

# Academic integrity as a university responsibility: What is the readability of your policy?



**Margaret Green and Gisela van Kessel**

*School of Health Science University of South Australia*

Email: Margaret.green@unisa.edu.au, Gisela.vankessel@unisa.edu.au

*Category: Non-refereed*

Problems in academic integrity are often assumed to arise because students do not understand the concepts, and/or consequences or do not have the required strategies to avoid problems.

This paper takes an alternative point of view and explores the responsibilities of the university in facilitating appropriate student action. This study looked at the readability of the academic integrity policies of the 39 Australian universities using online 'readability scales'. All policies were found to score more highly on these scales than expected, indicating the documents could need up to 28 years of education to be able to interpret them. Additionally it was identified that policies were difficult to locate. In order to help students understand their academic integrity responsibilities policies need to be easily accessed and written in a way that makes them easy to read and comprehend.

Key words: academic integrity, readability, organisational policy, education, plagiarism

## Background

### Academic integrity

It could be argued that high levels of academic integrity across all levels of a university are a cornerstone of that university. Staff and students who do not comply with the academic integrity standards place themselves and the institution at risk. In particular, students who do not comply with the standards are at risk of achieving poor learning outcomes. Students breach standards for a number of reasons but they are usually summarised as not understanding the concepts, not understanding the potential consequences, not having good time management, poor study strategies or just choosing to risk the consequences. Work by McCabe (2004) indicated that as many as 70% of students admit to some form of breach of academic integrity.

### Policy

Written policy documents are used as one communication channel by a university to inform academic integrity requirements to students and staff. While other communication channels are frequently used, an effective policy relies on the ability of the student to locate, read and comprehend the written information. These documents define academic integrity, describe responsibilities and set out the consequences of breaches. An academic integrity policy document exists as one strategy to shape the actions of students and staff. Other strategies that are recognised as supporting academic integrity policy implementation include self-assessment strategies such as Turnitin (Rolfe 2010) and interactive seminars (Chen & Van Ullen 2011, Jawaid et al 2011, Marshall et al. 2011).

For a policy to shape action, factors such as content, coherence, instrumentally, expertise, order and authority have long been recognised as needing to be in place (Colebatch 1998). The content should include the dimensions of academic integrity and the appropriate strategies for students and staff to follow to ensure compliance. The policy should clearly communicate the consequences of, and convey unambiguously, the power the university may apply to the problem of academic integrity breaches. Thus, effective policy communicates the endorsement of the university.

In this way an academic integrity policy represents the action a university determines to be appropriate in order to achieve the collective pursuit of equitable learning, in a manner that is

stable and predictable. In doing this, policy both explains and validates the action. It explains what people should be doing, and it makes it appropriate for them to do it. The explanation and validation of appropriate academic conduct then relies on effective comprehension of the content of the policy. The ability to read and comprehend the written policy documents is a fundamental aspect of academic integrity policy dissemination and implementation.

### Readability

Readability is one aspect of comprehension. It is the ease with which text can be read (Beaglehole & Yates 2010). A text needs to be able to be read in order to be understood. It cannot be assumed that all students are effective readers. The results of a study by Fuller et al. (2007) supported the hypothesis that many university students are not good readers and may be unable to read material presented to them in their studies. Their study, which looked at the readability levels of third year doctoral graduate entry pharmacy students, found that the average students' reading skills were adequate. However, the standard deviation indicates that some students had a comprehension level as low as 9.3 grade equivalent. Given that students entering a graduate entry program and have already completed a degree, and thus have 15 or more years of education, this finding is particularly significant. Fuller et al. (2007) also assessed the reading material from some of the set texts and identified Gunning Fog Index scores of 16.3 – 21.0, which was significantly higher than the reading level of some students.

Early research established that there were a number of variables that affected comprehension. Over 200 items have been identified as affecting readability and have been categorised into content, style, design and structure but only style is able to be measured quantitatively. Elements of style include frequency of word use, sentence length and numbers of syllables in a word. The recognition that these could be calculated numerically led to the establishment of formulas which were then validated against other reading comprehension criteria (DuBay 2004).

