Integrating reading and writing: supporting students' writing from source

Adeline Cooney
Maynooth University, adeline.cooney@mu.ie

Eamon Darcy
Maynooth University, eamon.darcy@mu.ie

Denis Casey
Maynooth University, denis.casey@mu.ie

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Journal of University Teaching & Learning Practice

2018

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Introduction

It is generally agreed that first-year university students find integrating sources effectively and appropriately in their writing difficult (Cumming, Lai & Cho 2016, Grabe & Zhang 2013, Hirvela & Du 2013). Grabe and Zhang (2013) note that even native speaking students have to work hard to master this skill. The Citation Project, a website with a detailed bibliography of scholarly works on issues surrounding student source use and useful resources for university educators to use in the classroom, illustrates the demand for works on this elusive and intricate topic (Jamieson 2017). Studies of the processes involved in writing from sources illustrate its complexity. For example, Yang and Shi (2003) found that students engage in a sequence of interrelated tasks when writing from sources comprised of: planning content, referring to the sources, writing, reading what has been written, revising and editing what has been written and commenting on the source text. These tasks are supported by complex cognitive processes underpinning the act of writing, for example, interpreting content, selecting key ideas, connecting related ideas, structuring, and elaborating ideas (Cumming, Lai & Cho 2016, Spivey & King 1989, Wette 2010).

Lack of confidence in their writing ability partially explains why students fail to engage meaningfully with the source text and struggle with component parts of writing from sources such as quoting and paraphrasing. Although they focused on non-native speakers, Hirvela and Du's (2013) tracking of two USA-based undergraduate Chinese students' application of paraphrasing skills when using sources in their writing offers interesting insights that may be applicable more widely. Their work vividly illustrated some of the difficulties students experience with paraphrasing, particularly in terms of confidence in their abilities as writers vis-à-vis their sources' authority. They concluded that students sometimes retreat to "the seemingly safer ground of direct quoting, where they not only stayed true to the original meaning of the source text material, but also believed that they gained a stronger authorial voice vicariously by association with the original authors*"* (Hirvela & Du 2013, p.96).

Similarly, the complexity inherent in other component tasks of writing from sources, such as quoting source material correctly is underestimated. This skill involves learning where to appropriately incorporate a quote, learning how to integrate a quotation into text so it reads coherently, and learning how to edit quoted text. It is not surprising that students struggle with what is often considered the 'simple' task of quoting from sources. Focusing on writing conventions such as where to place quotation marks or brackets is clearly not enough. Hirvela and Du (2013) agree and likewise suggest that students' difficulty with paraphrasing is reflective of a failure in teaching students how to paraphrase. They explain that the fault lies in both how it is taught and in underlying assumptions on the part of instructors, where paraphrasing is taught 'as a kind of linguistic and lexical technology (knowledge telling)' and predicated on the assumption that students will bridge the gap of their accord (Hirvela & Du, 2013 p. 96).

Hirvela and Du's (2013) comment underscores the complexities involved in just teaching paraphrasing, and so it is not surprising that teaching students the larger skill of how to write from sources is considered a difficult task (Cumming, Lai & Cho 2016, Li & Casanave 2012). Moreover, Howard, Serviss and Rodrigue (2010) speculate that students struggle with writing from sources because they have not understood the source text. Their analysis of 18 student papers revealed that students (L1 and L2) wrote from single sentences selected from the source and not the source in its entirety. They conclude that educators should "… attend to the more fundamental question of how well students understand their sources and whether *they are able to write about them* without appropriating language from the source" (p.177 emphasis added).

Wette (2010) comments that the literature on this topic focuses more on the problems than the solutions. Consequently, this paper aims to contribute to the solution-focused literature by sharing: (1) a set of learning and teaching activities designed to develop students' writing from sources skills, (2) the rationale for the design and implementation of the learning activities and resources used, (3) initial findings on students' skill development and (4) recommendations and suggestions to strengthen the learning and teaching activities. We adopted the lesson study method to guide us in achieving these aims.

Method

Lesson study is "… a systematic inquiry into teaching practice" (Fernandez 2002, p.394), involving small groups of teachers working collaboratively to plan, deliver, study and refine a lesson (Cerbin & Kropp 2006, Fernandez 2002). Cerbin (2011) explains that lesson study aims to improve the practice of teaching overall, hence it is important to reflect on the lesson and on "… learning and teaching more broadly" (Lewis, Perry & Murata 2006, p.3). This method informed both our teaching approach and desire to share our experience and learning, and to this end we provide a detailed description of the lesson, the thinking behind its design and a critical reflection on the outcome. The lesson aimed to teach students to effectively and appropriately integrate sources into their own writing. We (the authors) collaborated to develop the lesson and each of us delivered the lesson to 10 separate class groups, coming together afterwards to share our experience and observations (Fernandez, 2002).

