Augmenting pedagogic writing practice with contextualizable learning analytics

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Bio

Australia

PhD – Learning Analytics 2016-
current

Singapore

Masters – Information Studies 2012-
2013

India

Undergraduate – Computer Science Engineering 2006-
2010

Software Programmer 2010-
2012

Research Associate 2013-
2016
Overview

• Learning Analytics and scalability
• Contextualizable LA Design model
• Automated writing feedback example
• Augmenting existing pedagogic practice with LA
• Empirical evaluations
• Implications and discussion
Learning Analytics (LA)

“The measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs.”

-SOLAR, 2011
(there's always a but)
Balancing scalability and contextualization for LA
Potential use  Actual use
Bringing context to LA
Conceptual model for Contextualizable Learning Analytics Design (CLAD)
Conceptual model for Contextualizable Learning Analytics Design (CLAD)
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Conceptual model for Contextualizable Learning Analytics Design (CLAD)

Contextualizable Learning Analytics Design: A Generic Model, and Writing Analytics Evaluations (Under review)
Writing

OK, Writing shouldn't be so hard.

Everything I want to say is in my head...

I just have to transfer it from my brain to this computer.

Writing: the most impossible short distance in the history of humanity.

24 in / 61 cm

WWW.PHDCOMICS.COM

Jorge Cham © 2014
Students need support for writing → Formative feedback
Writing Analytics

• Analysis of written texts for the purpose of understanding writing processes and products, in their educational contexts.

• Supporting students through the provision of formative feedback that provides insights to educators and students.
Writing analytics tools

• Scope of the tools varies from scoring to providing feedback

• Using text features like:
  • Grammar
  • Word usage
  • Coherence
  • Complexity
  • Sentence structure
  • Rhetorical Moves
Automated writing feedback tools

Secretary of State John Kerry delivered prepared remarks Monday about Syria’s use of chemical weapons and whether or not the United States will respond. Well, for the last several days, President Obama and his entire national security team have been reviewing the situation in Syria. And today, I want to provide an update on our efforts as we consider our response to the use of chemical weapons. What we saw in Syria last week should shock the conscience of the world. It defies any code of morality. Let me be clear: The indiscriminate slaughter of civilians, the killing of women and children and innocent bystanders by chemical weapons is a moral obscenity. By any standard, it is inexcusable and — despite the excuses and equivocations that some have manufactured — it is undeniable.

The meaning of this attack goes beyond the conflict in...
Automated writing feedback tools

Click a tab to start reviewing this document. Each section contains:

- A list of questions to help you improve the document.
- Supportive content, called "gloss", to help you answer those questions.

Document Stats: 2185 words; 111 sentences, 18 paragraphs.

INTRODUCTION

Mobile learning is becoming popular as a method that serves the dual purpose of increasing student motivation in a particular subject area, and allowing the educational objectives of content understanding and experience with different types of technology to be met. The Federal Government’s ASISTM (Australian Schools Innovation in Science Technology and Mathematics) funded a number of schools, both primary and secondary, to have access to mobile technology that they incorporated into their curriculum in the field of science. While this project involved a number of schools, only two will be discussed in this paper: one primary school and one high school. In particular, this paper will discuss the application of a well-established strategy of collaborative learning (Jigsaw) to the field of mobile learning. We will also outline other developments that have been inspired by this project, and that are work in progress. Teachers and lecturers need more than technology. They need pedagogically sound, effective methods that integrate technology into lessons.
Automated writing feedback tools

The Benefits of Social Media for Life

The recent trend of social media is great for the world. These web-based social sites facilitate large groups of people to exchange ideas, empathize with one another and engage in important topics.

The social media help to democratize the world. One does not need technical mastery to share one’s ideas or talents with the rest of the world.
AcaWriter

- AcaWriter* is a web-based tool that provides formative feedback on rhetorical moves in writing.
- Developed by the UTS Connected Intelligence Centre.
- Code base released open source: http://heta.io/technologies/

*previously called Academic Writing Analytics AWA
Rhetorical moves

A rhetorical move is “a discoursal or rhetorical unit that performs a coherent communicative function in a written or spoken discourse” (Swales, 2004).

