Integrating Academic Literacy Support into the Curriculum

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Libraries and Learning Services, the University of Auckland
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Case description

Course: ENGGEN140: Engineering Biology and Chemistry (2016-2019)
Faculty of Engineering
No. of students: 1100+ (2019)
No. of EAL learners: 15-20%

Introduction

Transitioning to university can certainly be challenging for engineering students. Due to an increasingly diverse student population, "commencing students in science and engineering vary in terms of language and cultural background as well as prior educational experience", which may imply that some students have not had extended practice in writing (Drury & Mort, 2012), or have more confidence in their oral rather than written skills (Appleby, Roberts, Barnes, Qualter & Tariq, 2012). In addition, first-year students may need to increase their competence in utilising library resources and evaluating the quality of the materials they access in order to meet the requirements of their courses (Gross & Latham, 2012; Gustavson & Nall, 2011).

However, demonstrating adequate academic literacy skills is not only important for students to thrive in the university environment. It is also essential in the workplace. Good communication skills have often been rated as highly important by employers surveyed in large-scale studies that seek to determine the competencies required by established engineers (Male, Bush & Chapman, 2011). The acquisition of core writing skills is, therefore, strongly advocated institutionally (through course outlines, and Faculty and University graduate profiles); and externally (by employers and through engineering programme accreditation requirements). To respond to the needs of first-year engineering students, higher education institutions have directed their efforts towards the implementation of academic literacy support initiatives. In some institutions, for example, instruction on information literacy and written communication is provided to help first-year students acquire the skills they need to perform successfully in their studies and in future employment situations (Wilkes, Godwin & Gurney, 2015, p.164).

Writing and research instruction for engineers is most effective when it is discipline-focussed, embedded into the programme curriculum, and specifically aligned to assignment tasks (Grafstein, 2002; Peacock, 2011). This means that students perceive writing as part of their real curriculum and the situated writing instruction provides "relevance and authenticity" (Buzzi, Grimes & Rolls, 2012, p. 481). Embedding academic literacy support in a programme also allows instruction to be scaffolded at an appropriate level and across the entire degree programme (Drury & Jones, 2010; Lakshmi & Ragini, 2014).

Effective integration of academic literacy skills instruction into the curriculum is also facilitated by meaningful collaboration between academic staff, learning advisers and librarians (Brasley, 2008; Wilkes, Godley & Gurney, 2015). Effective collaborations can enhance research goals for both the course and the discipline through the use of best practice information literacy and academic literacy pedagogies (Junisbai, Lowe & Tagge, 2016). This means that students are provided with targeted discipline-specific writing skills instruction to increase efficiency but retain an authentic disciplinary context (Buzzi, Grimes & Rolls, 2012).

Implementing writing instruction in the engineering curriculum can be problematic, however, due to large classes and a high number of students for whom English is an additional language. As a result, the use of online self-study tools that can be integrated into the curriculum has been identified as an alternative to provide both sustainable and relevant academic literacy support to students. Libraries and Learning Services (LLS) at the University of Auckland has adopted this strategy to support the development of research and writing skills of first-year engineering students.

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Project background

A Libraries and Learning Services (LLS) project initiated in May 2015 saw the development of an eLearning Research Skills resource (complemented with optional drop-in sessions and online quizzes) for the ENGGEN140 course for semester one 2016. The resource addressed previously identified student needs (related to research skills, referencing and some aspects of academic writing). It was aligned with the course assignment and it was integrated into Canvas (Han, Gunn, & Chidlow, 2017). Incremental changes were made to the resource each year since its development in 2016. Significant improvements were made to the resource for semester one 2018, including alignment with the Graduate Profile capabilities and the addition of more tailored research and academic writing components. A team of subject librarians, learning advisers and teaching staff worked collaboratively on the development and implementation of the 2018 online learning initiative.