The lesson is comprised of seven parts and was delivered to students taking a Critical Skills course at Maynooth University, in Ireland. Critical Skills is comprised of two modules (15 ECTS credits) which run sequentially across the academic year. The course is available to almost all first-year undergraduate students and was taken by over 1000 students in 2017/2018. These modules are focused on fostering students' critical thinking, analytic, communication (verbally and in writing) and team working skills (Maynooth University 2018). Critical Skills classes are small (maximum 25 students) and interdisciplinary with students studying arts, humanities, social sciences and sciences sharing classes. The lesson was delivered at the beginning of Module 2. During Module 1 students had been introduced to: searching and evaluating literature, paraphrasing, summarising, citing and referencing. Delivering the lesson in Module 2 enabled students to build on this learning and their prior writing experience i.e. we noted that students had difficulty in smoothly integrating sources into their own writing in their essays (one element of the assessment for Module 1). The lesson was delivered across three one-hour sessions for four weeks i.e. 12 hours in total. The content delivered adhered to the plan outlined in **Appendix 1**. The data presented here was collected from 10 classes, ranging in average size from 15–20 students (circa 160 students in total).

Background to designing the lesson

The lesson plan was informed by a review of the literature on writing from multiple sources. The aims of the review were: (1) to understand the skills involved in writing from multiple sources and (2) to identify best practice in teaching these skills. A preliminary review of the literature focused on identifying the most cited explanations of the processes and skills involved in writing from sources (**Table 1**). A qualitative content analysis of these explanations revealed: (1) the complex reading, writing and cognitive skills required to write from sources and (2) the range of writing tasks involved in writing from sources, for example, knowing how to paraphrase or how to summarise (see **Table 1**).

Table 1: Content analysis findings describing the skills required to write from sources

Verbatim explanations of writing from sources (Emphasis added).	Content analysis of skills:
'Learning to write from textual sources (e.g., ***integrating*** complementary sources of information, ***interpreting*** conceptually difficult information) is a challenging skill that even native speaking students have to work hard to master…Tasks that require reading/writing integration, such as ***summarizing, synthesizing information, critically responding to text input, or writing*** a research paper, require a great deal of ***practice***.' **(Grabe & Zhang 2013, p.10)**	***Cognitive skills*** Interpreting, integrating (implies connecting). ***Writing skills*** Critically reading, summarising, synthesising, critiquing. ***Other*** Requires practice.
'Firstly, writers need to ***understand*** the source text well, as the ***quality*** of the text they produce depends very much on the quality of that comprehension (Kennedy, 1985; Kim, 2001; Roig, 1999). They then need to ***select and transform*** particular items of content (Kirkland & Saunders, 1991) to ***construct citations that neither copy (unless quoting), nor "patchwrite"*** by attempting to ***combine*** original and source material without acknowledgment (Howard, 1992). Writers need to ***integrate*** citations with their own positions and propositions, but also to clearly indicate the boundaries between them in order to communicate an ***authorial identity*** in respect of the text they are composing (e.g., Abasi, Akbari, & Graves, 2006; Hirvela & Belcher, 2001; Hyland, 2002; Ivanic & Camps, 2001). In addition, writers need to be familiar with the literacy practices of their disciplines, and to understand that the texts they compose are part of a ''disciplinary discussion'' characterised by ***intertextual use of language*** (Bazerman, 2004; Hyland, 2000).' **(Wette 2010, p.159)**	***Cognitive skills*** Comprehending, interpreting, integrating, evaluating. ***Writing*** Critically reading, critiquing sources, paraphrasing, summarising, synthesising, transforming, integrating own voice into their writing, citing, acknowledging sources. ***Other*** Evaluating the quality of sources, knowledge of disciplinary expectations and norms around citation.
'Readers ***select*** content on the basis of some ***criterion***, ***organize*** the content by applying their knowledge of text structure, and ***connect*** related ideas by discovering and ***generating links*** … ***Selecting, organizing, and connecting*** are also apparent in discourse synthesis, a highly constructive act in which readers become writers … In discourse synthesis, readers (writers) select, organize, and connect content from source texts as they ***compose*** their own new text.' **(Spivey & King 1989, p.9)**	***Cognitive skills*** Interpreting, selecting, organising, linking, integrating, evaluating. ***Writing*** Composing, transforming, integrating own voice into their writing, generating new text. ***Other*** (Implicit) searching and finding sources.
The ability to use sources text 'involves important ***connections between reading and writing***: reading sources effectively to ***identify the most useful information*** for writing purposes, and knowing how, in the act of writing, to ***successfully incorporate that material into the text being created*** (Hirvela, 2004). Indeed, while writing from sources, students need to engage in a variety of complex reading and writing activities and make contextualized decisions as they ***interact with the reading materials and the assigned writing tasks*** (Kucer, 1985; McGinley, 1992; Spivey, 1990) … the writer [also] utilizes such core academic reading/writing	***Cognitive skills*** Comprehending, interpreting, selecting, connecting, integrating, evaluating. ***Writing*** Critically reading, transforming, integrating own voice into their writing, generating new text, synthesising, paraphrasing, citing, summarising, referencing.

techniques as direct quotation, summarizing, and paraphrasing.' **(Hirvela & Du 2013, p.87)**	*Other* (Implicit) searching for and evaluating sources.

