
AcaWriter: designing automated feedback on writing that teachers and students trust

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ACAWRITER: DESIGNING AUTOMATED FEEDBACK ON WRITING THAT TEACHERS AND STUDENTS TRUST

The emergence of automated writing feedback

We know feedback is of paramount importance to help students learn to write and improve their writing skills. But providing good formative feedback on students' drafts is a time-consuming and resource-intensive process for educators. We're getting increasingly used to the idea that computers can understand our speech and writing, and this is now finding its way into education. In this blog post, I'll share what we're learning about the effective use of such tools in teaching, in particular, one we've been developing for the last 5 years, called **AcaWriter**. AcaWriter provides our students at the University of Technology Sydney (UTS) with instant feedback on their writing at any time of the day, as and when requested. It's been evaluated here at UTS, grounded in peer-reviewed, published research, and [released to all students and staff](#).

Automated feedback on writing is still pretty new, so it's not surprising that some may be sceptical. After all, how can a machine possibly understand a complex piece of writing at university level? Would machine feedback lead to formulaic writing? There is of course an active debate (see the articles appended for details), and understanding the reactions of students and educators is exactly one of the aspects of the R&D underpinning AcaWriter. It is important to note that AcaWriter does not assess the overall quality of writing or provide grades — that's a complex judgement, requiring human expertise — but aims to provoke student reflection to improve their writing using formative feedback about just one of the hallmarks of academic writing.

We like to ask students: "Are you being rhetorical?"

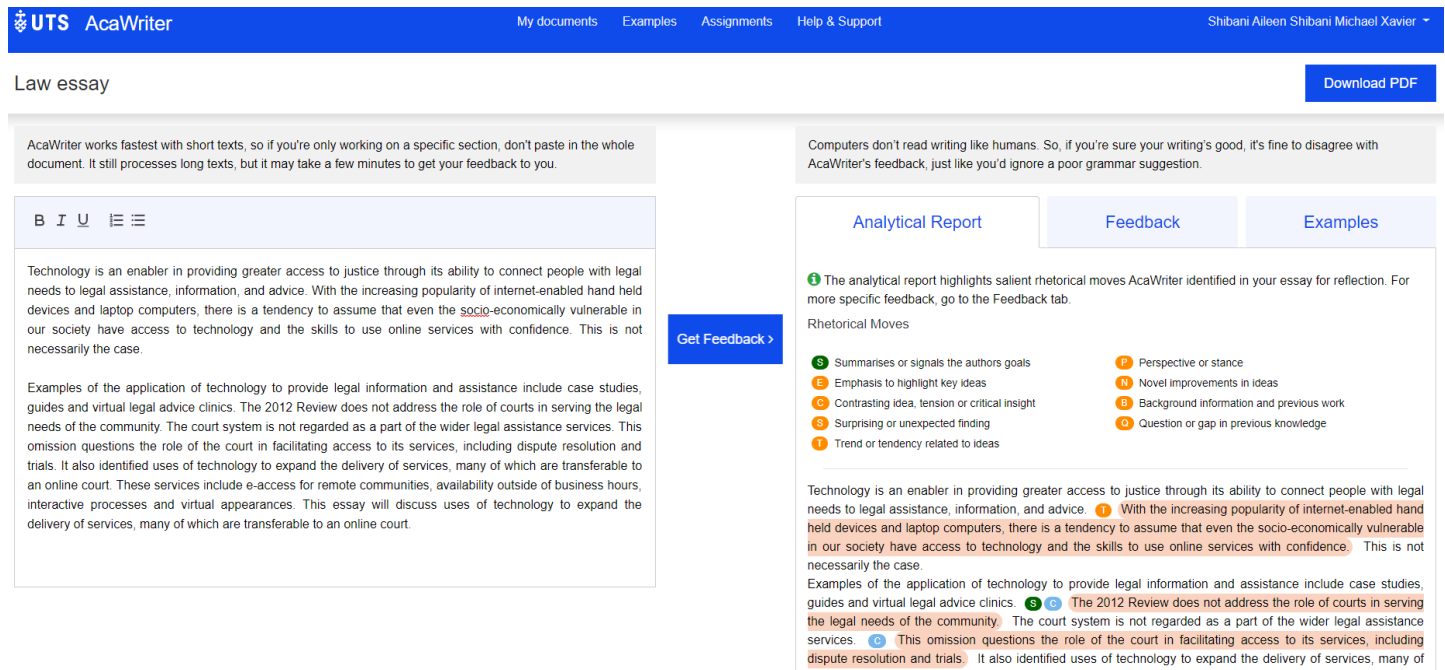
AcaWriter's feedback complements conventional spelling and grammar checkers by providing feedback on sentence structure and construction. In particular, it looks for specific hallmarks of writing called '**rhetorical moves**' that help convey the writer's intent to the reader. For instance, in university-level written assignments, AcaWriter looks at cues such as "*Previous work has shown*" and "*Recent studies indicate*" as rhetorical moves presenting 'Background' work. Students learn that it's important to signal their intent clearly, so that the reader can assess whether they're simply reporting past work, actively agreeing or disagreeing with it, or presenting their own critical commentary.