Based on previous research findings[1] and an analysis of the course learning outcomes carried out by the course co-ordinator, four online resources developed by Libraries and Learning Services were integrated into a new CourseBuilder site for 2018. These resources were *Research Skills* (2017 version), *write@uni*, *Scheduling your Semester* and *GrammarSmart*. The original research skills resource was revamped to address students' information literacy needs, and specific sections from write@uni were selected to introduce students to academic reading and writing expectations. Additionally, the Scheduling your Semester resource and the module on Active and Passive Voice from GrammarSmart were included to support students' time management and English language skills development.

Implementation

The new ENGGEN 140 Research Skills online resource has eight modules and aims to help students learn about time management, information search and evaluation strategies, academic reading, referencing and report writing. To integrate the resource into the ENGGEN 140 course, a 'just-in-time' strategy was implemented. The course co-ordinator released each of the eight modules through a series of Canvas announcements (Appendix 1). The aim of this approach was to encourage students to work through the resource at specific points in time and to provide scaffolding for them to complete the in-course assignment. Along with the use of the resource, the course included additional means of academic support; namely, a writing lecture taught by the course co-ordinator and two drop-in clinics facilitated by LLS staff.

Evaluation

The outcomes of this academic literacy support initiative were assessed through a study conducted in 2018. The study, which received ethics approval from the UAHPEC (Ref. 020322), sought to identify student and staff perceptions of the usefulness of the resource for the completion of the in-course assignment and its possible impact on the development of research and academic writing skills. Data was collected through pre and post student and teaching staff surveys, weekly student reflective journals, and an informal interview with the course co-ordinator and one of the lecturers. Learning Analytics data from the CourseBuilder site was also collated and analysed.

[1] 2017 CleaR Fellowship research project conducted by Dr Jenny Mendieta.

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Findings

Student survey

The surveys completed at the beginning and the end of the semester measured, amongst others, students' assessment of their own competencies in research and academic writing and whether there was a perceived improvement in these skills after the completion of the in-course assignment. There was a total of 69 responses from the first survey and a total of 103 responses from the second survey, out of 1013 students in the cohort. Only 22 students completed both the first and second surveys.

Appendix 2 summarises a t test on the combined response between the first (69 responses) and second (103 responses) surveys. The students' confidence scores increased from the beginning of the semester to the end of semester on all ten survey items except item 2. Appendix 3 summarises a comparison of students between survey one and two, whose self-perceived confidence was 4 or 5.

The two items that improved the most were for question 8 and 9: "I know how to structure an engineering report" and "I know when, why and how to cite my sources". For these questions, 69.9% and 76.7% of respondents had a confidence rating of 4 or 5 at the end of semester compared with 5.8% and 23.2% at the beginning of semester. This was followed closely by questions 6 and 4: "I know what characterises good academic writing and how to write in a clear, concise academic style" and "I can read academic articles strategically", with 60.2% and 48.5% of respondents who rated a confidence of 4 or 5 at the end of semester compared with 18.8% and 23.2% at the beginning of semester. These results are not surprising, however, as students were exposed to both academic reading and writing as part of the course.

The item that improved the least was question 1: "I already have strategies that I use that work well to help me learn" with 57.3% having a confidence rating of 4 or 5 at the end of semester compared with 42.0% at the beginning of semester. This could be due to the fact that metacognitive strategies were not an explicit component of the course or the online resource. The only item that did not improve but, in fact, showed a downward trend was question 2: "I am able to get peer support from my classmates and friends for my study" with 59.2% of respondents who had a confidence rating of 4 or 5 at the end of semester compared to 62.3% at the beginning of semester. This could be due to the transition from high school, where students felt more supported and guided, into university where they may feel more isolated or face the need to make new friends.

A Spearman's correlation was run to determine the correlation between factors such as peer support and academic confidence. Data shows that students who had more confidence with getting peer support were confident that they had strategies that helped them to learn. There was also a small to medium ($r_s(101) = 0.229$ - 0.337) positive correlation between peer support and seven of the eight items related to academic study which were statistically significant ($p < 0.02$). Students who had more confidence with getting peer support were also more confident with academic-related tasks.