It is important to note that the policy applies to all universities

Previous research indicates that this leads to reduced adoption by practitioners
Rhetorical moves

A rhetorical move is “a discoursal or rhetorical unit that performs a coherent communicative function in a written or spoken discourse” (Swales, 2004).

Emphasis

“It is important to note that the policy applies to all universities”

Prior work/ Background

“Previous research indicates that this leads to reduced adoption by practitioners”

“This paper will examine how we can develop contextualizable learning analytics applications”
Rhetorical moves

A rhetorical move is “a discoursal or rhetorical unit that performs a coherent communicative function in a written or spoken discourse” (Swales, 2004).

Emphasis

“It is important to note that the policy applies to all universities”

Prior work/ Background

“Previous research indicates that this leads to reduced adoption by practitioners”

Goal/ summary

“This paper will examine how we can develop contextualizable learning analytics applications”
AcaWriter rhetorical moves

<table>
<thead>
<tr>
<th>Move</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary</td>
<td>This paper will examine the question of how we develop scalable learning analytics applications</td>
</tr>
<tr>
<td>Background (B)</td>
<td>While data was previously studied in educational research, LA now enables more... Recent studies indicate that the effects of the drug could be permanent.</td>
</tr>
<tr>
<td>Contrast (C)</td>
<td>However, a recognized challenge in the field of learning analytics is the uncertainty around LA’s pedagogical relevance</td>
</tr>
<tr>
<td>Question (Q)</td>
<td>Little research exists on how automated feedback impacts student writing.</td>
</tr>
<tr>
<td>Emphasis (E)</td>
<td>The key elements for contextualizing LA include .. It is important to note that the policy applies to all universities.</td>
</tr>
<tr>
<td>Novelty (N)</td>
<td>The new model suggests a view of learning that is an embodied and relational process</td>
</tr>
<tr>
<td>Surprise (S)</td>
<td>Surprisingly, the results indicate a weak link between customer satisfaction and brand value.</td>
</tr>
<tr>
<td>Trend (T)</td>
<td>With the growing quantity of data generated, there is increasing interest in analytics</td>
</tr>
</tbody>
</table>
Acawriter feedback

Analytical Report

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

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

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. **T** 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. **S**

The 2012 Review of the Delivery of Legal Assistance Services to NSW (the 2012 Review) recommended that 'publicly funded legal assistance services should investigate ways in which technology may be used to deliver services more efficiently and effectively.' 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
Potential use

Actual use
Conceptual model for Contextualizable Learning Analytics Design (CLAD)
CLAD implementation

- Examples from two authentic learning contexts – law & accounting undergraduate level subjects
Learning Context 1 – Undergraduate Law

- Writing genre – law essays
- Instructor rubric elements could be mapped to rhetorical moves

<table>
<thead>
<tr>
<th>Sample Sentence</th>
<th>Essay Assessment Rubric Element</th>
<th>AcaWriter Move</th>
</tr>
</thead>
<tbody>
<tr>
<td>The concept of good faith has previously been thought to be a work in progress in Australia.</td>
<td>Engagement with the law and scholarly literature</td>
<td>Background</td>
</tr>
<tr>
<td>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.</td>
<td>Statement of thesis, Essay plan</td>
<td>Summary</td>
</tr>
<tr>
<td>However, where the obligations are found in statute and they conflict with contractual obligations, it is important to note that the former must prevail.</td>
<td>Identification of relevant issues, Critical analysis and original insight</td>
<td>Contrast, Emphasis</td>
</tr>
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AcaWriter Feedback tuning

Analytical Report

The analytical report highlights salient rhetorical moves AcaWriter identified in your essay for reflective feedback. Go to the Feedback tab for specific feedback.

Rhetorical Moves

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

Feedback

- The rhetorical moves highlighted by AcaWriter are used in good academic writing but may not be appropriate according to the context. Remember, AcaWriter does not always 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.

1. It looks like you are missing a Summary move that highlights the purpose (thesis) statement of your essay and your essay plan. Try including linguistic cues to make this move clearer in your writing. Examples: This essay talks about... In this essay, I analyse..., This essay consists of three parts... The first part talks about..., In conclusion,...

2. 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...

3. It looks like you are missing a Contrast/Question move, which highlights the critical insights in your essay. Try including linguistic cues to make this move clearer in your writing. Examples: However, the issue seems to be..., the study fails to consider, little research has been done..., raises various questions...

