional newspaper over three one-week periods across the three decades. Their findings – that the average complexity of language evident in all three newspapers has been consistently above the ideal, sometimes by several years of schooling – deserve the attention of newsrooms, academia and other training bodies.
Introduction

Over the past 30 years there has been a transition in Australian newspaper recruitment. Journalists with university level education have moved from being an oddity in most newsrooms to being the norm. Hudson (1963) found only 5 per cent of metropolitan daily journalists who were members of the journalists union (the then Australian Journalists Association) had university degrees and that number rose, at least in Brisbane, to 9 per cent over the next few years according to Hart (1970). A decade later Black (1982) and Masterton (1983) found a third of journalists working in Australian newsrooms either had a degree upon entering the profession or had undertaken a degree since becoming a journalist. Henningham (1993) surveyed more than 1000 journalists from Australian newsrooms in 1992 and found 60 per cent of those working in metropolitan newspapers had begun or completed tertiary study, with almost 40 per cent of these having already attained undergraduate and/or postgraduate qualifications. Shelley (2003) confirmed 70 per cent of staff working for the country’s largest newspaper group, News Limited, had degrees.

Indeed, the educational profile of the wider Australian community improved concurrently, with far more people completing high school and obtaining post-school qualifications today than in the 1970s. Recent OECD data confirms the trend for an increasing number of Australians aged 25 to 34 years to continue with their education, rising from 23 per cent completing tertiary education in 1991 to 34 per cent in 2001. A “snapshot” extracted from a 2001 OECD comparative table not only highlights educational attainment of Australians aged 25 to 64 years but also that Australians are under international means in the three youngest of five age bands for tertiary qualifications:
In 1996, the Australian Bureau of Statistics (ABS) also mapped the literacy capacity of Australians aged 15 to 74 years. This research found nearly half the population had significant to major difficulties using printed materials encountered in daily life.

Key:

- **Level 1** – people at this level have very poor skills, and could be expected to experience considerable difficulties in using many of the printed materials that may be encountered in daily life ...
- **Level 2** – People at this level could be expected to experience some difficulties in using many of the printed materials encountered in daily life ...
- **Level 3** – This level represents the ability to cope with a varied range of material found in daily life and work ...
- **Level 4** – People at this level have good literacy skills ...
- **Level 5** – People at this level have very good literacy skills ...


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Nevertheless, while the range of comprehension in this mostly adult population in Australia varies from lower primary to post-doctoral levels, it is possible to pinpoint from recent OECD figures illustrated in Chart 3 that the average level of educational attainment for Australians (expressed as years of schooling) is still only 11.8 years.7

![Chart 3: Educational attainment of Australia's population (1999)](image)

Source: OECD’s Directorate for Education, Employment, Labour and Social Affairs.
Data presented here elicited from Table A2.1a Educational attainment of the population (1999)
Therefore, the average educational level attained = 11.7586 years

Certainly the OECD figures suggest just over 73 per cent of Australians have only a high school education at best. More recent ABS data from 2001 shows that the 25-44 age bracket has the greatest number of people attaining all year levels except Year 10 or below and Certificate 1/11 (equivalent to 12 years of schooling), where the less well educated 45-64 age bracket predominates.8 In 1997, the ABS found that 40 per cent of 15–64-year-olds indicated they had a post-school qualification, however: “Almost 44% of 15–64 year olds in 1996 had poor or very poor prose literacy skills (in English) and could be expected to experience some or considerable difficulties in using many of the printed materials encountered in daily life.”9

Of potential concern to Australian newsrooms then should be the ability of audiences to comprehend the news being communicated – that is, the language used in news publications – and one way of quantifying this is to apply one or more readability measures to published news items. At the same time, while education and literacy levels are slowly improving inside and outside Australian newsrooms – perhaps a gradual “gentrification” of the nation – in certain quarters critics accuse the news media of “dumbing down” public debate.10 Which is true? And can analysis of the language used in our print media help answer that question?

**Literature review**
The complexity of written language, or *readability*, has been measured periodically in newspapers around the world since the 1940s using a variety of formulae – or indices – the results of which tend to be expressed as numbers of years of formal schooling required to comprehend a particular piece of written material. Three of the most commonly used readability measures applied to newspaper stories by researchers have been Gunning’s FOG Index, the Flesch-Kincaid (Grade Level) Formula and the Flesch Reading Ease Formula. The first two provide an estimate of the reading level, by grade level, calculated from elements including the number of words, syllables for each word, average sentence length, and number of sentences. The third, also known as the Flesch RE score, indicates the percentage of average readers likely to be able to comprehend the material (i.e., a high value indicates the material would be readily understood; a low value would indicate fewer people would comprehend it). All three give an understanding of the relative difficulty of written material, although resulting grade levels from the Flesch and Gunning indexes often differ by several grades (and not necessarily uniformly from sample to sample).

Other readability measures include the Dale-Chall Readability Formula, the Cloze Procedure, the SMOG Readability Formula (whose abbreviation stands for “Simple Measure Of Gobbledegook”), the Powers-Sumner-Kearl Formula, the FORCAST Formula as well as the lesser-known Fry Graph and Spache Formula.