Thus readability formulas only assess some elements of style and should be used as a guide only. Apart from the readers ability to read the content other factors include structure and design of the text, prior knowledge and motivation of the student are important (DuBay 2004).

### Readability formulas

There are a number of readability formulas, most of which look at the complexity of the text and vocabulary. The former is measured by the average length of a sentence. The latter is measured by the number of syllables in a word and by comparing words to a list of commonly used words (Beaglehole & Yates 2010, Burke & Greenberg 2010).

**Table 1: Summary of criteria used in selected Readability Formulas**  
(adapted from Beaglehole & Yates 2010, p. 58)

Readability formula	No. words	No. sentences	No. syllables
Flesch Readability Ease (FRE)	*	*	*
Flesch-Kincaid Grade Level (FKGL)	*	*	*
Standardised Measure of Gobbledygook (SMOG)			* words $\geq$ 3 syllables in 30 sentences selected through document
Gunning Fog Index Score (GFIS)		Av. sentence length per 100 words	* per 100 words

The Flesch-Kincaid Grade Level converts the Flesch Readability Ease scores into grade levels to equate with the American system. For example, a Flesch-Kincaid Grade Level of 12 equates to American grade 12 (Beaglehole & Yates 2010). The Flesch Readability Ease score ranges from 0-100 with very high scores indicating the text is easy to read and very low scores score

indicating that the text is difficult to read. Bennet and Gilchrist (2010) suggest that a document with a Flesch Readability Ease score of around 60 should be able to be read by people with an IQ of 100.

The SMOG score looks at the number of polysyllabic words as well as sentence length. A total of 30 sentences, ten from the beginning, middle and end of the document are chosen and analysed. A UK *National Literacy Campaign* (cited by Bennet and Gilchrist, 2010) indicate that most people would understand text with a SMOG score of 10. From this could be inferred that university students should be able to understand text with a slightly higher SMOG score.

The Gunning Fog Index Score estimates how many years of schooling a person would need in order to read and comprehend the text after reading it only once. As an American tool, a score of 12 relates to someone who has completed Grade 12, or approximately someone of 18 years old. Norms for different types of materials have been suggested as 14 or less for technical skills, 12 or less for business material and 8 or less for clerical material (Readability Formulas, n.d.). The interpretation of results relies on normative data based on the United States education system.

The reliability of the Gunning Fog Index Score is more difficult to determine, despite it being used as an outcome measurement tool in the two papers where university reading material was evaluated (Fuller et al., 2007, Muswazi, 2009). Both papers reflect on the validity of the tool, but not the reliability.

## Method

This project makes use of data derived from a larger ALTC project, '*Academic integrity standards: Aligning policy and practice in Australian universities*'. The ALTC project located the academic integrity policies of all 39 Australian Universities. They found that identifying the relevant policies was more complex than expected as many universities often had multiple, related, overlapping but not always linked policies (Bretag et al., 2011). Grigg (2010) in her work specifically on student plagiarism found that information could be located across a vast range of policy documents. The ATLC team located what was determined to be the *main* document(s) relating to academic integrity.

The current project used these located policy documents for a readability analysis. Burke and Greenberg (2010) compared readability scores calculated by hand, commercial software programs and freely available on-line tools and found very similar scores were generated. More importantly, the ranking of each document tested remained the same, thus supporting the validity of an online tool. Hence, an online readability calculator from Online-Utility.org (n.d.) was selected as the measurement tool. The site provides a number of formulas. The text from the policies was copied and pasted into the tool. Data relating to the Gunning Fog Index Score, the Flesch Kincaid Grade level, Flesch Reading Ease and the SMOG were collated and compared.

## Results

The overall scores for all universities in all the formulas are presented in Appendix 1. Pearson's intra-class co-efficient (ICC) was used to look for correlations in the results from the formulas used. The very high ICC scores indicate that regardless of the formula used, the universities were ranked in a very similar order (ICC always above 0.9) (Table 2). This is the same finding seen by Burke and Greenberg (2010).

The high correlations support the validity of the formulas and enabled the selection of one tool for further evaluation and analysis. The Gunning Fog Index Score was chosen because it is the tool used by Muswazi (2009) who also looked at information on University homepages and

Fuller (2007) who looked at university level readability. The validity of the Gunning Fog Index has been demonstrated with a correlation of 0.93 with normed reading texts (DuBay 2004).

