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Using scaffolding academic literacy practices in tertiary classrooms: A South African case study

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Abstract

Academic development research supports embedding academic literacies development in disciplinary teaching. This enables students to experience reading and writing as disciplinary academic practices. However, few lecturers have the language knowledge and the pedagogical expertise to do this. The *Reading to Learn* pedagogy provides a scaffolded methodology that lecturers in higher education can adapt. We reflect on our own experiences of using these scaffolded academic literacy practices in three cases: with first year biology students, biochemistry Honours students and Masters in Education students. We argue that scaffolded academic literacy practices are useful because they emphasise both the reading and writing of texts in the discipline, provide an educational approach to plagiarism by modelling how to meaningfully paraphrase academic text, and support learner engagement. Additionally, the professional learning opportunities help academics to develop both knowledge of language and a clear methodology which can be adapted to a range of disciplines and levels.

Keywords: academic reading and writing, disciplinary literacy practices, Reading to Learn, tertiary classrooms

Introduction

Enrolment at higher education institutions in South Africa has risen sharply over the past 20 years. However, physical access to higher education has not been accompanied by the epistemological access that is necessary for all students to succeed (Morrow, 2007). As student enrolment increased and diversified, many universities created academic development units and extended curriculum programmes to support students. There are ongoing debates about what the nature of 'successful' academic development is and who should 'deliver' it (Badenhorst, et al., 2015). There is a growing body of research that argues that the teaching of academic reading and writing should be embedded in disciplines because academic literacy is not a generic practice (Bharuthram & Clarence, 2015; Boughey & McKenna, 2021; Jacobs, 2013). This could be done by

academics working closely with academic development staff, or academics themselves could learn how to embed academic literacy practices in their own pedagogic practices.

This paper focuses on the possibilities of academics learning how to embed academic reading and writing practices (Rose, 2017a), using the strategies of *Scaffolding Academic Literacy.* A few academics from the University of KwaZulu-Natal were trained in these strategies and here we describe how we have adapted them in our teaching in three different disciplinary contexts. We reflect on these experiences and use them to support our argument that these strategies support epistemological access by making language patterns explicit to students and modelling how to re-write or paraphrase academic texts. We begin the paper with reviewing some key literature on academic literacy in South Africa and research studies on *Reading to Learn*[1] genre pedagogy.

Literacy development in South African higher education

Widening access to university for all students has been regarded as an urgent social justice imperative in South Africa since the 1990s (Thesen & Van Pletzen, 2010; Boughey, 2012). In 2000, there were 578 134 registered students in universities and technikons and by 2019 this number had almost doubled to 1 074 912 in public universities (DHET, 2021; Statistics South Africa, 2019). However, this massification has not been accompanied by academic success for all students, and throughput rates are generally poor. Scott (2018) summarises the following current statistics regarding undergraduate students in contact universities as follows: under 30% graduate in regulation time; under two-thirds graduate within 6 years; one-third have not graduated after 10 years; and significant racial inequalities persist (Scott, 2018: 5). It is far more likely that students with middle-class, university-educated parents will succeed. The strong correlation between middle-class literacy practices and the literacy practices valued by universities is a key explanation for the success rates of middle-class students globally (Boughey & McKenna, 2021). Since middle-class students arrive at university with the hidden capital of thousands of hours of reading, a social justice imperative means that it is essential to make the rules of the academic literacy practices and knowledge-construction conventions of various disciplines explicit to *all* students.

Many factors contribute to poor throughput, but here we focus on the role of literacy. It is common knowledge that there is a literacy crisis in South Africa (Spaull, 2016), evident at both schooling and university levels. Recent data from the PIRLS (Progress in International Reading Literacy Study) 2016 study showed that 78% of Grade 4 primary school children in South Africa are unable to read for meaning (Mullis et al., 2017). South African learners scored last out of 50 countries who participated in this study. Only 25% of the 6 500 Grade 12 learners who wrote the National Benchmark Tests in 2013 had academic literacy levels that were proficient to manage the literacy and reasoning demands required by higher education (Cliff, 2015). There is also research that shows that many South Africans do not have books at home and do not read for pleasure (Rimensberger, 2014; van Zyl, 2013). Interviews with undergraduate students at Fort

[1] The genre pedagogy is called Reading to Learn or Scaffolding Academic Literacy at tertiary level.

Hare university found that most students did not see reading as a practice that was valued by their 'culture' and they disregarded books and leisure reading (O'Shea et al., 2019). This is similar to data collected from first year students at the University of Johannesburg in 2013, which showed that 42% had 10 or fewer books in the home where they grew up and 47% had read five or fewer books for 'fun' in the previous year (van Zyl, 2013).