4. If there is a key idea you did like to emphasise 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...
Conjecture mapping of the task design

Learners must develop their capacity to evaluate and implement rhetorical structures (captured by assessment criteria) in writing-to-learn towards disciplinary practices.

Embodiment

- Tools/Materials
  - Instructor’s rubric
  - High quality exemplar
  - Low quality essay
  - Evaluation questions

Mediating Processes

- Observable interactions
  - 1. Alignment of rhetorical structures with assessment criteria
  - 2. Application of assessment criteria to exemplars
  - 3. Revision
  - 4. Task evaluation

- Evaluative judgement through application of assessment criteria
- Application of revision strategies

Intervention Outcomes

- Learning to self assess rhetorical structure features in essays
- Motivation and capacity to revise

Participant Artefacts

- Self Assessment
- Revised Essay

Participant Structures

- Individual
- Dyadic

Indicates augmentation with analytics
‘Augmenting’ existing pedagogic practice with Learning Analytics

DESIGN 1: Benchmarking and Automated Writing Analytics

Problem: We wanted students to engage with exemplars and their assessment, in order that they have an activity that (1) prompts them to critically apply the assessment criteria, (2) prompts them to engage actively with exemplars, (3) provides us as researchers with information regarding their ability to appropriately assess texts.

Task: The initial base task (task 2) consisted of a task in which students were provided with three exemplars of varying quality, and asked to assess those exemplars using the assessment criteria. The application of the assessment criteria involves a mediating process of evaluative judgement in the application of assessment criteria, which in turn should produce the outcome of improved self-assessment ability.

Tools/materials and participant structures: This task was designed for individual completion, making use of the instructor’s rubric, and both high and low quality exemplars.

Iterations and Augmentation: The task design was modeled on an existing common practice at the institution. To augment this with writing feedback, in the initial iteration of the task, students were provided with texts that had been marked up using writing feedback (from either a tool for feedback on rhetorical structures in writing, or one focusing on spelling and grammar, or from the instructor). With the intent of foregrounding salient features of the texts through the provision of NLP-derived feedback in the form of highlights.
**DESIGN 2: Benchmarking, Text-Revision, and Automated Writing Analytics**

**Problem:** We wanted students to critically consider how specific features in the text instantiate responses to the assessment criteria, and to develop the student’s interaction with the application of the criteria for building their understanding of how to – practically – improve a text.

**Task:** The initial task (task 2) was amended, and an additional task was added (task 1). Task 1 consisted of a task in which the students were asked to match excerpts from a text to the criteria that they addressed (for example, a sentence providing background information aligns with the criterion “Identification of relevant issues”, while a sentence providing evaluation or analysis of a claim or piece of evidence aligns with the criterion “Critical analysis, evaluation, original insight”. The revised task 2 involved students assessing a single exemplar text using the assessment criteria, and being specifically asked how they would suggest improving the text. In task 3, then, the students were asked to edit the text they were provided with (in an editable window, see Figure 2), and (task 4) to evaluate the improvements that they had made (i.e., to provide a new assessment of the quality of the text). Following task 4 the students were provided with their own text revisions, and those of an instructor on the same text, providing a ‘good’ exemplar to demonstrate the improvements made. While the original task (above) was intended to produce a mediating process of evaluative judgement, the revision task was – in addition – designed to produce a mediating process of revision strategy application, to produce the outcome of increased capacity and motivation to revise, and improved self-assessment ability. The first task was specifically designed to develop evaluative judgement through understanding of the assessment criteria, and thus to improve self-assessment through understanding of rhetorical structures.

**Tools/materials and participant structures:** As in design 1, this task was designed for individual completion, making use of the instructor’s rubric, and in task 2 a lower quality exemplar, with task 4 providing the higher quality comparator. The instructor’s rubric and the lower-quality exemplar drive the first and second-to-fourth tasks from the task structures list respectively.