**Table 2: Intra class confidants (ICC) ranking between the formulas**

	Gunning Fog Index Score	Flesch Kincaid Grade level	Flesch Reading Ease	SMOG
Gunning Fog Index Score	1			
Flesch Kincaid Grade level	0.9915	1		
Flesch Reading Ease	-0.91068	-0.90102	1	
SMOG	0.986067	0.980932	-0.93096	1

Table 3 illustrates the mean and standard deviation Gunning Fog Index Score for the 39 universities clustered into four groups: those that could be read on entering university, by undergraduates, by postgraduates and by the academic elite. The total range was 11.73 - 28.05. Given that a Gunning Fog Index Score reflects the number of years education a person needs to read and comprehend a text it would appear that only one university had a policy that could be read by students entering university after the usual 12 years of education primary and secondary education. If undergraduate degrees are usually between three to five years in length, only 16 had policies that could be read by undergraduates, and some required many additional years of education to comprehend. Table 4 illustrates how many universities fell into each cluster grouping. The use of a Gunning Fog Index Score over 17 as indicative of postgraduate study is supported by the work of Muswazi (2009).

**Table 3: Gunning Fog Index Score mean and SD for each student category**

GFIS $\leq$ 12 mean (SD)	Undergraduate mean (SD)	Postgraduate mean (SD)	Academic elite mean (SD)
11.73	14.85 (1.17)	18.60 (1.03)	24.94 (2.31)

**Table 4: Number of policies in student categories clustered by Gunning Fog Index Score**

GFIS $\leq$ 12	GFIS 12-16 (undergraduate)	GFIS 17-20 (postgraduate)	GFIS > 20 (academic elite)	Total
1	16	15	7	39

## Discussion

This study found that the readability of academic integrity policies at over 56% of Australian universities requires postgraduate level education to read and comprehend as measured against US data. Only one university has a policy that could be read and comprehended by a student as they entered university. There is a paucity of research at university level regarding the readability of documents for tertiary students, but that which is available supports these results (Fuller et al. 2007, Kahveci 2010, & Muswazi 2009).

Accepting that readability is more than just those aspects looked at by the formulas, all of the policies are potentially difficult to read by some students. These might include mature aged entry, special transition pathways or foundation programs (ie students without 12 years of education). Of particular concern are students from non English speaking backgrounds whose level of English comprehension may be lower than a Year 12 standard.

Policy documents, as a text, have a particular design that is not well recognised by the formulas. Formulas only measure style. They do not recognise commas, colon or semicolons. Hence some sentences will be picked up as being very long when the punctuation would indicate breaks. The design of policy writing often makes use of dot points separated by such punctuation which may have impacted on the results found. The variables used in the readability formulas show us the

skeleton of a text. It is up to us to recognise other elements that may impact on comprehension such as tone, content, organisation and coherence (Dubay 2004).

The difficulty in finding information relevant to the policies has been highlighted by Bretag et al. (2011) and Griggs (2010). Armani and Rocci (2003) use the term 'lost in hyperspace' to describe students who get lost looking at interrelated documents in online e-learning courses. Among other problems they suggest readers forget where they are, forget what they have read before, fail to link concepts and don't know how to get to other places that they think may also exist in the network. The same problems could easily be applied to students trying to navigate their way through a complex web of academic integrity policy documentation. Armani and Rocci (2003) suggest using a strategy of conceptual mapping to help locate and best link information to help with the communication of key material.

Within the limitations of our study the results draw attention to the dimensions of the problem. Universities focus on addressing student related issues through policy. This study draws attention to a problem of style by which a university may contribute to ineffective student action resulting from a policy that is difficult to read. It is important to acknowledge that the inability to read and understand the policy may rest with the university and not the student. This concept would shift the focus of addressing the problem to a shared responsibility.

The responsibility of universities lies with ensuring accessibility and readability of the academic integrity documents. This issue could be addressed through mapping the location of academic integrity policies and applying readability scales amongst other strategies.

While this paper has reflected on the ease of finding relevant academic integrity policies and looked at the readability of them it has not established if the readability of a document actually influences whether or not a student will look for and read it. Hence, further research is needed to establish whether there are links between readability and students reading policies, between readability and student understanding policies and between understanding and breaches.