1. **Analytical** writing such as essays, research articles, formal reports;

2. **Reflective** writing such as personal journals of learning experiences and informal reflective accounts.

What AcaWriter feedback looks like

AcaWriter's main interface provides an **editor** (left pane) where students can paste and edit their writing. Clicking the central **Get Feedback** button generates feedback (right pane) within around 10-30 seconds depending on the text length.



The screenshot shows the AcaWriter interface. At the top, there is a blue navigation bar with the UTS AcaWriter logo, navigation links (My documents, Examples, Assignments, Help & Support), and a user profile (Shibani Aileen Shibani Michael Xavier). Below the navigation bar, the main content area is titled "Law essay" and includes a "Download PDF" button. The interface is split into two panes. The left pane is the editor, showing a text area with a rich text toolbar (B, I, U, list, indent) and a "Get Feedback" button. The right pane displays the feedback report, which is organized into three tabs: "Analytical Report", "Feedback", and "Examples". The "Analytical Report" tab is active, showing a list of rhetorical moves identified in the essay. The feedback report includes a summary of the analytical report, a list of rhetorical moves, and a detailed view of the feedback for a specific sentence in the essay.

UTS AcaWriter My documents Examples Assignments Help & Support Shibani Aileen Shibani Michael Xavier

Law essay Download PDF

AcaWriter works fastest with short texts, so if you're only working on a specific section, don't paste in the whole document. It still processes long texts, but it may take a few minutes to get your feedback to you.

Computers don't read writing like humans. So, if you're sure your writing's good, it's fine to disagree with AcaWriter's feedback, just like you'd ignore a poor grammar suggestion.

B I U list indent

Technology is an enabler in providing greater access to justice through its ability to connect people with legal needs to legal assistance, information, and advice. With the increasing popularity of internet-enabled hand held devices and laptop computers, there is a tendency to assume that even the socio-economically vulnerable in our society have access to technology and the skills to use online services with confidence. This is not necessarily the case.

Examples of the application of technology to provide legal information and assistance include case studies, guides and virtual legal advice clinics. The 2012 Review does not address the role of courts in serving the legal needs of the community. The court system is not regarded as a part of the wider legal assistance services. This omission questions the role of the court in facilitating access to its services, including dispute resolution and trials. It also identified uses of technology to expand the delivery of services, many of which are transferable to an online court.

Get Feedback >

Analytical Report Feedback Examples

The analytical report highlights salient rhetorical moves AcaWriter identified in your essay for reflection. For more specific feedback, go to the Feedback tab.

Rhetorical Moves

- Summarises or signals the authors goals
- Emphasis to highlight key ideas
- Contrasting idea, tension or critical insight
- Surprising or unexpected finding
- Trend or tendency related to ideas
- Perspective or stance
- Novel improvements in ideas
- Background information and previous work
- Question or gap in previous knowledge

Technology is an enabler in providing greater access to justice through its ability to connect people with legal needs to legal assistance, information, and advice. With the increasing popularity of internet-enabled hand held devices and laptop computers, there is a tendency to assume that even the socio-economically vulnerable in our society have access to technology and the skills to use online services with confidence. This is not necessarily the case.

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Zooming in on this, here's what Law students saw for an essay, as they received feedback organised into three tabs.

Tab 1 Analytical Report is where AcaWriter highlights sentences containing the important rhetorical moves that we want the students to understand, and demonstrate they can use:



- ABOUT
- MEMBERSHIP
- EVENTS
- NEWS
- PUBLICATIONS
- COMMUNITY
- RESOURCES
- CONTACT
- LOG IN

Rhetorical Moves

- S Summarises or signals the authors goals
- E Emphasis to highlight key ideas
- C Contrasting idea, tension or critical insight
- S Surprising or unexpected finding
- T Trend or tendency related to ideas
- P Perspective or stance
- N Novel improvements in ideas
- B Background information and previous work
- Q Question or gap in previous knowledge

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Examples of the application of technology to provide legal information and assistance include case studies, guides and virtual legal advice clinics. S C The 2012 Review does not address the role of courts in serving the legal needs of the community. The court system is not regarded as a part of the wider legal assistance services. C This omission questions the role of the court in facilitating access to its services, including dispute resolution and trials. It also identified uses of technology to expand the delivery of services, many of which are transferable to an online court. These services include e-access for remote communities, availability outside of business hours, interactive processes and virtual appearances. S This essay will discuss uses of technology to expand the delivery of services, many of which are transferable to an online court.