**Iterations and Augmentation:** This task design developed from that described in design 1. As in that case, a between-subjects design was used to provide some students with instructor-based (static) feedback, others with dynamic feedback from AWA, and others with no feedback. Prior work has been conducted to establish conceptual relations between the instructor’s criteria, rhetorical structures, and their specific instantiation in AWA (Knight, Buckingham Shum, Ryan, Sándor, & Wang, 2017). These relationships were foregrounded to the AWA group through static highlights flagging the AWA moves on the sentences to be aligned with the criteria. Then, the revision task was also augmented by AWA, with feedback provided on-request (via a button) to students as they revised the draft they were provided with.
Task Design – Iteration 3

DESIGN 3: Benchmarking, Text-Revision, Peer-Discussion, and Automated Writing Analytics

Problem: Building on the previous designs, we additionally wanted students to engage with each other around the application of assessment criteria, to further develop their evaluative judgement, and ability to explain and justify their judgements of texts and their revisions.

Task: The initial base tasks in design 2 were adapted, such that in in one group of students they were asked to work as dyads, submitting a single revised text, and in the other group they worked individually.

Tools/materials and participant structures: In this design, the participant structure varied by group, with some working in pairs and others individually. When students work in dyads, they involve in discussion consisting of reflection and critique on the structure of essays and the application of automated feedback. The materials and tool for this design are the same as those in design 2.

Iterations and Augmentation: This task design developed from that described in design 2. A key concern in this design was that peer discussion may mediate the understanding and use of the augmented feedback provided by AWA; that is, this task may develop students’ abilities to – critically – use such feedback, and that through observation of this dialogue research and implementation data is obtained. A further alternative design iteration (to be implemented in 2018) consists of asking students to work individually first (with, or without, augmentation), and then to work in dyads (or not) to create a hybrid revised text to submit.

Writing Task

Study Conditions:
- *With automated feedback from AcaWriter for revision
- Without automated feedback from AcaWriter for revision

Introduction to the task

https://www.youtube.com/watch?v=ruN_Vy3knB8
Matching exercise

Understanding instructor’s rubric by matching sample sentences to rubric elements
Viewing sample revisions

Bills or Bitcoin?
Five things every lawyer should know about the future of money

Buying Bitcoin is not the only way to “invest” in it. There are a number of proposed exchange-traded funds or Bitcoin trusts being promoted in the United States as investment schemes. Unremarkably, none has been registered. So far, regulators have demonstrated more resistance to a negative view of Bitcoin than acceptance of it. In May 2014, the Securities Exchange Commission (SEC) issued an alert warning of the potential risks of investments in Bitcoin and other cryptocurrencies. However, this sentiment may be about to change.

In February 2017, the SEC moved closer to accepting the registration of the Winklevoss Bitcoin Trust as an investment product.¹ The Winklevoss twins have been waiting for over three years for this approval. Since then, two further applications for approval have been submitted by Bitcoin investment trusts.² After a number of requests for public comment, revisions, and extensions of time, the SEC’s deadline to rule on whether to approve these applications looms. If the SEC approves these applications, there will likely be a significant increase in trade in Bitcoin.

The reason why the SEC’s approval is required is that a key role of the SEC is to protect investors. If the SEC approves the Winklevoss Bitcoin Trust, it will inevitably...
Assessing given text

1. What grade would you give to this sample essay?
   - HD
   - Distinction
   - Credit
   - Pass
   - Fail

2. Give reasons for selecting the above grade. What are the problems in this text and how would you address them?

3. How confident are you that your grade for this essay will match the instructor’s grade?
   - Extremely confident
   - Very confident
   - Somewhat confident
   - Slightly confident
   - Not confident at all
Revision and Self-assessment

Law Assignment

Essay title: Do the benefits of video conferencing in civil trials outweigh the risks?

Introduction
Rapidly advancing technology has been seen as a marker of contemporary modernity. It has been a formidable vessel in transporting old world values and traditions into a new world of innovation and deviation. In the legal world, the growing area of cyber-crime, metadata and privacy laws all affirm the idea that technological change is inescapable. The implementation of video conferencing technologies in courts reflect an attempt by the judiciary to give effect to case-management principles and the overriding purpose - that is, the just, quick and cheap resolution. Do the benefits of video conferencing in civil trials outweigh the risks identified by Salyn [1]?

While video conferencing in civil trials does generally reduce costs, promote access to justice and is generally quicker than in-person examinations, the pursuit of such technologies should only be engaged with as a last resort for the purpose of upholding the integrity of the law in the Australian context. The current stance of Australian courts considering the access to justice in light of Salyn’s arguments, particularly the latter, is of interest. Part three will examine the role of video conferencing in breaking down traditional social barriers before investigating and evaluating the cost and quality of video conferencing by considering credibility assessments and emotional connection, and part four will examine the impact of video conferencing on the public perception of the legal system.