Finally, none of the readability tools used in this small project was based on Australian data and information about the reliability of the tool was not available. Therefore, another area for further research would be to develop /adapt and validate a reliable readability tool for the Australian university context.

## **Conclusion**

The only aim of this small research project was to evaluate the readability of the academic integrity policies of Australian universities using a valid readability index. The finding was that all but one academic integrity policy had the potential to be difficult to read and comprehend by students entering university at an undergraduate level, and over half might require postgraduate education.

The difficulty in finding policy as identified by Bretag et al. (2011) and Griggs (2010) may also be a factor that impact on a student's willingness or ability to access information. A process of e-mapping as described by Armani and Rocci (2003) may help locate relevant documents together.

What is still to be investigated is whether students actually look for and read the policy, and, if they do, can they understand what they read and does it have any impact at all on their behaviour. It is also important to establish Australia data for readability.

The effectiveness of academic integrity policy is often assessed through the behaviour of the student. Looking at incidences of academic integrity issues through the lens of readability opens up an avenue of improving compliance through a review of policy writing style by the university.

## References

- Armani, J. & Rocci, A. (2003). Conceptual maps in e-learning: How map-based interfaces help the contextualization of information and the structuring of knowledge. *Information Design Journal*, 11(3), 171-184. <http://dx.doi.org/0.1075/idj.11.2.09arm>
- Beaglehole, V. & Yates, G. (2010). The full stop effect: Using readability statistics with young writers. *Journal of Literacy and Technology*, 11(4), 53-83. [http://www.literacyandtechnology.org/volume\\_11\\_4/JLT\\_V11\\_4\\_Beaglehole.pdf](http://www.literacyandtechnology.org/volume_11_4/JLT_V11_4_Beaglehole.pdf)
- Bennett, D. & Gilchrist, A. (2010). Readability of standard appointment letters. *Mental Health in Family Medicine*, 7(2), 101-106. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2939456/>
- Burke, V. & Greenberg, D. (2010). Determining readability: How to select and apply easy-to-use readability formulas to assess the difficulty of adult literacy materials. *Adult Basic Education & Literacy Journal*, 4(1), 34-42.
- Bretag, T., Mahmud, S., East, J., Green, M., James, C., McGowan, U., Partridge, L., Wallace, M. & Walker, R. (2011). Academic integrity standards: A preliminary analysis of the academic integrity policies at Australian universities. Refereed paper accepted at the *Australian Quality Forum*, 29 June-1 July, Melbourne, Australia. [http://www.auqa.edu.au/files/auqf/paper/paper\\_h20.pdf](http://www.auqa.edu.au/files/auqf/paper/paper_h20.pdf)
- Chen, Y. H. & Van Ullen, M. K. (2011). Helping international students succeed academically through research process and plagiarism workshops. *College & Research Libraries*, 72(3), 209-235. <http://crl.acrl.org/content/72/3/209.full.pdf+html>
- Colebatch, H. K. (1998). *Policy*. Open University Press, Buckingham.
- DuBay, W. H. (2004). *The principles of readability*. Impact Information, Costa Mesa [viewed 16 March 2011; 1.15 MB]. <http://www.impact-information.com/impactinfo/readability02.pdf>
- Fuller, S., Horlen, C., Cisneros, R. & Merz, T. (2007). Pharmacy students' reading ability and the readability of required reading materials. *American Journal of Pharmaceutical Education*, 71(6). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2690918/pdf/ajpe111.pdf>
- Grigg, G. (2010). *Plagiarism in higher education: Confronting the policy dilemma*. Unpublished PhD thesis, University of Melbourne. <http://repository.unimelb.edu.au/10187/8971>
- Jawaid, M., Masood, Z., Alam, S. N. & Jawaid, S. A. (2011). An analysis of interactive hands-on workshops on medical writing. *Pakistan Medical Association*, 61(1), 66-70. [http://www.jpma.org.pk/full\\_article\\_text.php?article\\_id=2538](http://www.jpma.org.pk/full_article_text.php?article_id=2538)
- Kahveci, A. (2010). Quantitative analysis of science and chemistry textbooks for indicators of reform: A complementary perspective. *International Journal of Science Education*, 32(11), 1495-1519. <http://dx.doi.org/10.1080/09500690903127649>
- Marshall, T., Taylor, B., Hothersall, E. & Perez-Martin, L. (2011). Plagiarism: A case study of quality improvement in a taught postgraduate programme. *Medical Teacher*, 33(7), e375-e381. <http://dx.doi.org/10.3109/0142159X.2011.579201>
- McCabe, D. (2004). The US and Canadian experience. *Symposium on Promoting Academic Integrity: New Policies, Practices and Procedures*. The University of Newcastle: NSW.
- Muswazi, P. (2009). Usability of university library home pages in southern Africa: A case study. *Information Development*, 25(1), 51-60. <http://dx.doi.org/10.1177/0266666908101264>
- Online-Utility.org (n.d). *Tests Document Readability: Readability Calculator*. [viewed 11 April 2011]. [http://www.online-utility.org/english/readability\\_test\\_and\\_improve.jsp](http://www.online-utility.org/english/readability_test_and_improve.jsp)
- Readability Formulas (n.d.). Results of the Gunning's Fog Index (or FOG) Readability Formula. [viewed 19 April 2011]. <http://www.readabilityformulas.com/gunnings-fog-results.php>
- Rolfe, V. (2011). Can Turnitin be used to provide instant formative feedback? *British Journal of Educational Technology*, 42(4), 701-710. <http://dx.doi.org/10.1111/j.1467-8535.2010.01091.x>