The findings of the qualitative content analysis provided the grounding for our conceptualisation of the component writing tasks to be learnt: (1) finding, reading and accurately interpreting source material, (2) evaluating the authority, credibility and relevance of the source, (3) knowing how to re-write original text and ideas using core academic writing techniques such as direct quotation, summarising, paraphrasing, citing and referencing, (4) knowing how to synthesise material across multiple texts and (5) knowing how to create new text through integrating their understanding of the source texts while giving primacy to their own voice in their writing. The identified component tasks served as the learning outcomes for the lesson (see **Appendix 1**).

We envisioned these component writing tasks as a sequence, indicating therefore not only what should be taught but the order in which it should be taught. We developed learning activities around each learning outcome, which were informed by a wider review of the literature focused on best practice in teaching these skills. For example, to enable students to achieve the first learning outcome, "finding, reading and accurately interpreting source materials", we developed content on key word searching, critically reading, paraphrasing and summarising source material (see **Appendix 1**). Each session was 'built' around learning strategies that provided students with opportunities to actively engage with content, practise skills and gain feedback. A breakdown of the lesson, together with the learning approach adopted, is provided in **Appendix 1**.

Approach to delivering the lesson

The instruction strategies shown to have a positive effect on students' ability to write from sources are multifaceted and combine: explanation of synthesis writing, modelling or demonstration, practice, teacher feedback and evaluation (Grabe & Zhang 2013, Segev-Miller 2004, Wette 2010, Zhang 2013). In addition, there is some evidence that simple repetition of writing tasks improves students' skills (Cumming, Lai & Cho 2016, Perin, 2002). Grabe and Zhang (2013) agree and flag that insufficient opportunities to learn and practice reading/writing integration is a major contributory factor to poor summarising and synthesising skills. Additionally, students with poorer reading-comprehension proficiency and/or less-sophisticated reading skills find summarising and synthesising material more difficult; which leads them to copy text directly (Grabe & Zhang, 2013). Grabe and Zhang (2013) studied English as a second language (L2) students. However, source integration is difficult for *all* students (L1 and L2). Refaei et al. (2017), based at the University of Cincinnati Blue Ash College, report that historically first year student performance on the criteria measuring their ability to integrate and cite sources is lower compared to performance on other rubric criteria. A possible reason for L1 students' difficulties is that they are required to write from sources that are composed in a much higher linguistic register than they are used to reading on a regular basis. Even to L1 university-level students, academic sources may appear written in a 'semi-foreign' language, which use discipline-specific lexicons to introduce new concepts and express them in a formal register. Consequently, the linguistic comprehension necessary for writing from sources cannot be taken for granted.

Grabe and Zhang (2013) recommend that lecturers should model how to integrate reading/writing and how to paraphrase in their classes, providing students with lots of opportunities to practice these skills. They suggest several specific strategies, for example, extensive reading supported by reading guides, model and scaffold-integrated reading/writing tasks and peer feedback. We applied these strategies when designing the learning activities and incorporated practice opportunities at each

stage. We also incorporated peer and instructor feedforward and feedback to support student skill development.

We were conscious, however, that focusing on part skills only (e.g. paraphrasing or summarising) ran the risk of students not fully understanding that writing from sources is not about substituting their 'voice' with that of authors they cited or quoted. We therefore took care to define what we expected students to achieve. Our definition of the whole skill, based on our findings from the literature review, is that students will be able to 'read, select and connect content from source texts and incorporate these into their own new writing' (Boscolo, Arfé & Quarisa 2007, Cumming, Lai & Cho 2016, Grabe & Zhang 2013, Hirvela & Du 2013, Segev-Miller 2004, Spivey & King 1989, Wette 2010). This definition expresses the threshold (or whole) skill we aimed to reach. We used this definition to explain to students that writing from sources is more than repeating others' words (albeit in their own words) but the strategic use of source text to construct argument and meaning. We actively encouraged students to draw their own conclusions based on what they read and took care when giving feedback to comment on students' 'own' writing.