Part I: Current Stance of Australian Courts
Since the use of CCTV in what were predominantly criminal trials for vulnerable witnesses, such as children or sexual abuse victims [2], the courts have advanced to utilising Integrated Services for Digital Network (ISDN) video conferencing and extended it to civil trials [3]. With this progression from CCTV to ISDN, the courts adapted to technological change [4].

Questions (To be answered after completing your revision in AcWri)

1. How would you rate the changes you made? (Consider the criteria: Statement of Argument, Statement of Essay Plan, Identification of issues, Analysis, Sustained thesis, Original insight, Engages with tics, and how they are expressed)
   - Improved a lot
   - Slightly improved
   - About the same
   - Worse

2. Why? Give reasons for selecting the above option
Peer Discussion and Revision

Instructions for peer discussion (10 mins)

- Select a partner nearby to work with and swap your laptops so you can view each other’s revised essays.
- Read your partner’s revised essay and think about how to improve it, making use of rhetorical moves and discourse markers.
- Give feedback to your partner on how they can improve their revised essay further, and then your partner will give you feedback.
- Try to make at least 3 suggestions for improvements, using the rubric and discourse markers to support your feedback.
- For further revision, test swap back laptops and use the feedback to create your final improved version of the essay.

Enter the student ID and name of the peer you are working with today:

Revision Task (10 mins)

Go back to AusWriter now to improve the text further by taking into account the peer discussion comments. Keep the current tab always open, and come back to AusWriter when you are satisfied with the revisions you made in AusWriter.

Questions (To be answered after completing your revisions in AusWriter)

1. How would you rate the changes you made from the previous stage?
   - Improved a lot
   - Slightly improved
   - About the same
   - Worse

2. Why? Give reasons for selecting the above option

Law Assignment

Essay title: Do the benefits of video conferencing in civil trials outweigh the risks?

Introduction

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Part 1: Current Stance of Australian Courts

Since the use of CCTV in what were predominantly criminal trials (for vulnerable witnesses such as children or sexual abuse victims) [2], the courts have advanced to utilizing Integrated Services for Digital Network (ISDN) video conferencing and extended it to civil trials [3]. With this progression from CCTV to ISDN the courts adopted to technological change [4].

Analytical Report

Feedback

Examples

Essay title: Do the benefits of video conferencing in civil trials outweigh the risks?

Introduction

Rapidly advancing technology has been seen as a marker of contemporary modernity. It has been a formidable vessel in transporting old world values and traditions into a new world of innovation and deviation. In the legal world, the growing area of cybercrime, metadata and privacy laws all affirm the idea that technological change is inescapable. The implementation of video conferencing technologies in courts reflect an attempt by the judiciary to give effect to case-management principles and the overriding purpose — that is, the ‘just, quick and cheap’ resolution. Do the benefits of video conferencing in civil trials outweigh the risks identified by Salzinger [17]? While video conferencing in civil trials does generally reduce costs, promote access to justice and is generally quicker than in-person examinations, the pursuit of such technologies should only be engaged with as a last resort for the purpose of upholding the integrity of the law in the Australian context. The current stance of Australian courts considering the access to justice in light of Salzinger’s arguments, particularly the latter, is of interest. Part three will examine the role of video conferencing in breaking down
Feedback Survey

How did you find this task in helping to improve essay writing?

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<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
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</table>

Very useful                                      Not useful at all

Please explain why:

In general, how comfortable are you with getting automated feedback from a computer?

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Very comfortable                                      Not comfortable at all

How did you find the automated feedback provided in this task to improve the essay?

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Very useful                                      Not useful at all

From this exercise, what do you find as the limitations of peer feedback and discussion?

We’d love to hear any further thoughts you have. Please comment here

For your own reflection, PDF of a sample improved essay by your instructor is available for download below:

Download my instructor's improved essay

Submit your responses. End of task
AcaWriter Quick Start Guide

Why is it relevant to you?

AcaWriter is a writing analytics program that can provide draft feedback on essays.

How does AcaWriter provide feedback?