The Dale-Chall Readability Formula uses a list of 3,000 words commonly known by fourth grade children and average sentence length to determine how readily understandable a text is. The Cloze Procedure is another readability formula in which every fifth word is deleted and the reader’s ability to fill in the blanks becomes the measure of the text’s readability.¹¹

The Dale-Chall formula – “designed for use in assessing upper elementary and secondary level materials”¹² – is based on fourth-grade US education standards that might not equate to Australian education standards. For these reasons, this formula was not used in this study. Similarly, the Cloze Procedure was set aside as a tool best applied in an ethnographic research setting. Other formulae considered and set aside included:
The SMOG Formula, because it is known to rely “solely on the number of words containing three or more syllables” and can deliver grade levels higher than the most commonly used measures;

- the Powers-Sumner-Kearl Formula which is used to assess primary school-level materials and does not score materials above Year 7;
- the FORCAST Formula which simply focuses on young adult functional literacy;
- the Fry Graph, primarily because it is a visual tool; and
- the Spache Formula, because – like Dale-Chall – it has a prescribed word list and is designed for lower primary school grade levels.\textsuperscript{13}

A number of researchers have used the Gunning and Flesch formulae to calculate readability measures for news materials over the past six decades. Fusaro and Conover’s 1983 comparison of readability between and within two tabloids (\textit{New York Daily News} and \textit{New York Post}) with two broadsheets (\textit{New York Times} and \textit{Wall Street Journal}) not only looked at raw readability results, but also compared the levels of news stories to editorials, as earlier studies by Stempel (1981), Curtis and Shaver (1979), and Moznette and Rarick (1968) had done.\textsuperscript{14} All three studies found:

- the readability level of the broadsheets was higher (average college freshman or 13 years of formal education) than the readability level of the tabloids (typical high school sophomore or nine years of schooling); and
- that lead news stories scored higher than lead editorials and that readability differences were minimal within the tabloid and the broadsheet categories themselves. Interestingly, the editorials from all four papers were written at about the same level of difficulty. Further, they recommended the high readability levels of the two broadsheets would seem to suggest they were not suitable for use in the classroom, whereas the tabloids would.\textsuperscript{15}

Analysis of editorials (or “leaders” as they are sometimes referred to within Australian newsrooms) may produce different results in this country because not only do they tend to be written by more senior, experienced writers, they also appear – at least on the surface – to be squarely aimed at business, community and opinion leaders.

In the mid-1960s, the University of Queensland Department of Education’s J. Anderson measured readability scores using Flesch’s readability formula on nine daily and five Sunday newspapers from across Australia and found “a wide range of reading difficulty between and within papers – a range of difficulty from “7\textsuperscript{th} or 8\textsuperscript{th} grade” to “high school and some college”.\textsuperscript{16}

Anderson used Flesch’s (1948) Reading Ease Formula which, he noted, “… is based on word length and average sentence length”.\textsuperscript{17} In his 1966 study, Anderson found that “Australian newspapers are not equally difficult reading material. Reading difficulty ranges from typical digest material to the difficulty to be found in an academic journal.” He also found morning newspapers were more difficult reading than evening papers and that certain categories of news
were more difficult than others: “It is interesting perhaps that vocabulary is somewhat more simplified and sentence length shorter for women’s pages than it is for men’s pages – sport.” He concluded from his study “the reading of most Australian newspapers requires some high school and even some University education”.\(^\text{18}\)

Stapler (1985) found the one-sentence lead writing habit was to blame “for reducing readability”.\(^\text{19}\) In recapping the history of readability studies to the mid-1980s, Stapler noted that 1980s’ studies showed earlier attention paid to readability levels had lapsed.\(^\text{20}\) He also cited Westley’s observation that “1940s research indicated that writing in which simple sentences predominate is more readable than writing which includes a high proportion of compound, complex and compound/complex sentences”.\(^\text{21}\)

Citing Gunning, Stapler noted: “Longer sentences have more words. More words mean more relationships. More relationships require the reader to expand more mental energy.” Sentence length is a factor in most readability formulas and Stapler restated Gunning’s point that “average sentence length is the key, not maximum sentence length”.

Stapler noted that US newswire service Associated Press (AP) had hired Flesch to analyse its performance in terms of readability while its competitor UP had hired Gunning. As a result AP ended up cutting the average length of its sentences from 27 words to 23, and UP simplified its style to be suitable for readers with 11.7 years of education where previously it had been 16.7 years. Stapler noted Gunning “urged writers to keep their average sentence length under 20 words” while Flesch “suggested an average of not more than 19 words a sentence”.

Both Gunning and Flesch related the number of words in the sentence with the number of years of the reader’s education: those with more education could read longer sentences. Gunning figured that reading difficulty increased by one grade level each time two words were added to sentence length. Flesch figured that was true in grades 5-8. But he specified that reading difficulty went up with each three-word increase in grades 5-8, and one word in grade 13 and above.\(^\text{22}\)

After Gunning’s consultancy, Stapler noted that UP issued the following “easy guide” for its writers in bureaux around the world\(^\text{23}\):

<table>
<thead>
<tr>
<th>Average sentence length</th>
<th>Readability</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 words or less</td>
<td>Very easy to read</td>
</tr>
<tr>
<td>11 words</td>
<td>Easy to read</td>
</tr>
<tr>
<td>14 words</td>
<td>Fairly easy to read</td>
</tr>
</tbody>
</table>

\(\text{McLellan, T. \\ & Dobinson, G., (2003)}\)
Another writer, Quesinberry (online, 2002), notes the significant (colloquial) points on the Gunning FOG index are:

- 18+ Reading level of a PhD. (federal tax returns, insurance policies, legal documents)
- 16 Bachelor’s Degree (technical writing for industry, military or research)
- 13+ First year of college (usually ignored and / or misunderstood by most adults)
- 12 High School graduates (Harper’s Magazine, The Atlantic Monthly)

A 1981 study by Judee Burgoon, Michael Burgoon and Miriam Wilkinson, reported in Stapler, “concluded, in part, that a positive relationship existed between the ease of reading and the image of the newspaper as competent and trustworthy”.²⁵ Stapler’s own research found:

1. the mean length of sentences in the lead paragraph was 26.1 words and the median 28.1. Both figures are in Flesch and Gunning’s “difficult to read” range.
2. the mean and median lengths of sentences in paragraphs 2 through 4 were about two grade levels easier to understand, based on Flesch and Gunning’s research, than those in lead paragraphs. The mean length was 21.7 words; the median length 23.1. These figures are only a little above figures Flesch and Gunning recommended for readable newspaper copy.
3. in lead paragraphs, writers are almost twice as likely to use only one sentence as they are in the next three paragraphs. This habit creates hard-to-read leads and in some cases may discourage further reading.²⁶

Porter and Stephens (1989) noted that “Journalists and researchers seem to have paid little attention to readability in recent years.”²⁷ They tested “how accurately newspaper editors could estimate readability” and found “managing editors from five of Utah’s six dailies rated the stories 4.2 grade levels easier than the measured Flesch readability scores”, raising “questions about editors’ understanding of how audiences perceive content”.

In every instance, Porter and Stephens reported, newspaper editors “estimated that the news stories were easier to read than their Flesch scores indicate they are. Their best estimate was 1.3 grade levels low. The worst estimates were 7.3 grade levels low.”²⁸

Since the most common measure of newspaper readability seems to be the editors’ intuitive estimates, this study was conducted to measure how accurate editors’ readability estimates may be. The common claim that reporters write front-page stories at an eighth-grade level is a myth. Sports writing and soft news may score close to an eighth-grade level, but not hard news.²⁹

According to Porter and Stephens, the tendency for journalists to write above their audiences was documented in 1973 by Hoskins who measured the readability of one day’s output of AP and UPI wire copy.³⁰
He found that the largest group of stories (44 percent of AP and 50 percent of UPI) were written at the 13th to 16th grade level. Sixteen percent of the AP stories and 5 percent of the UPI stories were at the eighth and ninth grade levels. Thirty-three percent of the AP copy was at the 10th and 11th grade levels compared to 11 percent of the UPI samples.31

Porter and Stephens also quote a 1984 comparison of readability formulas by Smith and Smith – Flesch, SMOG, Dale-Chall and Gunning’s FOG index – which found “readability estimates differed by as much as five grade levels. The Flesch formula produced the highest reading-difficulty estimates and the SMOG formula the lowest.”32

The publishers of the Readability Calculations software say of the FOG index: “Most experts feel when using FOG, no technical publication should score higher than 14, no general business publication higher than 12, and no clerical publication higher than 8.”

Finally, the tendency for journalists to write for themselves more than for readers was highlighted in 1990 by readability researcher Catalano after he reviewed the output of six large US news wire services.33 With today’s Australian newsrooms filled with journalists who have completed at least 15 years of formal education – just over three years more than today’s average Australian and juxtaposed to an estimated average 10-12 years of schooling in newsrooms of the early 1970s – any tendency to “write for themselves” could be a significant factor in dwindling readerships.
Research questions

With education standards rising inside and outside newsrooms in this country, do newspaper readability scores indicate Australian journalists are meeting the comprehension abilities of their readers? Indeed, as educational attainment levels have risen in the newsroom over the past three decades, have readability scores risen as well? Are Australia’s editorials easier or harder to comprehend than hard news stories that run elsewhere in newspapers? And, finally, who has been writing this news?

The researchers approached this study with two hypotheses:

- that readability results of Australian newspapers will be influenced by higher levels of education among journalists; and
- because the most experienced and qualified journalists write the editorials published by Australian newspapers, comprehension levels will be especially affected by education levels.

Methodology

As the reviewed literature attests, evaluating the difficulty or otherwise of news stories is best done by applying standard readability and basic language measures to a robust cross-section of news output (published news stories).

Sample selection

Such a cross-section of material spanning a 30-year period was put together for this study. The page lead news story – from each of the first five news pages – was taken from the main edition of three different morning daily newspapers (the national broadsheet newspaper, The Australian; the state broadsheet newspaper, The Courier-Mail; and the regional tabloid daily, Queensland Times) for five consecutive days in the same time period, three times across three decades (the third week of October in 1972, 1987 and 2002). Editorials from each of these newspapers were also analysed for each of the dates. Together these hard news stories and editorials provided 270 items as the basis of this study. This particular survey week was chosen because there were no obvious “major” events, such as imminent elections, dominating news pages in any of these years that were likely to complicate a readability analysis of the news writing under review. Where there were full-page advertisements in these early general news (EGN) pages, later EGN pages were included. Further readability research on the nature of “softer” news areas of Australian newspapers and whether these areas have experienced change over time may be a worthwhile endeavour.
However, in selecting the page lead story from EGN pages the authors of this study have deliberately chosen to concentrate on the analysis of “hard” news.