Analysis of student learning

The data comprised of: (1) students' in-class writing activities (e.g. practice paragraphs) during the delivery of the lesson, (2) the team's notes, comments and reflections and (3) students' summative assessed writing (a group project in which groups of 4–5 students write a 2000-word White Paper) and a group poster (discussing and demonstrating a skill that they have developed over the course of the academic year). Qualitative thematic analysis at the semantic level (Braun & Clarke 2006) was used to analyse the data. Broadly this analytical approach involves searching for patterns (themes) across the data (Maguire & Delahunt 2017, Braun & Clarke 2006). To explain the concept of "semantic level", Braun and Clarke distinguish between two levels of themes (latent and semantic) and explain that semantic themes "... are identified within the explicit or surface meanings of the data ... the analyst is not looking for anything beyond what a participant has said or what has been written" (2006, p. 84). This is not to suggest that the outcome is merely a description, rather the aim is to interpret and explain the broader meanings and significance of the identified patterns. This focus was appropriate to the exploratory nature of our aims: (1) what elements of the lesson work/do not work as evidenced by a change in students' skills? and (2) how can the lesson be improved? Braun & Clarke's (2006) six-steps for thematic analysis were applied when analysing the data.

Our analyses across these data sources highlighted notable improvement in students' ability to (1) find relevant source material, (2) interpret and use source materials in their writing and (3) synthesise material across sources. There was less marked improvement in their ability to: (1) critique sources, (2) paraphrase and summarise content and (3) create new text. Inevitably students' skills varied with some demonstrating greater improvement across the module learning outcomes than others. These findings are explored below using examples to support our interpretations. The examples comprise of: (1) verbatim examples of students' writing and (2) our observation and explanations of student processes and approaches (the latter are written in italics to distinguish these from the students' writing).

Students' ability to search the literature improved considerably as evidenced by their ability to find relevant sources to support their work. They relied less on general internet searches, opting instead to use the library databases and Google Scholar. There was marked improvement in their ability (in comparison to their writing in Module 1) to recognise citation-worthy texts, and they were more likely to cite academic journals, reports and books rather than internet sources. We observed that students read more widely and across a wider range of subject areas. For example:

One group who planned to write on childhood obesity struggled to find appropriate sources. Their initial search was ad hoc, most of their sources were newspaper accounts or poor quality internet sources. The group were advised to review the content covered in 'key word searching' (Appendix 1) and to 'think about what they needed to know to understand the problem'. In the next iteration of their search strategy the group had succeeded in breaking down the search and had identified better key words, for example, 'prevalence of childhood obesity' and 'management of childhood obesity'. Their revised search strategy succeeded in locating high-quality studies across a range of disciplines (economics, epidemiology, human biology and public health). Their ability to search (i.e. identify appropriate key words, devise and refine the search strategy) and to recognise the quality of different sources had advanced substantially. (Group 1, Subgroup 1)

This was a common finding across groups.

We found students improved their ability to explain and argue points. They were more analytical and more skilled at recognising patterns or themes across texts. For example, a student reading about suicide noted that suicide rates differed across countries. He wrote:

'Suicide rates within countries like the Netherlands are low while rates among Flemish in Belgium are high we need to compare suicide rates (in other countries) to Ireland in our paper'. *This student's recommendation (based on his reading) prompted a group discussion on suicide rates. They queried what might explain different rates across countries and were there other differences? The group concluded they had not read around the topic sufficiently to understand the underlying trends. They agreed to read around suicide rates, patterns and motivations in more depth. Having read more widely they found (and could cite sources to support their conclusion) that there is a relationship between gender and suicide. Further reading and analysis helped them to narrow their topic further. Their final paper explored why Irish men were more likely than women to commit suicide and concentrated on relevant related concepts such as masculinity, peer socialisation and the 'lad' culture in Ireland.* (Group 3, Subgroup 3)

In another assignment, a poster presentation on 'information has value', students explained in their own words the differences between qualitative and quantitative data and linked it to example studies:

Heyvaert, Maes and Onghena (2013) state that studies are expected to have a mixed methods research synthesis. This implies that while it is important to have two distinct strands of research, one qualitative and one quantitative, researchers must assemble the data, analysis and inferences of the research while linking and integrating the two strands in a systematic method. Data must be researched, studied, assessed and summarized according to pre-determined criteria, expected from researchers. EXAMPLE: Davidson, Squibb and Mikkelsen (2016) exhibited an excellent use of both qualitative and quantitative data. Their qualitative data included student reflections and faculty debriefs. Quantitative data included GPA results at the end of the students' first semester. (Group 10, Subgroup 1)

However while students were more analytical and able to see similarities and discrepancies across the literature, most continued to find it difficult to integrate sources of information into their own writing. They had good information and good ideas but their efforts to compose 'new' text (i.e. to connect source materials with their own writing) was not always successful, resulting in instances of patchwriting (defined by Howard (1992, p.233) as 'copying from a source text and then deleting some words, altering grammatical structures, or plugging in one-for-one synonym substitutes').