In the same way that spell-check and Grammarly will indicate that there may be a spelling or grammatical error in your writing, AcaWriter indicates the presence of certain features of good academic writing. By simply copying and pasting text into the editor box on AcaWriter’s landing page and then clicking “Get Feedback & Save”, the software processes the text and reports back to the user whether or not certain types of text have been detected. AcaWriter does this with the help of sophisticated natural language processing technology powered by artificial intelligence.

So, what is AcaWriter looking for in your essays?

In short: attitude. In order to detect attitude, AcaWriter is programmed to recognize discourse markers.

What are discourse markers?

Legal academic writing is an important skill for all lawyers. With the advent of evidence by affidavit, written submissions, email, and e-filing, lawyers write more than ever. Knowing how to write persuasively requires an understanding of the different functions that words perform. In your mid-session essays, you have been asked to take a stance in relation to a proposition. For example, should NSW Courts allow parties to appeal and give evidence via video conferencing technology? To answer this question, it is necessary to evaluate the risks and benefits. Only an essay that takes a position and then provides a persuasive argument in support of that position will achieve a High Distinction. In order to persuade the author should use particular rhetorical devices known as discourse markers. Discourse markers perform the function of speaking to the reader and conveying a position (e.g. This essay will argue ...). It is interesting to note, Nevertheless, Conversely, However, ... In spite of these factors, ...). More examples are provided in the reading material for Week 3 in UTSOnline.

Why bother?

Using AcaWriter gives students an opportunity to receive some pre-submission feedback about their essays. Where there are large tracts of text with no highlighting, students can ask themselves whether there should be (as some analysis, evaluation, original insight needed); or is there too much highlighting (which would suggest a lack of evidence and too much opinion)? Ideally, academics and tutors would give students this feedback, but they simply is not enough time.

How to use AcaWriter?

Open the AcaWriter website at https://acawriter.uts.edu.au. Select UTS Login and enter your UTS Student ID and password. This is the same ID and password that you use to log into UTSOnline.

Once you’re logged in you’ll see the My Dashboard homepage. You can Create a new document to experiment, but for Civil Practice related feedback, click Enter my assignment code and type <assignment code>. This is matched to your subject (pops up in blue – see below). Click on this, and optionally edit the title of the new document you’re creating. Then press Add to my documents.

Click on Go to my document, or press the View my documents button and click on your Document Title. Your document opens, and you can now start using AcaWriter.

Paste your draft essay text into the white box and press the Get Feedback & Save button. AcaWriter works best with short texts, so paste only a section of text you’re working on to get feedback faster. AcaWriter will send your text to a server to be analysed and shows you the progress of the analysis. Once the server has completed processing, feedback from AcaWriter will appear on the right hand side of your original text.
Learning Context 2 – Accounting

- Writing genre – Business reports
- Mapping to assessment criteria
- Identification of relevant features
Feedback tuning for Accounting

<table>
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</tbody>
</table>

- **⚠️** It looks like you are missing a Summary move that defines the goal or summary of your report and its sections. Try including linguistic cues to make this move clearer in your writing like: This report defines..., the report first examines..., then..., this section explains..., Note that you should use past tense in the executive summary section where you explain your results.

- **⚠️** It looks like you are missing a Background move in your text, which highlights previous work on the topic. Some linguistic cues that exemplify background are: Previous market analysis demonstrate that..., is widely recognised as..., It is generally accepted that..., Also, make sure that you provide relevant contextual information on the organisation.

- **⚠️** It looks like you are missing Perspective and Emphasis moves, which highlight your attitude about an idea in text. Try including linguistic cues to make this move clearer in your writing. Examples: The key factor is that..., They highlight the focus on..., is a critical aspect of..., Academic theory holds that...

- **⚠️** It looks like you are missing a Contrast move which highlights disagreement, issues, or alternatives. Try including linguistic cues to make this move clearer in your writing like: Although it is the case..., One challenge is..., However, this problem...
Accounting writing tasks

Week 1: Writing tasks with the given report (Online Homework)
Week 2: Peer discussion (In-class exercise)
Week 3: Submission of own draft report
Weeks 4-6: Self and peer evaluation of draft, Revision for submission
Week 7: Final submission of own report

*AcaWriter used in all tasks*
How useful did you find the task to improve your essay/report writing?