Survey two included three open-ended questions directly related to the use of the online resource: 1) What was your experience of using the ENGGEN140 Research Skills resource? How did you feel about the activities and content?, 2) What could we improve on?, and 3) Why did you not use the ENGGEN140 Research Skills resource?

To the first question, 52 students responded positively, while 13 students answered less favourably. There were 8 neutral and 11 mixed student responses. Appendix 4 illustrates some of the responses provided by the students. Comments and suggestions for improvement of the online resource included:

- Providing takeaway summaries
- Improving the layout of the resource
- Making the resource more concise

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•Including more specific examples
•Including practice questions

The main reason why students did not use the online resource was because they did not feel the need to do so.

Staff survey

A total of 18 tutors responded to the first staff online survey. Only three of these had been involved in teaching the ENGGEN 140 course in the year preceding the introduction of the resource. Only two out of the 18 were familiar with the resource prior to the date the survey took place. As such, the survey responses can be considered anecdotal at best.

Once tutors were made aware of the resource several (n=5) recognised that the resource could be used for benchmarking requirements around research, writing and referencing, and that it could specifically be used to answer students' questions about the assignment - either by referring to the site themselves or directing students to it. Three tutors also indicated that the resource provided transferable skills i.e. skills which could be applied to other university work or courses. One of the three also commented that they would use it for their own individual study purposes.

A total of five tutors completed the second survey. As with survey one, results can be considered anecdotal only. Four of the five were responsible only for marking and/or invigilating so had no contact with the students. The one tutor directly involved in tutoring indicated they had used the resource to answer questions from students. A number of the tutors indicated that they felt the resource had had a positive impact on students' writing ability and one felt that it had helped them with their research skills.

Staff interview

The course coordinator and one of lecturers for the course were interviewed about the use and impact of the online resource after the ENGEN140 course had concluded. The interviewees were shown overall usage statistics for the resource and data analytics around peak use times. These helped to contextualise some of the questions about student usage of the resource.

The interviewees indicated that the tutors had not been briefed about the resource prior to the course which accounted for their low awareness of it. However, they reported a higher standard overall for the research report, particularly with regards to layout, structure and referencing, although they admitted that this may not specifically have been influenced by the resource.

Despite the inclusion of information on evaluating resources, staff also indicated that students still struggled with finding and assessing resources for quality and that they relied heavily on websites rather than more credible sources. Students also struggled to write concisely and to accurately present calculations.

Staff indicated that they felt more exemplars and samples of appropriate writing would contribute to increased competence, particularly in writing.

Reflective journals

The reflective journals provided an opportunity to gather qualitative data, which was analysed to establish how effective the online resource was in facilitating students' completion of the in-course assignment. Twelve students volunteered to participate in the reflective journal exercise which lasted for eight consecutive weeks. Students were prompted weekly (by email from the Principal Investigator) to reflect on the content from the Research Skills resource for that week. Questions varied as students worked through the resource and Google Docs (within the University of Auckland) was the tool used for data collection. Each student's comments were visible to themselves, the PI and co-investigators, but not to the other students participating in the exercise. Students' comments were manually coded by theme and then further analysed in Nvivo 12.

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When the students started writing their reflective journals in week three of the course they were aware of the challenges they faced in the transition from high school to university. These challenges had the potential to prevent them from completing the assignment, and if the resource was to be effective it needed to address these challenges. The five main challenges identified by the 12 students were time management, writing concisely and academically, searching for reliable resources, referencing in APA style and reading critically. Associated with the challenges were many negative emotions. The students used words like "intimidated", "overwhelming", "scared", "worried" and "daunting", although they were also simultaneously excited and looking forward to the course. Their level of confidence was mainly related to their previous high school experience or perceived language ability. Most students had a plan as to how they would organise their work and time, although in some instances their good intentions would prove to be unrealistic.