Other students let the texts do the 'talking', restricting their 'voice' to perfunctory comments only. However, overall students demonstrated greater skills at identifying, presenting and connecting key information. An example of student writing demonstrating this:

> A review of national statistics on childhood obesity from 2002 to 2012 observed that 'obesity prevalence remained constant at 7% in the nationally based studies between 2002 and 2008 with the prevalence of obesity reducing to 4% thereafter.' Results of the study also suggested that one in fifty Irish children are morbidly obese (Keane et al., 2014). In 2007 Ireland joined the European Childhood Obesity Surveillance Initiative (COSI) which was established by The Nutrition and Food Security Programme of WHO/Europe. The initiative aims to measure trends in overweight and obesity in children aged six to ten years-old every three years, to understand the progress of, and help reverse, the obesity epidemic. Having a standard surveillance system across Europe is important in tackling the obesity epidemic in children and identify groups at risk, as well to evaluate the impact of obesity preventive interventions in school settings. In Ireland, the Department of Health and the Health Service Executive commissioned the National Nutrition Surveillance Centre … to commence this surveillance work among primary school children in the Republic of Ireland (HSE, 2016). (Group 3, Subgroup 1)

We employed a number of learning activities to give students opportunities to practice reading, interpreting and summarising research studies (see **Appendix 1**). Typically students were asked to read an article in advance of class and identify its 'aim', 'methodology and sample' and 'findings', before offering a 'critical comment on strengths and weaknesses', finishing with a summary of the article. We found students engaged more with the aforementioned headings than the summary, although it is unclear if this was because they approached the exercise sequentially (and whether the situation would have been different had they been required to compose their summaries first). Among the sequential parts of their analysis, students displayed the greatest difficulty in analysing the second item: 'methodology and sample'. More students left this section blank in comparison to any other (barring the summary) and those that did complete it generally did so with less detail than the other sections. In short, students appear to have felt more competent in identifying aims and results of studies, or attached more value to them, than to comprehending how such results were obtained. This pattern continued when writing the group project. In some respects this inability to 'get under the skin' of the article may be said to parallel students' difficulty in grasping how writing from sources is more than merely reproducing a mechanically altered version of the source material. This was best reflected by the fact that most students did not comment on their reading, its meaning or limitations. For example:

> *Students were asked to read a short research study (Jacob, Guéguen and Boulbry, 2014) and write about the study using the headings outlined above. This student described the study but failed to include any comments of her own.* 'This study was a test about consumer satisfaction and the way in which customers behave. The study showed that non-verbal behaviours influenced the way a customer behaved. At the end of the study the waitresses would ask three questions about their satisfaction of the service. The results showed that after this the behaviour of the customer was influenced when ordering tea/coffee. The overall idea of the study was to identify how consumer satisfaction is enhanced by both verbal and non-verbal communication.' *Overall most students demonstrated in their writing that they understood the study. However, there were some examples where students copied from, or patchwrote from, individual sentences in the source.*

It was obvious from class discussions that students were more than capable of critiquing research studies and other texts. Their verbal comments on their reading were both insightful and sophisticated, consequently they had the means to write 'new' text. However, they rarely did. We concluded that students were unsure how best to incorporate their criticisms of the articles they had read into their written summaries, suggesting that students were unaware of how the various components of the exercise were related. In other words, they did not see the links between the tasks of reading, analysing and writing. For example, in an earlier draft of their group project one student critiqued Prichard and MacDonald (2004), an article that investigated the extent to which undergraduate students were given adequate information in university textbooks to combat cyberterrorism.

> "Some limitations [of the article] include: There were only two sources from which the textbooks were chosen – their own list and Yahoo's list. Thus, there may not have been much diversity between the textbooks. Some major categories and/or keywords may have been overlooked [in their searches for relevant textbooks]. The researchers may have each had different criteria when ranking the textbooks on the Likert scale". *This is a valid and insightful critique but the student did not include these criticisms as part of their summary nor did they indicate how these 'limitations' could have an impact on the authors' findings.*

We concluded that students possessed the ability to critique but lacked confidence in their abilities, rarely questioned the authority of published texts, and were unsure of how exactly to incorporate their criticisms into a reasoned analysis of the text.