Statistically significant difference between no feedback and AcaWriter feedback groups (p-value <0.005)
Cohen’s-d estimate: 0.82 (large)
“When you're editing your own writing, you automatically think that your work sounds good and that all your ideas and views have been clearly conveyed. This exercise was useful in the sense that it indicated areas where I needed to be more explicit, which on my own I would not have noticed.”

“It made me think about the importance of having clear writing with a clear stance and structure. The technology helped somewhat with this, but I found it was limited to recognising extremely plain language. Language which was more complex but accomplished the same thing was not picked up on.”
Evaluating impact – Student responses

“It's like having a tutor or another person check and give constructive feedback on your work. Can be helpful for struggling students.”

“I believe this exercise may be of better use to some than others, and that it offers good information that could be of use, for me personally, the program would need to be able to help me to better understand what I'm doing incorrectly than correctly, and as such, I believe that a human reading through it is still more effective in that regard.”
Evaluating impact – Student responses

“I think what is being taught is something I was already aware of. However, by being forced to actually identify ways of arguing, along with the types of words used to do so, it has broadened my perspective. I think I will be more aware of the way I am writing now.”

A good reminder of important elements of essay writing. However, I am not sure how useful AcaWriter actually is other than providing some general feedback.
Revision products

Statistically significant difference
(p-value = 4.338e-07)
Cohen's-d estimate: 1.182422
(large)
Understanding educator views

- Interviews with instructors in progress

Motivation, experience, and expectations

Implementation and Usage

Findings, value added and future usage
Balancing scalability and contextualization for LA
Recap

- *Contextualizable Learning Analytics Design* (CLAD) model to develop learning analytics aligned with the learning design.

- *Augmenting existing pedagogic practice* with Learning Analytics.

- The use of design representations to transfer good designs to other learning contexts.
Implications & further thoughts for discussion

• Are there other elements which might contribute to efficient contextualizability of LA and scaling up?

• Making systems and designs malleable to the needs of the educator
  – Will this agency provided to educators improve adoption?
  – Will such systems ensure transparency?

• What are the ethical considerations?
HETA project

Higher Education Text Analytics
Building university capacity in Text Analytics

Welcome

The Higher Education Text Analytics project (HETA) has been funded by the Australian Technology Network (ATN) Grants Scheme for Excellence in Learning and Teaching (2018).

The project aims to build the longer term technical and organisational capacity for ATN institutions to apply natural language processing techniques in order to collaboratively address strategic organisational priorities.

http://heta.io/
ACAWRITER DEMO

• Go to http://acawriter-demo.utscic.edu.au/

• If you have a sample text to try on, paste it in the editor and click on ‘Get Feedback & Save’.

Other sample texts to try:
https://tinyurl.com/yarcup6t
Related articles

- Antonette Shibani, Simon Knight and Simon Buckingham Shum (Forthcoming). Contextualizable Learning Analytics Design: A Generic Model, and Writing Analytics Evaluations. Full paper accepted for publication at the Ninth International Conference on Learning Analytics & Knowledge (LAK ’19), Tempe, Arizona


Related articles


Acknowledgements:

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  • Law - Philippa Ryan, Linda Steele
  • Accounting – Nicole Sutton, Raechel Wight
  • Agnes Sandor from NaverLabs, Europe
• Colleagues in CIC
• Student participants
Thank you!

Questions?

Learn more about AcaWriter:
http://heta.io/technologies/

ShibaniAntonett
http://antonetteshibani.com
How rhetorical parsing works (simplified)

• Uses a Rhetorical parser called ‘Athanor’ developed by Agnes Sandor from Xerox (now NaverLabs Europe).
• Athanor identifies rhetorically salient sentences through patterns of concepts - Rules based Natural language processing system.

Recent studies indicate that ligands of the peroxisome proliferator-activated receptors - gamma (PPAR-gamma) alter cardiac remodeling during chronic ischemia.

Current data is insufficient to conclude whether IVF patients who display AR CAG expansion may transfer infertility or premutation of neurodegenerative disease to their descendants.
Studying revision processes

Revision graph of sample improved essay (left) and sample degraded essay (right)

© Changes in the organization of sentences across multiple drafts
© Repetition of content indicative of cohesion across sentences