When the students began to use the resource they were generally positive about the content and activities. An increase in understanding about areas which had initially challenged them led to an increase in confidence and a reduction in stress. In some cases the activities resonated particularly well with the students and motivated them to start working on their assignment. Conversely, other students had good intentions, but found barriers (like sickness and conflicting tests and assignments) which delayed them starting work.

Overall, the resource addressed the challenges which the students faced at the beginning of the course and which they were most apprehensive about. Referencing was the challenge which was most successfully addressed by the resource. The resource gave the students all the information they required to reference in APA style and increased their confidence in utilising it. The resource also appeared to be effective in enabling students to find quality resources and to write in a more academic style, although some students still struggled with these skills. Time management also remained an issue for students, who found it difficult to juggle their workload and life/work balance.

In general, the reflective journals indicate that the resource was effective in providing help in the areas in which students were most apprehensive i.e. the key areas of writing, reading, searching information and referencing, which were the skills that were needed in order to write a good report. The students felt less challenged by week ten than they had been at week three, and they all completed the assignment. See Appendix 5 for a detailed narrative of one of the twelve student's learning journey.

Learning analytics

A total of 1054 users accessed the online resource between 26 Feb and 26 Jun 2018 according to access log data from CourseBuilder. This number includes LLS staff and teaching staff. Google Analytics data from 26 Feb to 20 May (last weekly Canvas announcement) indicates that students accessed the resource multiple times throughout the 10-week period. Students also seemed to have explored the resource every week, except in weeks four, nine and ten, when there was limited user activity (Appendix 6). The relatively high number of weekly page views suggests that the use of the Canvas announcements was, to some extent, a useful strategy to encourage students to explore different sections of the resource throughout the semester. However, there was not always a correlation between the module suggested by the course co-ordinator and the pages visited by students. While there appears to be a link between the announcements made in weeks one, two, six and seven and the modules accessed by students, students' online activity varied considerably from week three onwards, except when the Canvas posts were related to referencing and writing (weeks six and seven). It is worth noting that most of the pages students engaged with during weeks three to nine correspond to sections of the resource that had been recommended one or two weeks prior.

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This might indicate that some students may not have been ready to perform certain tasks (e.g., read sources, refine their writing) when the announcements related to those modules were made. Announcements for modules related in content (e.g., reading strategically and reading critically) could have also been perceived by some students as content repetition. Time-on-page figures indicate that, on average, *Referencing* was the module to which students devoted more time, followed by the *Writing your report* module (Appendix 7).

Conclusions

Triangulation from quantitative and qualitative data sources suggests that the academic literacy support initiative implemented in the ENGGEN 140 course in semester one 2018 contributed, to some extent, to students' academic research and writing skills development. Results from the second survey indicate an increase in confidence in students' academic study skills, and these findings are supported by the perceptions of teaching staff of a higher standard in the research reports produced by the students. Nevertheless, it is important to note that only 103 students responded to the survey (out of 1013) and that there is a variety of personal and contextual factors that could have played a role in students' academic performance. The use of the online resource may have played only a small (or no) part in students' academic skills development.

Nevertheless, students' positive comments about the content and activities of the resource in the second survey and in the reflective journals indicate that for some students the resource was both relevant and useful. The Research Skills online resource appears to have addressed, to some degree, the academic literacy needs first-year engineering students experience in their transition to university study. An increase in understanding of academic study expectations and demands seemed to have led to an increase in confidence in some students, and in cases such as the one reported in Appendix 5, a reduction in anxiety.

Findings from the second student survey, the weekly reflective journals and learning analytics also reveal that referencing, followed by report writing, were the two areas most successfully addressed by the resource, and with which students engaged the most. Learning analytics data also shows that, unlike in 2017 (Mendieta, 2017), students accessed the resource multiple times during the semester. This sustained level of student engagement appears to have been partly motivated by the regular use of Canvas announcements and the use of the resource by the course co-ordinator.