Data collection

Both researchers participated in the collection, checking and analysis of data for this research and have created a substantial bank of longitudinal data that may be useful to other researchers. Each story in this sample was located, copied and then digitised as a .txt file by (a) optical character recognition scanning; (b) dictation with voice-recognition software (Dragon Naturally Speaking V5); or (c) manual input. Care was taken to ensure spelling, grammar, typographic errors and style elements were replicated as they appeared because these factors could impact on readability. Where stories “spilled” onto subsequent pages, the entire story was collected. Accompanying “sidebar” stories, however, were not included.

While headline, sub-head and byline information was collected (for further research) it was not included in this study. Extensive quality checks were made to eliminate errors in optical scanning and voice-recognition systems, as both could produce unforeseen – and sometimes amusing variations (e.g., producing “Maltese killing” for “multi-skilling”).

Each file was manually proofed and opened in Microsoft Word to double-check for residual grammar/spelling errors that were a mismatch with the original versions. Once inputs were checked, Micro Power & Light’s Readability Calculations software was used to analyse each story. The researchers found that while this software “ignores” most punctuation, it does take into account all full stops other than those in figures (whether they were used as periods or as ellipses) which, in turn, affects sentence length and complexity results. A heavy use of full stops within sentences (abbreviations and names with initials) in 1972 stories had skewed that portion of the sample’s results initially and required manual stripping and recalculation.
A typical data set produced using these methods then looked like this:

```
Date: 11-06-2003
Time: 10:50:07
SampleBegins: AS nearly 100 firefighters
SampleEnds: dead and destroyed 13 homes.
```

Words: 422
Syllables: 625
Monosyllabic Words: 288
Words of 3-or-More Syllables: 53
Difficult Words (FOG): 50
Difficult Words (Dale-Chall): 88
Sentences: 21

Syllables / Word: 1.49
Syl's / 100 Words: 148.11
Monosyllabic Words / 100 Words: 68.25
Polysyllabic Words / 100 Words: 12.56
Sentences / 100 Words: 4.98

Words / Sentence: 20.10
% of Words Not on the Dale-Chall List: 20.86
Dale-Chall Grade Level: 7.9
Flesch Reading Ease: 61.15
Flesch Grade Level: 9.7
FOG Grade Level: 12.8
Powers* Grade Level: 6.1
SMOG Grade Level: 11.7
FORCAST Grade Level: 9.8

Of this range of empirical results, this study specifically chose to measure each story in terms of its:

- Flesch Grade Level readability score;
- Gunning FOG index;
- total number of words;
- syllables per word;
- average words per sentence; and
- number of paragraphs.

Other information collected from each story in this sample included its Flesch Reading Ease Score (where the percentage result reflects number of population likely to understand the piece of writing), the gender (where it was obvious from any byline) of its author/s and its headline.

Each story was also coded by its news category – in order to give context to the news stories analysed – and this data is presented in Table 2. There were slight variations in categories of news stories found over the three time periods but not so great as to render comparisons invalid.
Only two news categories – politics/government (which produced the most stories in the time period on four separate occasions) and business/finance – appeared in all publications in all sample weeks. These “staples” of the news mix were surrounded by the less consistent, but sometimes dominant categories of crime, disaster/accident, industrial relations and terrorism.

Results were tabulated in Microsoft Excel spreadsheets before being statistically analysed. These analyses included:

- surveying the descriptive statistics for each newspaper across each time period – principally examining the mean, median, range, minimum value and maximum value; and
- applying a single-factor analysis of variance to determine averages and variances within and between publications and time periods.

<table>
<thead>
<tr>
<th>Type of story</th>
<th>Number of each reported across sample week, by year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The Australian</td>
</tr>
<tr>
<td></td>
<td>'72</td>
</tr>
<tr>
<td>business/finance</td>
<td>4</td>
</tr>
<tr>
<td>community/social</td>
<td>1</td>
</tr>
<tr>
<td>crime</td>
<td>-</td>
</tr>
<tr>
<td>disaster/accident</td>
<td>-</td>
</tr>
<tr>
<td>education</td>
<td>-</td>
</tr>
<tr>
<td>entertainment/television</td>
<td>1</td>
</tr>
<tr>
<td>foreign affairs/trade</td>
<td>5</td>
</tr>
<tr>
<td>health/environment</td>
<td>4</td>
</tr>
<tr>
<td>history/archives</td>
<td>-</td>
</tr>
<tr>
<td>indigenous affairs</td>
<td>1</td>
</tr>
<tr>
<td>industrial relations</td>
<td>3</td>
</tr>
<tr>
<td>military</td>
<td>-</td>
</tr>
<tr>
<td>politics/government</td>
<td>5</td>
</tr>
<tr>
<td>sport</td>
<td>-</td>
</tr>
<tr>
<td>terrorism</td>
<td>-</td>
</tr>
<tr>
<td>weather</td>
<td>1</td>
</tr>
<tr>
<td>editorials</td>
<td>5</td>
</tr>
</tbody>
</table>
Limitations

The University of Minnesota Library, cautions those who use readability formulae that they “do not account for all possible variables” and cite Giles (1990) who noted that such formulae are limited because:

- They measure only prose. They do not account for charts or graphs and their relation to the text.
- Readability formulas do not account for grammar or other mechanical errors that might interfere with readability.
- Formulas that measure readability by sentence length can mislead writers into deleting words that are needed for clarity and connecting ideas to one another.
- Readability formulas can’t account for organizational problems.
- Readability formulas don’t measure the effects of layout or other design elements.