*Indication of the number of years of formal education that a person requires in order to easily understand the text of this paper on the first reading*

Gunning Fog index: 14.50 (Readability Formulas, n.d.)

## Appendix 1

### Academic integrity policy readability scores across 39 Australian universities

University	Gunning Fog Index Score	Flesch Kincaid Grade level	Flesch Reading Ease	SMOG	GF index score clustered
1	11.73	9.17	50.31	11.56	< 12
2	12.35	9.87	44.8	12.04	12-16
3	13.52	12.01	40.63	13.4	
4	13.74	10.97	36.19	12.88	
5	13.92	11.33	34.54	13.2	
6	13.92	11.32	41.47	13.31	
7	14	10.32	39.33	13.49	
8	14.08	12.04	35.31	13.76	
9	14.53	12.19	35.34	13.86	
10	14.57	12.8	27.92	13.77	
11	14.71	11.64	33.84	13.48	
12	15.15	12.23	31.15	13.65	
13	15.31	13.24	33.4	14.67	
14	15.53	13.5	31.26	15.1	
15	15.58	13.34	43.4	14.51	
16	15.67	13.91	32.18	14.68	
17	15.84	13.08	31.25	14.73	
18	16.18	13.11	29.39	14.71	
19	16.79	14.22	32.1	15.7	
20	16.87	14.28	24.33	15.4	
21	17.06	14.16	27.4	15.63	
22	17.18	14.55	27.03	16.12	
23	17.25	14.66	27.01	16.15	
24	18.19	15.22	23.47	16.67	
25	18.2	14.95	25.82	16.52	
26	18.37	15.76	17.69	16.64	
27	18.84	17.1	32.71	16.95	
28	18.9	16.02	30.25	16.56	
29	19.03	16.11	28.78	16.72	
30	19.37	16.54	NC	17.11	
31	19.41	16.89	19.71	17.14	21-25
32	19.6	17.26	15.16	17.65	
33	20.5	18.02	16.23	18.12	
34	21.85	19.39	3.61	19.7	
35	23.44	20.48	16.03	19.65	
36	24.11	19.86	6.36	20.46	26-30
37	25.1	22.31	4.42	21.35	
38	27.11	24.38	6.51	21.43	
39	28.05	25.36	6.45	21.36	

**Please cite as:** Green, M. & van Kessel, G. (2011). Academic integrity as a university responsibility: What is the readability of your policy? In *Educational integrity: Culture and values. Proceedings 5th Asia Pacific Conference on Educational Integrity*. The University of Western Australia, 26-28 September. (pp. 39-45)  
<http://www.apcei.catl.uwa.edu.au/procs/green.pdf>