The analysis of multiple data sources equally provided useful information about the activities in the resource that the students considered were not as effective or required modifications. This feedback was taken into consideration by the Project team in the revision of the course for 2019, which led to the inclusion of a more relevant example of an engineering report. The findings also led to a reduction of and change in the timeline of the Canvas announcements.

Resources

- ENGGEN 140 Research Skills Resource
- write@uni
- Scheduling your semester
- GrammarSmart

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Project team

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Academic staff

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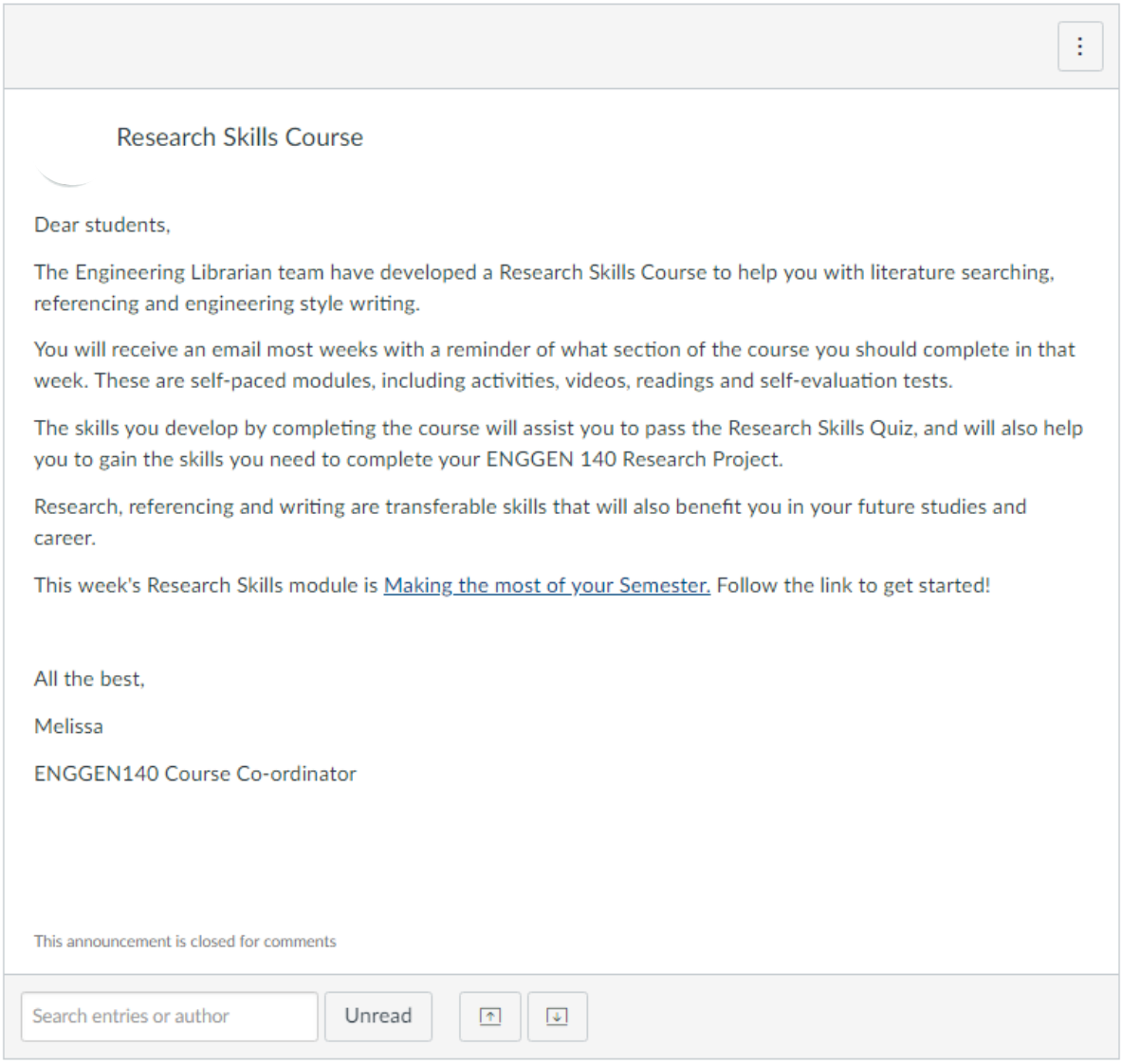
Appendix 1: Canvas announcement to introduce students to the online resource



Research Skills Course

Dear students,

The Engineering Librarian team have developed a Research Skills Course to help you with literature searching, referencing and engineering style writing.