34 Kearl (1949) also noted that, because such formulae deal primarily with writing style they omit potential impacts of such elements as “content, format and organization, each of which is important to readability”.35 He cautioned: “Certain mechanical characteristics of the formulas – the advantage they give to conversational type material, their inflexible allowance for changes in style – demand that they be used with discretion.”

None of these is a reason for discarding the formulas. They have an important place to fill. They are steadily being improved by new research in style. They do no violence to the old journalistic traditions of brevity, simplicity, and consideration for the reader; and they give us a hint of how badly those traditions are sometimes observed … Bad readability scores can give a reasonably accurate warning of reading difficulty. But good scores are not a guarantee of good writing.

36 This study was limited in scope to the scientific evaluation of observable readability data for a reasonably narrow sample of static news stories and editorials. It did not take into account important design and layout considerations that undoubtedly impact on the overall readability of individual stories/editorials. Nor was it possible to measure reader interest in topics presented, also a factor which would influence readers’ overall motivation to read – or read all of – individual stories. That is, longer stories usually see readers progressively drop off after the first few paragraphs, however certain stories – because of their important content – are not as prone to this outcome. Nor did it seek to compare the readability outcomes of “replated” (later-edition) versions of individual stories, where breaking news could have resulted in considerable re-crafting or refinement of copy.
Analysis

Basic language measures

Gunning and Flesch recommend sentences should average 19 or 20 words. Both agree reading difficulty rises as words are added to a sentence’s length but they differ slightly on the rate of increment – Gunning worked out that “reading difficulty increased by one grade level each time two words were added to sentence length” while Flesch said that was “true in grades 5-8” but he “specified that reading difficulty went up with each three-word increase in grades 5-8, and one word in grade 13 and above”.38

For the purposes of this study, the researchers used a benchmark of 20 words per sentence and followed Gunning’s simpler notion of a grade increment for each two extra words. An analysis of sentence length in this study showed that all three Australian newspapers should be concerned with the complexity of news language, but especially in their editorials.

![Chart 4: Comparison of sentence lengths](chart.png)
Table 3a: Complexity of news writing (basic language measures) by newspaper

<table>
<thead>
<tr>
<th></th>
<th>The Australian</th>
<th>The Courier-Mail</th>
<th>Queensland Times</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>'72</td>
<td>'87</td>
<td>'02</td>
</tr>
<tr>
<td><strong>Editorials</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shortest editorial/s</td>
<td>805</td>
<td>937</td>
<td>1041</td>
</tr>
<tr>
<td>Longest editorial/s</td>
<td>865</td>
<td>1018</td>
<td>1164</td>
</tr>
<tr>
<td><strong>Average length of editorials</strong></td>
<td>838</td>
<td>991</td>
<td>1116</td>
</tr>
<tr>
<td>Least no. of paragraphs</td>
<td>16</td>
<td>19</td>
<td>14</td>
</tr>
<tr>
<td>Most no. of paragraphs</td>
<td>21</td>
<td>25</td>
<td>17</td>
</tr>
<tr>
<td><strong>Average No. of paragraphs</strong></td>
<td>18</td>
<td>23</td>
<td>15</td>
</tr>
<tr>
<td>Shortest sentences (Av.)</td>
<td>23.42</td>
<td>22.14</td>
<td>16.74</td>
</tr>
<tr>
<td>Longest sentences (Av.)</td>
<td>28.56</td>
<td>28.23</td>
<td>22.44</td>
</tr>
<tr>
<td><strong>Average sentence length</strong></td>
<td>26.67</td>
<td>24.71</td>
<td>19.89</td>
</tr>
<tr>
<td>Least syllables/word</td>
<td>1.56</td>
<td>1.57</td>
<td>1.61</td>
</tr>
<tr>
<td>Most syllables/word</td>
<td>1.76</td>
<td>1.75</td>
<td>1.76</td>
</tr>
<tr>
<td><strong>Average syllables/word</strong></td>
<td>1.67</td>
<td>1.67</td>
<td>1.68</td>
</tr>
<tr>
<td><strong>News</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shortest news story</td>
<td>242</td>
<td>311</td>
<td>337</td>
</tr>
<tr>
<td>Longest news story</td>
<td>1300</td>
<td>1374</td>
<td>800</td>
</tr>
<tr>
<td><strong>Average length of stories</strong></td>
<td>515</td>
<td>593</td>
<td>479</td>
</tr>
<tr>
<td>Least no. of paragraphs</td>
<td>8</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Most no. of paragraphs</td>
<td>41</td>
<td>48</td>
<td>22</td>
</tr>
<tr>
<td><strong>Average No. of paragraphs</strong></td>
<td>20</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Shortest sentences (Av.)</td>
<td>15.71</td>
<td>16.37</td>
<td>16.13</td>
</tr>
<tr>
<td>Longest sentences (Av.)</td>
<td>30.36</td>
<td>32.32</td>
<td>33.41</td>
</tr>
<tr>
<td><strong>Average sentence length</strong></td>
<td>21.24</td>
<td>24.76</td>
<td>23.82</td>
</tr>
<tr>
<td>Least syllables/word</td>
<td>1.49</td>
<td>1.49</td>
<td>1.47</td>
</tr>
<tr>
<td>Most syllables/word</td>
<td>1.93</td>
<td>1.85</td>
<td>1.66</td>
</tr>
<tr>
<td><strong>Average syllables/word</strong></td>
<td>1.68</td>
<td>1.64</td>
<td>1.63</td>
</tr>
</tbody>
</table>

* Sample size per newspaper per time period = 5
** Sample size per newspaper per time period = 25
^ In 1987, The Courier-Mail's editorials contained multiple-sentence paragraphs
Tables 3a and 3b are two different presentations of the same data, with Table 3a examining basic language measures by newspaper and Table 3b the same data by year.