Students' ability to paraphrase source material developed but not to the extent we expected. Several learning activities focused on paraphrasing source materials (see Appendix 1 Learning Component 1 'paraphrasing source material'). For example, an early learning activity involved students paraphrasing the same paragraph. Students used criteria to peer review each other's attempts, and had the opportunity to discuss and clarify any differences of opinion. They also had the opportunity to compare their attempt with a model answer. The lecturer also gave feedback on their writing and made suggestions for improvement. In general, students demonstrated good paraphrasing skills when completing this short class-based exercise. However, this learning did not translate into their later writing. There are several possible reasons, for example, the source material was more difficult to interpret or used language or concepts with which students were unfamiliar. We now recognise that we had spent more time on the mechanics of paraphrasing or 'knowledge telling' than helping students learn 'knowledge transforming' skills. We discuss this further below. On a more positive note, we observed that students were less reliant on directly quoting material, suggesting that they were more confident about using their 'own' words. Similarly, students' adherence to the Harvard referencing style (required by these modules) had developed somewhat but there was still room for improvement. It was clear that students were trying to follow the 'rules' but continued to make obvious mistakes, such as including authors first names in the text of their essay, forgetting to include quotation marks when quoting directly, or correctly attributing a direct quotation to an author but forgetting to include the page number.

Reflection, discussion and recommendations

We cannot claim that all of our students have reached proficiency in writing using sources as a result of this lesson, however we did not expect them to; first-year undergraduate students are novice writers and understandably struggle with what they are expected to achieve. A large number of students excelled in these exercises and demonstrated a more nuanced understanding of quoting, paraphrasing and summarising skills in their writing. However, there was still some evidence of

patchwriting. Howard (1992) argues cogently that patchwriting is a developmental stage of learning. This suggests patchwriting is evidence of progression or transition. However, even among those students who began to see their writing progress as part of a transitional or developmental stage on the path to learning how to paraphrase and write from sources (Hirvela & Du 2013, Pecorari 2003), there was little demonstration of the key process of advancing from knowledge telling to knowledge transforming.

Too often, students could not connect their work on paraphrasing, quoting, and summarising to wider writing skills such as essay writing. In this instance, our original focus on the linguistic mechanics of these tasks meant that students did not conceptualise or value these skills as central to academic writing. As Hirvela and Du (2013, p.97) state: 'the teaching of paraphrasing is not simply a matter of supplying students with a host of paraphrasing skills or strategies. It is also important to look at how students conceptualize and evaluate these skills.' Similarly, Macbeth (2006, p.196) flags 'it could be that they weren't summarizing the article as much as following the individual steps to writing a summary in good faith, so that if they did so, summarizing would be the result.' One possible solution is to encourage students to reflect on previous essays (see learning activity 2 under 'appropriately apply core academic writing techniques', **Appendix 1**) and to comment upon how their representation of an argument reflects their understanding of its strengths and weaknesses. This could then be used as the basis for a discussion on how writing demonstrates a greater understanding of the source. This would assist students in moving from knowledge telling to knowledge transforming and also illustrates the complicated process and pedagogical challenge this entails (Hirvela & Du 2013).

Other minor issues emerged also, particularly in terms of referencing. Many students demonstrated poor referencing skills in their writing, suggesting a lack of awareness of (or low value placed upon) how this is a pivotal part of academic research, writing and recognising authority (Association of College and Research Libraries 2015). While adherence to referencing guidelines had improved overall some students have still not grasped what is involved and this requires more foregrounding in future years.

Conclusion and suggestions

Overall, the majority of students were able to identify key information from research studies and other sources and understood their importance. That said, many had difficultly relating this information to more complex tasks in their final assignments, such as constructing an argument. In particular, students did not adopt a critical stance to the articles they summarised (although there was some improvement). On this point, the work of Scardamalia and Bereiter (1987) is helpful when reconsidering future teaching and learning approaches. Scardamalia and Bereiter (1987) focus on the mental activities involved in writing as opposed to the mechanical tasks of writing. They identify two processes of relevance to source text use in writing, namely, knowledge telling and knowledge transforming. The *knowledge-telling model* reflects the immature writer who focuses on identifying and presenting appropriate source text material in the course of telling what they know about the topic at hand. In contrast, the *knowledge transforming model* explains how the mature writer actively engages with source text to develop a theme or argument and in this process transforms the text. This conceptualisation of the cognitive approaches involved in writing provides greater scaffolding for our current and future use of these learning and teaching strategies.

Our key learning and recommendations:

- While it is important to focus on the 'rules' and formal features of writing, too much of a focus on the end product can stymie the development of students' 'own' writing skills and styles. We

recommend free writing as a learning strategy but to incorporate learning activities which ask students to 'respond' to texts. 'Responding' to texts will give student opportunities to practice (and more importantly value) writing their own 'new' writing which is informed by — but not shaped by — their reading. This approach has the additional benefit of giving students opportunities to practice interpreting complex texts. Others have found that students sometimes have difficulty understanding texts (e.g. Howard et al. 2010, Wette 2010). We will also focus more on commenting specifically on students' 'own' writing to reinforce that their own ideas and arguments are equally important to others' texts.