You will receive an email most weeks with a reminder of what section of the course you should complete in that week. These are self-paced modules, including activities, videos, readings and self-evaluation tests.

The skills you develop by completing the course will assist you to pass the Research Skills Quiz, and will also help you to gain the skills you need to complete your ENGGEN 140 Research Project.

Research, referencing and writing are transferable skills that will also benefit you in your future studies and career.

This week's Research Skills module is Making the most of your Semester. Follow the link to get started!

All the best,

Melissa

ENGGEN140 Course Co-ordinator

This announcement is closed for comments

Search entries or author

Unread

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Appendix 2: Combined t test summary of student confidence on academic items

	Beginning of Sem		End of Sem				95% CI		Cohen's
	M	SD	M	SD	t	*p*	*LL*	*UL*	*d*
1. I already have strategies that I use that work well to help me learn	3.26	0.90	3.51	0.90	-1.82	0.071	-0.529	0.022	0.28
2. I am able to get peer support from my classmates and friends for my study	3.67	0.97	3.64	1.09	0.16	0.873	-0.295	0.346	0.03
3. I know how to locate and evaluate good quality information sources for my assignments	2.88	0.95	3.66	0.91	-5.37	0.000	-1.057	-0.489	0.83
4. I can read academic articles strategically	2.70	1.02	3.49	0.91	-5.33	0.000	-1.082	-0.497	0.82
5. I understand what it means to read critically	3.16	0.99	3.58	0.89	-2.89	0.004	-0.708	-0.134	0.45
6. I know what characterises good academic writing and how to write in a clear, concise academic style	2.71	0.84	3.67	0.90	-7.03	0.000	-1.229	-0.690	1.10
7. I know how to express other people's ideas in my own words	3.36	0.86	4.03	0.91	-4.81	0.000	-0.940	-0.393	0.75
8. I know how to structure an engineering report	1.90	0.97	3.84	0.94	-13.15	0.000	-2.238	-1.654	2.04
9. I know when, why and how to cite my sources	2.77	1.15	4.05	0.83	-7.94	0.000	-1.600	-0.961	1.29
10. I am able to read my own work critically (revise, edit and proofread my writing)	3.35	0.98	3.78	0.87	-3.00	0.003	-0.711	-0.147	0.46

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Appendix 3: Comparison of students' self-perceived confidence in survey one and two

	Beginning of Sem		End of Sem		
	M	% 4-5*	M	% 4-5*	M difference
1. I already have strategies that I use that work well to help me learn	3.26	42.03	3.51	57.28	0.25
2. I am able to get peer support from my classmates and friends for my study	3.67	62.32	3.64	59.22	-0.03
3. I know how to locate and evaluate good quality information sources for my assignments	2.88	27.54	3.66	58.25	0.77
4. I can read academic articles strategically	2.70	23.19	3.49	48.54	0.79
5. I understand what it means to read critically	3.16	42.03	3.58	51.46	0.42
6. I know what characterises good academic writing and how to write in a clear, concise academic style	2.71	18.84	3.67	60.19	0.96
7. I know how to express other people's ideas in my own words	3.36	55.07	4.03	73.79	0.67
8. I know how to structure an engineering report	1.90	5.80	3.84	69.90	1.95
9. I know when, why and how to cite my sources	2.77	23.19	4.05	76.70	1.28
10. I am able to read my own work critically (revise, edit and proofread my writing)	3.35	44.93	3.78	62.14	0.43