Readability scores – Gunning & Flesch
Just as Anderson (1966) found that Australian newspaper stories were “not equally difficult reading material”, this study found substantial variations in the grade levels needed to comprehend stories in all three time-periods. However, when the three top- and bottom-scoring stories (in terms of FOG indices) were identified from each newspaper for each time period, the following results became evident:

<table>
<thead>
<tr>
<th>Category</th>
<th>No. of times category appears in top three FOG scores*</th>
<th>No. of times category appears in bottom three FOG scores**</th>
</tr>
</thead>
<tbody>
<tr>
<td>politics/government</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>foreign affairs/trade</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>business/finance</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>health/environment</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>community/social</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>indigenous affairs</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>terrorism</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>industrial relations</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>education</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>disaster/accident</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>weather</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>history/archives</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>crime</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

* The “top three” FOG scores across all newspapers in all time periods varied from 15.6 years of schooling to 23.3 years of schooling.

** The “bottom three” FOG scores across all newspapers in all time periods varied from 8.1 years of schooling to 13.4 years of schooling.

The fact seven out of 13 categories appear at both extremes may dilute Anderson’s earlier finding that certain categories of news were more difficult than others, however the size of the sample may be a factor and further research is needed to provide a more reliable analysis.

This measure shows newspapers in all time periods published editorials or news stories that were, on average, above the ideal FOG index for the Australian population (11.8 years of schooling). Only in one time period did editorials in the sample actually better this ideal (with The Courier-Mail and the Queensland Times scoring 11.0 years in 1972). Ironically, the toughest editorials to comprehend belonged to the Queensland Times in the same year (22.4 years, 10.6 years of schooling beyond the ideal). In all time periods the lowest-ranked readability of news stories in the sample bettered the ideal (The Australian in 1972 with 11.5; The Courier-Mail in 1972, 1982 and 2002 with 10.2, 8.2 and 10.2); and the Queensland Times in 1972 and 2002 with 10.7 and 8.1).

With editorials, the maximum by which the ideal FOG index was exceeded, on average, was 5.8 years of schooling (the Australian in 1972). The lowest average premium was 2.0 years (The Courier-Mail, 1972). The greatest range between lowest and highest years of schooling for editorials (the variability or range) was 11.4 years at the one newspaper (the Queensland Times in 1972). The outcomes were better with news stories. All papers in all time periods had minimum scores that bettered the ideal 11.8 years. The toughest news stories belonged to The Australian in 1987 (23.3 years, 11.5 years of schooling above the mark).

With news stories, the highest average was 4.6 years above the ideal, while the lowest average premium was 0.6 years. Variability of years of schooling required to comprehend news stories was greatest at The Australian in 1987 (where the range was 11.8 years between upper and lower scores).

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**Table 5: Gunning’s FOG index statistics**

(Measures years of formal education to comprehend stories; compare results to Australian average level of educational attainment of 11.8 years)

<table>
<thead>
<tr>
<th>Section</th>
<th>Results reported</th>
<th>1972</th>
<th>1987</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
<td>Aust</td>
<td>CM</td>
<td>QT</td>
</tr>
<tr>
<td>Editorials*</td>
<td></td>
<td>15.2</td>
<td>11.0</td>
<td>11.0</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>18.6</td>
<td>15.6</td>
<td>22.4</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>3.4</td>
<td>4.6</td>
<td>11.4</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>17.6</td>
<td>13.8</td>
<td>17.2</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>17.9</td>
<td>14.4</td>
<td>16.5</td>
</tr>
<tr>
<td>News**</td>
<td>Minimum</td>
<td>11.5</td>
<td>10.2</td>
<td>10.7</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>21.9</td>
<td>21.1</td>
<td>21.2</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>10.4</td>
<td>10.9</td>
<td>10.5</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>15.6</td>
<td>14.8</td>
<td>15.4</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>15.7</td>
<td>14.7</td>
<td>15.3</td>
</tr>
</tbody>
</table>

*Expressed in number of years of schooling difference
**Sample size per newspaper per time period = 5

Sample size per newspaper per time period = 25
These results indicate that Australian newspapers are consistently writing above the comprehension levels of the audiences they serve, especially in editorials, and sometimes alarmingly so. A person with a PhD might well struggle with a piece of writing that required 23.3 years of schooling to comprehend. The newspapers with the most easily comprehended editorials, on average, were The Courier-Mail (1972 and 1987) and The Australian (2002). The newspaper shooting closest to the mark, on average, for news stories in 1972 and in 1987 was the State-based daily The Courier-Mail and in 2002 it was the regional daily the Queensland Times.

Noticeably, the variability of scores was greater for news than for editorials, although variation between high and low FOG indices for the Queensland Times in 1972 was worthy of remark.
A similar picture is painted if the Flesch-Kincaid Grade Level tool is applied to the same sample, although variations occur in results because the two formulae work slightly differently. Using this readability tool, The Courier-Mail (in 1972 and 1987) managed to average scores for its editorials and news stories that were below the ideal Flesch-Kincaid Grade Level for the Australian population (11.8 years of schooling), while news stories in the Queensland Times in 1987 and 2002 did likewise. The easiest editorials, on average, to comprehend using this measure belonged to the Queensland Times in 1972 while the toughest selection belonged to The Australian (1972).