Since academic literacy is understood as a key factor in students' academic success, many South African universities have created academic development units or writing centres to support academic literacy development. The process has gone through several phases, with a growing shift in attitude that it is the universities, rather than the students, that need to be "fixed" (Boughey & McKenna, 2016; Boughey & McKenna, 2021). However, many universities (including our university) still offer stand-alone academic literacy modules and writing centres, where literacy is understood as a set of generic competences which can be learned in one context and then applied in a range of disciplines.

This practice of understanding literacy development as the mastery of a set of decontextualized, generic skills required for decoding printed text is informed by an 'autonomous' model of literacy. According to this model, language is neutral, and the goal is for students to develop the competence to be able to produce a grammatically sound piece of writing (Street, 2006). In contrast, the 'ideological' model understands literacy to be 'socially embedded' and specific to particular communities and contexts, in which different literary practices will be valued differently. This means that in the academic arena, literacies are shaped by the disciplinary context in which they are used, with different academic disciplines valuing different kinds of texts. The ideological model enables us to see that there is not one 'academic literacy', and that there are many literacies present in the world which are underpinned by particular ideas of what is valued (Boughey & McKenna, 2021). If we understand academic literacies as a set of social practices which are contested and socially constructed, this means that literacy practices are best learned within the discipline, as disciplines have different ways of engaging with texts and of constructing knowledge (Lea & Street, 2006; Clarence & McKenna, 2017).

This can happen when academic literacy specialists work closely with academics to make these disciplinary practices and conventions explicit (Jacobs, 2013; Winberg, et al., 2010; Dison & Moore, 2019); another option is for academics to learn how to embed the academic literacies work in their own teaching (Rose, 2017a). This practice is not discussed much in the South African literature. The challenge with this model is that most academics do not have the language expertise nor the willingness to do this work as the dominant discourse is that it is the school's responsibility to prepare students for tertiary study. We argue that it is one route to enabling epistemological access which Morrow describes as 'learning how to become a successful participant in academic practice' (Morrow, 2009). The following section describes the pedagogy of *Reading to Learn* which we used to embed academic literacy practices into our teaching.

Reading to Learn as a methodology to embed academic literacy into teaching

Reading to Learn (R2L) is a genre-based reading and writing pedagogy devised in Australia by David Rose (2005). The knowledge and practice of R2L is underpinned by three theoretical traditions: Bernstein's model of education as pedagogic discourse, Halliday's model of language as text in social context, and Vygotsky's model of learning as a social process (Rose, 2005). R2L is informed by Basil Bernstein's insights into how pedagogy serves to reproduce and reinforce socio-economic stratification (Bernstein, 1990; Bernstein, 2000), and is instead aimed at 'democratising the classroom' (Rose, 2005). It evolved out of the genre-based approach to literacy of the Sydney School (Rose & Martin, 2012), which in turn is based on the principles of Systemic Functional Linguistics (SFL) (Halliday, 1994). SFL views language as 'a network of choices, rather than a set of rules' (Dreyfus, et al., 2016: 17), and operates according to a 'top down' approach, starting with the whole text from levels of context (genre and register) and working 'downwards' from there to levels of language (paragraph, sentence, word). R2L also draws on the Vygotskian notion of the potentially far greater gains that can be made by students as a result of appropriate teacher support, seen in the term Zone of Proximal Development (Vygotsky, 2012). A high level of teacher scaffolding, which is gradually withdrawn, is key to the method.

R2L is based on the crucial premise that success in reading precedes success in writing. It follows a highly structured approach which makes use of an interactive and iterative cycle incorporating, in its simplest form, deconstruction of a text, joint (group) reconstruction of the text, and finally, individual construction of a similar text. The process involves careful and thorough scaffolding by the teacher, with significant levels of involvement by the class as a whole, and it is claimed, results in a situation in which all students learn to read and write effectively and at the same high level – hence the class becomes democratised rather than stratified.

While the R2L approach was initially formulated for use at school level (Rose & Martin, 2012), it has been utilised successfully at the tertiary level, where it is also known as *Scaffolding Academic Literacy* (Rose et al., 2008; Rose, 2017a). At this level,

> to study independently, … students must be able to read complex academic texts with a high level of understanding, and be able to critically analyse such texts in order to present coherent analysis, argument or discussion in their own written work. (Rose, et al., 2003)

R2L enables students to do this kind of reading by focusing explicitly on the practices of reading and writing academic texts. Thus far it has been mainly implemented with students who experience barriers to academic success such as inadequate school preparation (Rose, et al., 2008; Benítez, et al., 2018), having to learn in a language other than their home language (MacNaught, 2015; Dreyfus, et al., 2011; Dreyfus, et al., 2016; Caplan & Farling, 2017), or a combination of the two (Millin, 2011; Steinke, 2012).