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Appendix 4: Excerpts from students' responses to open-ended question in survey two

What was your experience of using the ENGGEN140 Research Skills resource? How did you feel about the activities and content?	
Positive (n=52)	*Less favourable (n=13)*
"The content was brilliant, including resources that were specifically tailored to give first year engineering students an introduction to academic writing for engineers. It was necessary to allow my transition from the writing styles learnt in high school (e.g. for writing essays of Shakespeare's plays) to a more technical and scientific style." "One particular thing I found rather valuable was the section on knowing what constitutes good sources from bad - sponsored reports can often be biased for example. I have never considered the [validity] or credibility of sources before, and if so, only subconsciously. What I'm trying to say is that particular section stuck to me, because I found it helpful. It taught me something valuable and necessary for the report."	"I didn't have time to look at it much, I felt learning content from other courses to be a higher priority" "The content was useful but some of it was very basic/common sense. I started out following the modules closely as I saw that I would be assessed on my research skills. Despite this, I lost interest about half way through and completing the weekly modules dropped to the bottom of my priority list as assignments and tests piled on."
Neutral (n=8)	*Mixed (n=11)*
"It was ok, most of it was just common sense and basic English skills however the referencing stuff is helpful" "It was alright"	"Felt it was pretty straightforward, bit tedious at times." "Much of it was helpful although I didn't fully engage with it."

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Appendix 5: Student learning journey (reflective journals)

Solange (pseudonym)

Solange is an 18-year-old student who identifies herself as Malay Chinese. She attended an all-girls high school in Northland, New Zealand and is an Engineering student at the University of Auckland. English is not Solange's first language and it was not her 'favourite subject' at school either. She 'dreaded writing essays' as she knew they 'would be full of grammar mistakes'. As a first-year university student, Solange was thus very 'eager to improve [her] English writing skills' through using resources that could guide her 'along the writing process'. This personal goal motivated her to participate in the Library's research project. Solange was also aware that high school is 'very different from university' and was motivated to 'keep on top of [all] her courses' by starting early on assignments, preparing for lectures, and seeking support when necessary.

Because Solange was committed to her goal of developing her research and writing skills, she organised her time in a way that allowed her to check the Research Skills online resource developed for ENGGEN 140 regularly. When numerous demands competed for time, such as when she had to 'prepare for her 115 test' in Week 4, Solange chose to review the recommended module a week earlier 'so she could catch up and not miss it'. She also took notes for future reference and signed up for a library workshop on paraphrasing before she 'screw[ed] up' in her writing assignment. To her, the online resource 'helped [her] gain confidence in academic writing' and was a tool she could come back to for help when needed.

As the semester progressed, Solange identified additional learning opportunities. Module 5, for instance, gave her 'some tips on being an academic writer' and 'a set of questions' that she could ask 'during the process of writing [the] report'. Listening to the advice given by academics and students also made feel her 'more confident in starting [her] research project' and encouraged her to 'start early'. Module 6 'was informative' and 'helpful' for she learnt what she 'needed to look out for' in a report, and Module 8 taught her about 'referencing', which was a new concept to her. Having refined her draft after noticing inconsistencies in her references and having used the resource in another course, Solange felt that she had developed a 'useful skill for future report writing to come'.

However, halfway through the semester, Solange still lacked confidence in her ability to write accurately and concisely. In Week 6, she also reported feeling 'stuck' and 'lost' while researching for her assignment, as she was 'more of a formulas and calculations person'. Answering open-ended questions was clearly a challenge, given that she 'was used to knowing all the answers' in high school.

Overall, Solange found reading, writing and referencing 'very hard', which she attributed to her lack of experience in research and academic writing. As she continued to reflect on her experience, in Weeks 6 and 8, Solange recognised that her real challenge was 'to learn to believe in [herself] more' and 'to have confidence' in her ideas. Surprisingly, she also started to question her career choice as 'she did not like Engineering in the first place', and wondered whether she had chosen this career because she was following in 'her [sister's] footsteps'.