- We will continue to use pre-writing, drafting, peer feedback and feedforward strategies, as these are known to support the development of knowledge-transforming writing skills (Hyland 2016). However, we recommend placing greater emphasis on reading, interpreting and arguing a point using, for example, debate, class discussion and freewriting. Wette (2010, p.170) describes asking students to verbally summarise a point as a helpful 'inbetween stage' to their successfully transforming source text into paraphrase and summary citations i.e. the student is asked to paraphrase or summarise from the semi-transformed text rather than the original text.

- We found the group writing project a powerful method for honing students' writing and wider skills, particularly because group projects give students opportunities to learn from one another, experience different writing styles and approaches. However it is important that students are clear that the product of the group writing projects must be planned, structured and edited so that they do not produce a collage of individual writings, which derive no benefit from each other.

- An assessment strategy comprising of frequent writing activities with relatively few words and relatively few marks (as opposed to the 100% terminal assignment) was particularly helpful in giving students opportunities to practice but also to receive frequent feedback on their progress.

In summary, learning to write using sources is an incremental process. Overall students' writing showed clear improvement, however none are yet proficient at writing from sources. This is to be expected as students are at an early stage in their university career (first year), and we are confident that they will develop their skills as they advance through their programmes; the skills we hope to inculcate need time and repetition to become embedded in practice. Based on our findings we believe that the lesson has helped students to begin the transition from knowledge-telling to knowledge-transforming. Our findings echo those of Cumming, Lai and Cho (2016), who concluded from a synthesis of the research on writing from sources, that students need instruction on: (1) how to analyse sources, (2) how to construct arguments from or about sources, (3) opportunities to practice these skills, and we would add a fourth requirement: feedback on their efforts. Focusing on these key elements will help students to attain this difficult skill, and we offer our lesson to other instructors grappling with helping students meet these challenges.

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Appendix 1: Lesson plan

Learning outcome; the student will be able to:	Skill taught	Learning activity	Practice opportunities	Feedback
Find, read and competently interpret source material. *Note:* The ability to interpret sources accurately was evaluated by students' ability to accurately paraphrase and summarise sources.	Key word searching	Students were asked to think about past searches and how successful their search strategies were. Students were then invited to complete an anonymous "admit slip", admitting something they "do not understand or do not know how to do" when searching the literature. The Instructor explained the steps involved in conducting a search, focusing on the areas students admitted they had difficulty with.	*In class activity:* Students were subdivided into groups and planned a search on an assigned topic. They then ran their planned search on different search engines. Students compared the outcome and analysed the strengths and weaknesses of their planned search strategies. The groups gave feedback on their findings and identified any deficits in their planned search strategy. Students' searching skills were further tested when completing the assessed group paper. Students were required to write a White Paper on a topic of their choice.	The Instructor shared his/her search strategy and ran the search so students could follow the steps. The admit slips were analysed and individualised resources were provided for each group. The resources included "how to" videos in which the instructors demonstrated step-by-step how to complete the task.
	Paraphrasing source material	*Learning Activity 1** The Instructor reviewed what paraphrasing means and why paraphrase. A worked example was used to support the explanation.	*In class activity:* Students were allocated one of three paragraphs to paraphrase.	*Peer feedback:* The class was subdivided into groups of 4-5 students who had paraphrased the same paragraph. They were asked to share and compare their responses. Model examples were then shared with the groups. The groups were asked to identify any common errors. *Instructor feedback:* The instructor facilitated a discussion on

				misunderstandings, examples etc.
		Learning Activity 2 The above learning activity was repeated.	*In class activity:* Students were allocated the same brief paragraph to paraphrase.	*Peer feedback:* Students swopped attempts. Each student gave written feedback to his/her peer, explaining their comments and giving concrete examples where appropriate. Students were given three headings to structure their feedback: (1) Is the paraphrased version true to the original meaning? (2) Is the wording of the paraphrased version new i.e. is it in the writer's own words? (3) Is the source acknowledged? Student feedback was returned to the original writer. Each writer was asked to "Rate how you did … do you need to practice more?" *Instructor feedback:* The instructor gave written individual feedback on each attempt
	Critically reading	***Learning Activity 3*** Students were asked to read a short research study prior to class. The instructor used the example study to explain how to read a research study. The explanation included showing students how to break down a research paper using the IMRaD format (Introduction, Methods, Results and Discussion) and the key information to note under each section.	Students were asked to read the article in depth for the next class and make notes on the key points. They were provided with a set of key questions to assist them in completing this task	
	Summarising source material	***Learning Activity 4*** The instructor explained summarising and differentiated between summarising and paraphrasing.	*In class activity:* Students were asked to use their notes to write a short summary of an article provided (approx.150 words).	*Peer feedback:* Students swopped attempts. Each student gave written feedback to his/her peer explaining their comments and giving