The first published study of its use at tertiary level was an action research project carried out with Indigenous Australian students enrolled in preparatory and undergradute programmes at the Yooroang Garang Centre for Indigenous Health Studies at the University of Sydney (Rose,

et al., 2008). An analysis of student writing using an assessment schedule specially developed for use with R2L/SAL showed significant gains in academic writing, though sample sizes were small (5, 8, and 12 students in three programmes).

Between 2008 and 2010 a collaborative project, which became known as the SLATE project (Scaffolding Literacy in Academic and Tertiary Environments), took place between The University of Sydney and City University Hong Kong (Dreyfus, et al., 2016). The project involved teams of tutors in Sydney providing embedded, discipline-specific, online literacy support in linguistics and biology for undergraduate students at the City University Hong Kong. Despite constraints due to the limitations of the technology of that time (e.g., synchronous interactions had to be typed), the project was pioneering in showing that scaffolding is possible in an online environment.

Researchers involved in the SLATE project also worked with classes of 30 international students from Mainland China at the University of Sydney, and analysed teacher-student exchanges during the "joint construction" stage of the Teaching Learning Cycle, a forerunner to R2L. This provided valuable insights into how this stage of the pedagogy was actually negotiated and enacted at the levels of both a first-year tertiary preparation course and a Masters of Applied Linguistics (Dreyfus, et al., 2011; MacNaught, 2015).

Two Masters theses from the University of KwaZulu-Natal reported on the results of teaching over one or two semesters using the R2L pedagogy. One study (Millin, 2011; Millin & Millin, 2014) used quantitative methods to analyse the performance of 51 Social Sciences students ranging from 1st to 3rd year in an optional module known as *Effective Writing for the Social Sciences*. Another study by Steinke (Wildsmith-Cromarty and Steinke, 2014) tested the efficacy of the method with 46 first year students in the compulsory *English Language and Development* module in the BCom4 (Access) programme, using a mixed-method approach. Both studies demonstrated an initial improvement in the students' literacy scores, followed by an apparent stagnation or even decrease in some, which they speculate is partly due to the limited duration of the intervention. Interestingly, Millin and Millin (2014) found that the weakest students showed the greatest improvement, which accords with the principle of 'democratising the classroom'.

At the Universidad del Norte in Baranquilla, Colombia, Benitez, et al. (2018) describe how SFL and genre pedagogy were used to inform a teacher-development programme known as *Communicative Efficacy*, which was piloted between 2010 and 2012, and established in 2014. In this programme, Spanish language specialists work with teachers from a broad range of disciplines, training them in the R2L pedagogy. Currently 105 teachers have participated in R2L workshops and implement the pedagogy within their disciplines. The success of the programme has been ascribed to a combination of its firm theoretical underpinnings, high levels of commitment from participating staff, and strong institutional support.

Context of the study

Teachers and lecturers who wish to use R2L in their classrooms need to acquire knowledge both of the genre-based pedagogy and its underlying principles, as well as knowledge about the functional model of language (Acevedo, 2020). While *Reading to Learn South Africa* has trained schoolteachers in the provinces of Gauteng, KwaZulu-Natal, and the Western Cape to use the methodology in their classrooms, there has been little formal training of tertiary level academics. In 2018, a group of six University of KwaZulu-Natal academics from five disciplines (biochemistry, biology, education, media studies and religion studies) worked together for five non-consecutive days over a number of months with an experienced *Reading to Learn* trainer, Mike Hart, to acquire knowledge of both 'knowledge genres' and 'curriculum genres' (Rose, 2020). Knowledge genres are the text genres that are used in their own disciplines. For example, the following genres are typically used in the natural sciences: experimental/laboratory reports, design reports, summary papers, case studies and research papers (Winberg, et al., 2010). Academics need to know the typical genres used in their disciplines and need to recognise the language and grammar patterns of these texts.

Curriculum genres refer to the multimodal genres of classroom practice. These focus on the patterns of spoken discourse in the classroom (Rose, 2020). R2L pedagogy includes a set of teaching procedures for designing and managing curriculum genres. There are four sets of strategies which provide differing levels of scaffolding for students, depending on the length, genre and semantic density of text. *Preparing for reading* supports students by giving a summarised overview of the text to be read. *Paragraph-by-paragraph reading* provides a summary of each paragraph in a longer text. *Paragraph-by-paragraph text marking* provides more scaffolding by helping students to identify key information in each paragraph of a text, then to make notes and use this information to write new texts. *Sentence-by-sentence text marking* provides the highest degree of scaffolding support by engaging with a short text in depth and detail, focusing on language patterns (Rose, 2017a).