When it came to average editorials, the maximum by which the ideal Flesch-Kincaid Grade Level was exceeded was 2.6 grade levels (The Australian, 1972) and the two earlier average editorials for The Courier-Mail in 1972 and 1987 respectively were 1.0 and 0.7 years below the ideal grade level. The greatest range between lowest and highest grade levels required to comprehend editorials (the range or variability) using this measure was 9.8 grade levels at the Queensland Times in 1987.

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**Table 6: Flesch-Kincaid Grade Level statistics**

(Measures years of formal education to comprehend stories; compare results to Australian average level of educational attainment of 11.8 years)

<table>
<thead>
<tr>
<th>Section</th>
<th>Results reported</th>
<th>1972</th>
<th>1987</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Aust</td>
<td>CM</td>
<td>QT</td>
</tr>
<tr>
<td>Editorials*</td>
<td>Minimum</td>
<td>11.9</td>
<td>8.5</td>
<td>8.2</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>15.9</td>
<td>12.7</td>
<td>18.0</td>
</tr>
<tr>
<td></td>
<td>Range#</td>
<td>4.0</td>
<td>4.2</td>
<td>9.8</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>14.4</td>
<td>10.8</td>
<td>13.9</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>14.7</td>
<td>11.0</td>
<td>13.7</td>
</tr>
<tr>
<td>News**</td>
<td>Minimum</td>
<td>8.3</td>
<td>7.3</td>
<td>7.8</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>16.7</td>
<td>17.3</td>
<td>16.6</td>
</tr>
<tr>
<td></td>
<td>Range#</td>
<td>8.4</td>
<td>10.0</td>
<td>8.8</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>12.5</td>
<td>11.7</td>
<td>12.4</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>12.3</td>
<td>12.2</td>
<td>12.2</td>
</tr>
</tbody>
</table>

# Expressed in number of grade levels of difference
* Sample size per newspaper per time period = 5
** Sample size per newspaper per time period = 25
Results for this measure show all papers in all time periods had minimum scores that bettered the ideal 11.8 years. The toughest stories, on average, using this measure belonged to *The Australian* in 2002 (18.1 years, 6.3 grade levels above the mark). With news stories, the highest average was 1.6 years above the ideal, while averages for *The Courier-Mail* in 1972 (11.7 years) and 1987 (10.5 years) and the *Queensland Times* in 1987 (11.1) exceeded the ideal by 0.1, 1.3 and 0.7 years respectively. Variability of grade levels (range) required to comprehend news stories was greatest at *The Courier-Mail* in 1972, with 10.0 grade levels the difference between upper and lower scores across the sample week.

Results from applying this measure reflect the FOG index results for the same sample and, hence, confirm that Australian newspapers are mostly writing above the comprehension levels of the audiences they serve, especially in their editorials. The results for this measure confirm *The Courier-Mail’s* editorials were most easily comprehended in 1972 and 1987. It shows the newspaper shooting closest to the mark for news stories in 1972 was *The Courier-Mail*. In 1987, both *The Courier-Mail* and the *Queensland Times* did well, while in 2002 only the *Queensland Times* bettered the ideal.
It should be noted that Gunning’s FOG index scores for editorials and news stories in this sample typically came out at higher grade levels than the same editorials and news stories’ grade levels analysed under the Flesch-Kincaid Grade Level Formula. This contradicts earlier findings by Porter and Stephens (1989).  

![Chart 7: Average FOG indices & average Flesch-Kincaid Grade Level results, by newspaper by year](image)

It is clear to see from Chart 8 that *The Australian’s* editorials have become easier, on average, while *The Courier-Mail’s* have become harder to comprehend. Averages for the *Queensland Times*’ editorials initially improved between 1972 and 1987, but have again risen away from the ideal 11.8 years in 2002. News stories initially got harder to read at *The Australian* before heading back towards the ideal in 2002. *The Courier-Mail*, while trending downwards between 1972 and 1987, has risen sharply again in 2002, perhaps reflecting a change in editorship or at least editorial expectations. The only newspaper to consistently improve its news writing and drive even its FOG index near to the ideal of 11.8 years was the *Queensland Times*. 
Flesch Reading Ease Score

This measure depicts comprehension of news stories and editorials by the general population, with higher scores depicting broader comprehension and lower ones depicting stories less well understood. Visual representation of averages for this measure shows clearly how many Australians understand newspaper content. Surely there is potential for newspapers to grow readerships if 40-55 per cent of today’s population find it difficult to comprehend their content.
**Gender of bylined reporters**

In 1972, there were only seven bylined stories in the 75 news items reviewed for this study. That was then standard practice in newsrooms; a time when one had to “earn” the honour. However, the tendency to include bylines on most major stories was well established by 1987 (69 names over 62 stories) and common practice in 2002 (99 names over 66 stories). A look back over the three time periods provides some interesting observations.

![Chart 9: Who wrote the news?](image)

Female journalists fared best at *The Australian* (marginally ahead of men in 2002) and the *Queensland Times* (1987 and as the sole identifiable byline in 1972). But the situation at the *Queensland Times* has apparently reversed in recent years, with more than four times the number of male bylines over female ones now evident. While their share of bylines at *The Courier-Mail* remained well below that of male journalists, the rate of increase of bylines for females between 1987 and 2002 is better aligned to that for males than between 1972 and 1987.