			They were advised to use the IMRaD format to help structure their summary and to ensure they did not omit key content. Students were asked to add a critical comment on the article.	concrete examples where appropriate. Student feedback was returned to the original writer. Each writer was asked to "Rate how you did … do you need to practice more?" The Instructor facilitated a brief discussion on students' critique of the article. ***Instructor feedback:*** The instructor shared his/her summary of the study, allowing students to compare this with their own summary and ask questions around differences. The summary included critical comments on the study. In addition, the instructor gave written individual feedback on each attempt.
Evaluate the authority, credibility and relevance of the source.	Evaluating sources.	This content was integrated across classes (see above). Students were introduced to different evaluation and critiquing frameworks e.g. how to apply the CRAAP test. Students were encouraged to include critical comments when discussing or summarising research studies and other papers. The Instructor commented on and role modelled critiquing as the opportunity arose.	Students practised this skill each time they summarised or presented a research or other papers. This included online sources.	***Instructor feedback:*** Students' ability to critique (or lack of critical comment) was commented on when giving feedback on their summaries of research papers (see below).
Appropriately apply core academic writing techniques: direct quotation, citing and referencing.	Acknowledging sources by applying academic conventions correctly.	***Learning Activity 1¹*** Students completed a worksheet in class comprised of a series of questions focused on why and when to reference.	***In class activity:*** Example questions: Look at the following five brief extracts from assignments and decide if a citation is necessary, and, if so, where it should go. Mark the relevant point in the text with an X.	***Peer feedback:*** The class was subdivided into groups of 3-4 students and asked to compare their answers and debate any differences in understanding. Students were asked to compile a list of 'muddy points'. ***Instructor feedback:***

			A number of the sources listed below contain one or more errors. Identify and summarise any errors that you spot e.g. author missing.	The instructor went through the correct answers and answered any outstanding questions. Students completed an MCQ on referencing and citation later in the module. They were provided with key readings to help them prepare for this examination.
		Learning Activity 2¹ Students were asked to bring a paper copy of their assignment (submitted in Semester 1) to class. Students were provided with a list of activities to complete. Examples of correct citation and referencing were incorporated into the worksheet under each activity. These examples allowed students to cross-check and correct their own work.	*In class activity:* Example activities: Students were asked to (1) highlight all *direct quotations* and check if they had (a) used quotation marks or indented quotes correctly? (b) included the author(s) name(s), the date and page number(s) for each quotation? (c) integrated the quotation into their writing e.g. the grammar around each quote flowed naturally. (2) highlight all *other references* and check if they had (a) used the correct style consistently (note commas etc.)? (b) included every cited source in the reference list (3) check the *reference list* (a) is the list ordered by author surname and in alphabetical order? (b) are the references formatted consistently and correctly?	*Peer feedback:* Students reviewed the first page of their essay and flagged any errors. Students were then asked to swap their essay with a peer and do the same for their peer's essay. Students swapped back their essays and compared results. Dyads were combined into larger groups of 4-6 students. They were asked to identify any *consistent* errors across the group. *Instructor feedback:* The instructor moved from group to group and reviewed their findings. S/he helped students to develop an action plan to remedy any consistent errors/misunderstandings. Students were provided with resources on citing, referencing etc. They were also referred to electronic resources e.g. RefWorks.
Synthesise material across multiple texts.	Synthesising multiple texts.	The Instructor explained what is meant by synthesis. An example synthesis matrix was presented to	The class was divided into subgroups of 4-5 students. Each group agreed a White Paper topic (this was part of	*Instructor feedback:* The instructor provided (1) written feedback to each student on his/her summary of a paper and

		help students visualise how to identify patterns across texts.	the module assessment). The group were asked to plan a search strategy and each member was asked to find, read and write a summary of one relevant source prior to the next class. **In class activity:** Students presented their summary to the group. The group was asked to: (1) decide whether the source was relevant to the topic (2) begin to develop a synthesis matrix to identify patterns (connections, similarities, differences) across the texts (3) identify any gaps. *Note:* Students were asked to repeat this exercise in another class.	(2) verbal feedback to the group on emerging themes, gaps and progress. This was supported by in-class discussion.
Create new text through integrating their understanding of the source texts but giving primacy to their own voice in their writing.	Using source texts to create new meaning.	Students' overall ability to achieve this aim was assessed in the final submission of their paper.	Prior to final submission students gave a verbal presentation on their White Paper topic. They were expected to provide an overview of the themes they identified from their reading of the literature. In addition, they were expected to apply citing and referencing conventions correctly in their slides.	**Peer and Instructor feedback:** The group were given feedback on the presentation i.e. strengths and areas to develop. This feedback was provided prior to final submission of their White Paper (i.e. feedforward). **Instructor feedback:** was provided on the final essay. This work was graded.

This activity was based on the learning resources developed by Purdue University Online Writing Lab
https://owl.english.purdue.edu/
! These activities were based on the learning resources developed by LearnHigher http://www.learnhigher.ac.uk/