Tab 2 offers more specific Feedback and suggestions for improving the writing tuned to the assessment brief, which is co-designed with the educator to be relevant to the assignment:

- i** The rhetorical moves highlighted by AcaWriter are used in good academic writing but use them with caution according to the context. Remember, AcaWriter does not really understand your writing, the way people do. You may have written beautifully crafted nonsense - that's for you to decide! Moreover, writing is complex, and AcaWriter will get it wrong sometimes. If you think it got it wrong, that's fine - now you're thinking about more than spelling, grammar, and plagiarism.
- !** It looks like you are missing a Background move in your text, which highlights background information and previous literature on the topic. Try including linguistic cues to make this move clearer in your writing. Examples: The past decade has seen, Recent studies indicate ... ,It is generally accepted that..., the concept has previously been thought to be...
- !** If there is a key idea you did like to emphasises in your essay try including linguistic cues to make this move clearer in your writing. Examples: It is important to note that, It makes a proper understanding important...

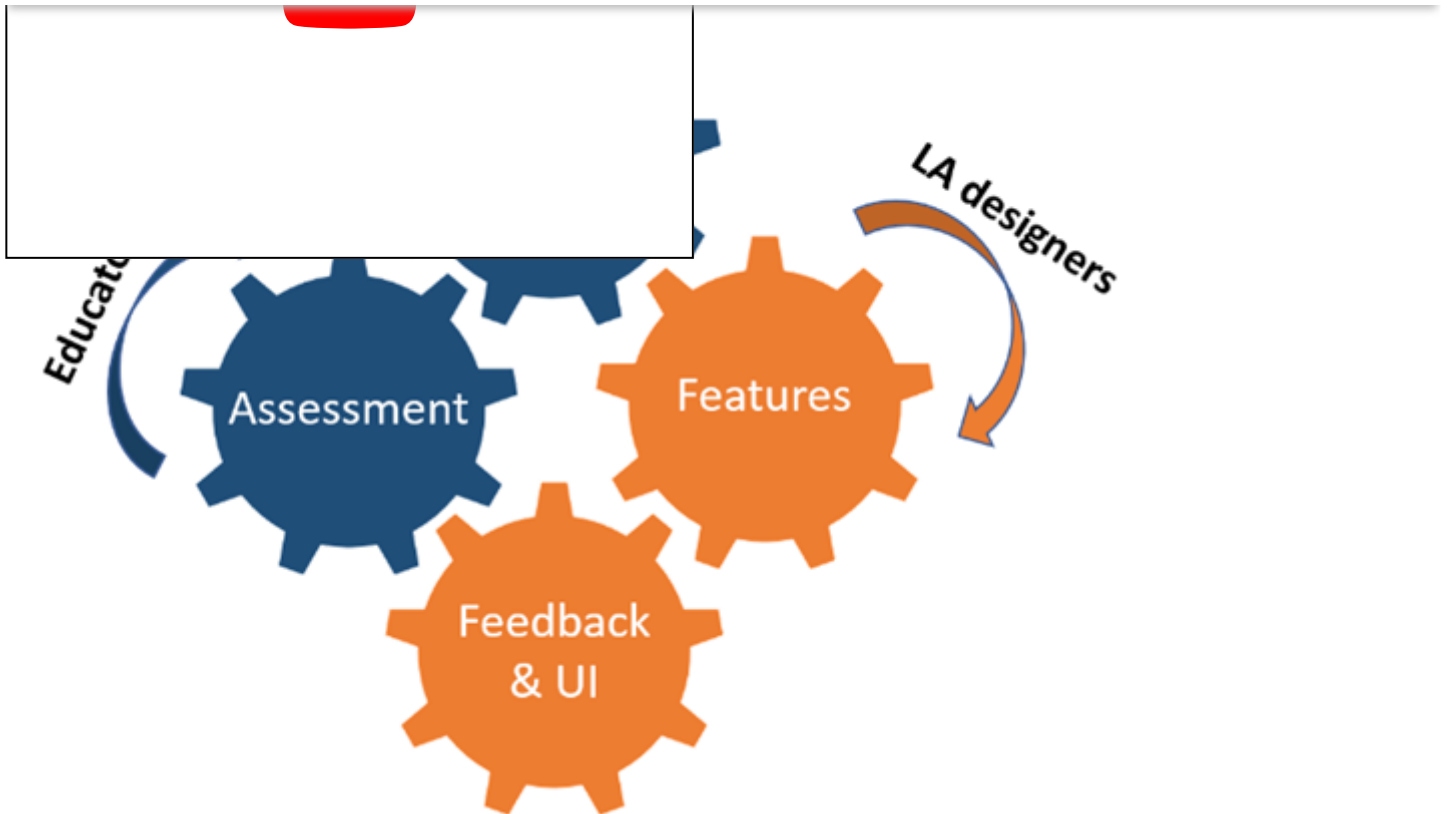
Tab 3 provides additional examples and links for students to learn more about rhetorical moves in the context of their course, and how they align with the assessment criteria:


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SAMPLE SENTENCE	ESSAY ASSESSMENT RUBRIC ELEMENT	ACAWRITER MOVE
The concept of good faith has previously been thought to be a work in progress in Australia.	Engagement with the law and scholarly literature	Background
This article will trace the origins of good faith and its development in the common law. This essay contains three parts. The first part will talk about the origins of good faith.	Statement of thesis, Essay plan	Summary
However , where the obligations are found in statute and they conflict with contractual obligations, it is important to note that the former must prevail.	Identification of relevant issues, Critical analysis and original insight	Contrast, Emphasis

AcaWriter has been tuned and tested for other types of academic writing such as research abstracts, business executive reports and reflective writing.

Reflective writing is distinctively different and known to be challenging to teach and learn. It's written in the first person, in which the student makes sense of their experiences, talk about what they found challenging, and how they are changing. Here's a great intro video from an academic who uses it to teach reflection in pharmacy, showing how different the feedback is:



AcaWriter is customizable, which means that the automated feedback can be re-designed to suit a teacher's specific context. The feedback messages are tuned to assessments across different disciplines by working along with educators to provide their students with relevant feedback.

The 'cogs' diagram shows that AcaWriter is best introduced as part of (blue) activities teaching students different strategies to improve their writing with good learning design. AcaWriter's textual features and user interface (orange cogs) are designed to be flexible so they can 'synchronise' with the teaching activities, driving everything in the same direction ([learn more](#) in this article). We [work closely with educators](#) so they are able to directly shape the way the feedback is given, building their trust in the tool.

What impact does it have?

AcaWriter has been evaluated across various authentic learning contexts in higher education with positive feedback. Students and educators have reported improvements in writing performance and an increased understanding of different components in writing. While students may be sceptical before using it, we've shown that this changes positively after experiencing it. All of the results and outcomes are documented in peer-reviewed publications and are publicly available (see this [key article](#) for details).

Considerations for using AcaWriter

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machine learning approaches can do a better job than the current set of rules for improved accuracy. Users of the tool should be aware of such limitations and use the tool effectively as an additional feedback mechanism, and not as the ground truth. Learners should still use other forms of writing support such as peer feedback, instructor feedback and self-assessment as required.

Can I try this out?

An [open demo version](#) of the tool is available, where you can paste in a small piece of writing and receive instant feedback based on the available genres of writing. Institutions can install their own copy of AcaWriter using the [Open Source release](#). Students and staff from the University of Technology Sydney where AcaWriter was originally developed have full access to a hosted version of AcaWriter. You can also try the full version as part of this free interactive tutorial on [writing better research abstracts](#).

To learn more...

AcaWriter orientation website for teachers and students: <https://www.uts.edu.au/acawriter>

Research publications: <https://cic.uts.edu.au/tools/awa/>





ABOUT MEMBERSHIP EVENTS NEWS PUBLICATIONS

COMMUNITY RESOURCES CONTACT LOG IN

SOCIETY for LEARNING ANALYTICS RESEARCH

The Society for Learning Analytics Research (SoLAR) is an inter-disciplinary network of leading international researchers who are exploring the role and impact of analytics on teaching, learning, training and development. SoLAR has been active in organizing the [International Conference on Learning Analytics & Knowledge \(LAK\)](#) and the [Learning Analytics Summer Institute \(LASI\)](#), launching multiple initiatives to support collaborative and open research around learning analytics, promoting the publication and dissemination of learning analytics research, and advising and consulting with state, provincial, and national governments.



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