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Despite her dislike for research and writing, to the point that she was 'glad the report was over' at the end of the semester, Solange persevered and did not give up. To overcome her 'fear' of failing to meet the assignment requirements, she decided to employ strategies such as setting a deadline for herself, creating a writing outline, reading widely to 'gain different perspectives', and looking for someone who could help 'check for [her] grammar mistakes'. Starting early and setting deadlines were two of the strategies that Solange seemed to have put into practice, as she mentioned in Week 9 that, 'through help from the resources and lecturers, she [had been] able to finish the report ahead of time'

She was also aware that her research skills would develop 'throughout the years in the university' and that 'writing is something you need to practice' in order to improve. This growth mindset seemed to have helped her regulate the negative emotions she experienced when faced with challenges, which would later be reflected in her journal writing. In two of her last journals, Solange conveyed her confidence in her ability to 'learn to write more concisely in upcoming reports', and reported having grown 'to love the challenges' of most of her courses. She also 'learnt to endure the pain of researching' since she could see that it was 'a life skill for the future'. Similarly, she expressed her willingness to wait to see if she 'would truly like Engineering as her future career path'. In the end, Solange attained a good mark for her assignment and did relatively well in the course.

Reflective coda

Solange found it very difficult to write her first research report, and this impacted significantly on her confidence in her knowledge and abilities. Interestingly, her growth mindset and the strategies she employed throughout the semester (e.g., positive self-talk, increased effort) appeared to have helped her self-regulate her negative emotions, which had a positive impact on her learning. Despite her dislike for research and writing, she adapted her expectations and behaviour accordingly.

On her experience with reflective writing, Solange commented that she had found it 'to be really relaxing' and a good chance to see 'where she [was] having trouble with' and whether she needed 'extra help'. She was clearly aware of the need to develop her research and writing skills to do well in her studies and future career; therefore, she used the support and resources available at the University. It was also clear to her that 'Engineering involves a lot of writing'.

When prompted to think about areas to improve, Solange acknowledged that while she had learnt to persevere and manage her time, she still needed to work on her writing and source evaluation skills, as well as increase her academic vocabulary.

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Appendix 6: Page views over semester (Google analytics)

Week	Total unique page views	Module unique page views	Match announcement (70% unique page views)
Week 1, Module 1: Making the most of your semester	3180	1603	Yes
Week 2, Module 2: Understanding information sources	1478	817	Yes
Week 3, Module 3: Reading strategically	1936	663	No
Week 4, Module 4: Reading critically	618	222	No
Week 5, Module 5: Planning your writing	3904	631	No
Week 6, Module 8: How to **reference** in APA style	202	151	Yes
Week 7, Module 6: Writing your report	4613	3881	Yes
Week 8, Module 8: **Referencing**	8580	1621	No
Week 9, Module 7: Refining your writing	7001	195	No
Week 10, Module 9: Using assignment feedback (uaf)	1008	97	No

* Weekly figures from 26 Feb to 20 May 2018 (last Canvas announcement)

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Appendix 7: Average time on page (Google analytics)

Page title	**Avg. Time on Page (seconds)**
8.0 Referencing - 8.2 How?	481
8.0 Referencing - 8.3 How do I reference in the APA style?	307.19
6.0 Writing your report - 6.3 Achieving clarity	260.10
6.0 Writing your report - 6.4 Active and passive voice	219.7
2.0 Understanding information sources - 2.1 Identifying information sources	188.58
2.0 Understanding information sources - 2.3 Evaluating information sources	181.29
1.0 Making the most of your semester - 1.1 From school to uni	176.75
6.0 Writing your report - 6.1 Writing in an academic voice	170.87
8.0 Referencing - 8.3 Practice	144.92
3.0 Reading strategically - 3.1 What does a strategic reader do?	142.35

* Data from 26 Feb and 26 Jun 2018 (end of semester)