**Conclusions**
This research confirms that, in a market where dwindling readerships is a concern, the readability of key Australian daily newspapers – national, state and regional – deserves renewed attention. The number of years of schooling required to readily comprehend editorials and hard news published by three Australian newspapers is typically well above the average level of education in the general community. This has happened as journalists have attained higher average educational levels.

Readability levels shown in this study have risen faster than the level of reading skill in the community. This may not be so for other areas of newspapers, however this study solely examined the situation for hard news and editorials. The researchers certainly did not assume that readability scores would be consistent across different sections of the same newspaper. They also acknowledge that factors influencing circulation figures, overall, are more complex than canvassed here. However, that hard news regularly has readability scores above the average education level of the community is not only a form of “gentrification” of news content, but it is also likely to choke comprehension, reader satisfaction and, potentially, market penetration. If individuals are less able to be informed about hard news events in and outside their communities they are likely to be less able to be participate in democratic processes and decisions.

When it comes to hard news stories, a regional newspaper the *Queensland Times* was the only title to improve its average readability results, progressively driving its norm down between 2.5 (Flesch-Kincaid Grade Level measure) to 3.0 (FOG index) grade levels from 1972 to 2002 and coming close to ideal levels. Despite this downward trend – over a sample of 75 news stories taken from three points in time over 30 years – this newspaper’s interval results demonstrate some of the biggest fluctuations in reading age required to fathom content.

At the State level, *The Courier-Mail’s* editorials have got progressively harder, with a premium above the ideal 11.8 years now averaging 1.6 grade levels to 4.4 years of schooling. As for the early general news section of the State’s newspaper, it has more than reversed a promising downward trend in the readability of its news stories between 1972 and 1987 to now be, on average, at a premium of 2.7 years of schooling above the ideal.
The national newspaper, *The Australian*, has improved its editorials over the past three decades, but its news became harder to read initially and has since recovered to a point marginally above where it was in 1972 to be averaging 1.0 grade level to 3.9 years of schooling above the average reader’s comprehension levels, certainly above news comprehension levels for both the State and regional newspapers.

In examining who wrote this news, the authors acknowledge their results, while potentially flagging issues for further study, should be treated with caution, as the publication of bylines in the sampled newspaper was not consistent across the three time periods.

Of most concern then is the ‘language of leaders’, the editorials written by senior journalists, which appear to require around an additional two years of education beyond that for hard news. Even though *The Australian* has steadily improved its performance over the past 30 years, it still demonstrates a premium of at least two grade levels above average. Effectively a higher-degree level of education is needed to understand the editorials of the State-wide newspaper, *The Courier-Mail*, a situation that has worsened steadily over the past 30 years. The *Queensland Times*, which had shown an earlier downward trend in the complexity of its editorials between 1972 and 1987, had more than regained that ground by 2002.

While the results of this research do not rule out a direct causal relationship between the tertiary education levels of journalists and the overall readability of newspapers, neither do they prove it. Educational attainment levels have inched up both inside and outside the newsroom. So, too, have readability measures, especially in the area of editorials. It is here where the gap is most apparent between the level at which some editorials are written and the average educational attainment of the audiences for these editorials. At almost 18.6 years of formal education, on average, for one newspaper and a premium of 10.6 years over the ideal 11.8 years in another. This tends to support this study’s second hypothesis that because more experienced and qualified journalists write editorials in Australian newspapers, comprehension levels will be affected most.
Some people in industry and the academy would support the notion that editorials are written for business people and politicians, and not for the general public. Others would argue that editorials are a form of *vox populi* and are written to influence the entire community and not just its leaders. The authors believe newspapers take a deliberate public stance through their editorials in order to influence ideas and decision-making across the community. Australian research is scant in this area and the results evident in this study contrast starkly with those from repeated research studies in the US where news stories have been found to be harder to read than editorials.\textsuperscript{44}

With ready access to educational attainment data and decades of research quantifying optimum basic language and readability measures, there is little reason for Australian newspapers not to attend to readability more closely. This is an important area of functional literacy that facilitates access to business, social and democratic debate across the community.
References


Notes


3 Ibid, p79.

4 Shelley, M., “Learning and the working journalist”, Journalism Education Association annual conference, November 2003


7 Derived from information collected by the OECD’s Directorate for Education, Employment, Labour and Social Affairs. Data presented here elicited from Tables A2.1a Educational attainment of the population (1999); A2.1b Educational attainment of the labour force (1999); and A2.2c Educational attainment of the population, by gender (1999), Education at a Glance – 2001, accessed online 12/11/02 at www1.oecd.org/els/education/ei/eag/list.htm.


11 University of Minnesota, A Brief Discussion of Readability, accessed online on 12/11/02 at www.ardilla.umn.edu/Library/Readability.htm.


13 Ibid.


15 Loc cit, p144.


17 Ibid.

18 Ibid.


20 Ibid.


28 Ibid.
29 Ibid.
31 Ibid.
36 Ibid.
38 Ibid.
39 Anderson (1966), pp 82-83.
40 Ibid.
41 Both measures have been popularly applied, in tandem, by researchers analysing newspaper readability for several decades. Taken together, they allow results to be expressed on a sliding scale.
43 Some stories carried multiple bylines. Stories with no byline or with an agency byline were grouped in this category because gender could not be determined.
44 Fusaro and Conover, 1983; Stempel, 1981; Curtis and Shaver, 1979; Moznette and Rarick, 1968.