The training or professional learning programme is designed to integrate the study of language and pedagogic theory with practicing the curriculum genres. The participants both see the pedagogy modelled and must practice it themselves. A R2L expert visits the participants to observe them teaching a R2L lesson and provides developmental feedback and support (Rose, 2020; Acevedo, 2020).

In the next section, we present our experiences of using these different strategies in our own tertiary classrooms.

Three case studies

Case study 1: Biology first year students

The Biology case study focuses on a group of 26 first year Biology students, who voluntarily attended a workshop in 2018 advertised as a means to learn how to read and write academic texts without resorting to plagiarism. All the students have a home language other than English, mostly isiZulu, and most, if not all, are first generation students. They were drawn from the large

BIOL102 first year class of over 300 students, and attended the workshop during a scheduled afternoon practical session which had been cancelled.

In their Biology module, content material is typically transmitted in the form of lectures with illustrative PowerPoint slides. In addition, the students have access to an online textbook, and lecturers may from time to time supply additional reading material. For the purpose of the workshop, their Biology lecturer provided me (Kathy Johnson) with an academic paper (Cook, et al., 2012) relevant to one of the topics, namely evolution by natural selection. The students were given a hard copy of the paper to read prior to the workshop.

I used the workshop to pilot the *preparing for reading*, *sentence-by-sentence detailed reading with text marking* and *rewriting the passage from notes* (here called *joint rewriting*) strategies (Rose, 2017b). My intention was to test these strategies in terms of ease of application, student engagement and the quality of the text produced, for later adaptation in a normal lecture context. We focused on just the ten-sentence Abstract as the text.

In the *Preparing for reading* stage, which took about 20 minutes, I first provided background information to the paper using a short PowerPoint presentation, then discussed the Abstract as a form of genre and its significance in a scientific paper and wrote up the stages it goes through on an overhead transparency. I then read the entire Abstract to the class and pointed out where each stage began, emphasising that all stages are important, as is their sequence, but that the length of each stage will vary from paper to paper.

I followed this with a careful *sentence-by-sentence detailed reading with text marking*. I paraphrased each sentence, followed by a designated student reading it aloud. Using position and meaning cues (Rose, 2017a), I directed the students to find and highlight the key wordings in each sentence. I wrote up these wordings on flipchart paper, with dot points for each sentence and dashes between keywords within a sentence. This stage took about half an hour.

After a short break, we proceeded with *joint rewriting*. A student acting as scribe wrote the new text on an overhead transparency, using the list of wordings on the flipchart sheets. The class proposed new wordings, until the entire text had been rewritten. This stage took about an hour and a quarter. The original and new texts are provided in Figure 1.

Original abstract (Cook et al. 2012)

Colour variation in the peppered moth Biston betularia was long accepted to be under strong natural selection. Melanics were believed to be fitter than pale morphs because of lower predation at daytime resting sites on dark, sooty bark. Melanics became common during the industrial revolution, but since 1970 there has been a rapid reversal, assumed to have been caused by predators selecting against melanics resting on today's less sooty bark. Recently, these classical explanations of melanism were attacked, and there has been general scepticism about birds as selective agents. Experiments and observations were accordingly carried out by Michael Majerus to address perceived weaknesses of earlier work. Unfortunately, he did not live to publish the results, which are analysed and presented here by the authors. Majerus released 4864 moths in his six-year experiment, the largest ever attempted for any similar study. There was strong differential bird predation against melanic peppered moths. Daily selection against melanics was sufficient in magnitude and direction to explain the recent rapid decline of melanism in post-industrial Britain. These data provide the most direct evidence yet to implicate camouflage and bird predation as the overriding explanation for the rise and fall of melanism in moths. *(198 words)*

Joint reconstruction

For many years people believed that the different colour forms in *Biston betularia* were due to powerful [forces of] natural selection. The black moths survived better because they were less vulnerable to predators when resting on polluted tree trunks. They became more numerous during the Industrial Revolution, but over the past 4-5 decades people believed this suddenly changed as pollution levels decreased and the birds preyed more on the dark moths again. This traditional explanation was criticized as more and more people doubted that birds determined which colour moth survived. Michael Majerus conducted scientific research in order to respond to what were believed to be flaws in the previous study. Sadly he passed on before his results were released. This paper represents an analysis of his findings. Over a period of six years Majerus released 4864 moths, which was the largest experiment of this kind ever conducted. The results clearly revealed that birds selected the black moths over the white/peppered/paler forms. The repetition of this selective predation is enough to explain why the black moths have suddenly decreased in recent years. This study clearly demonstrates that the increase and decrease of the black form of the moth can be ascribed to selective predation by birds. *(205 words)*

Figure 1: Original Abstract from Cooke, et al. (2012) with new Abstract jointly rewritten by first year Biology students

A key goal of scaffolded academic literacy is to make visible to students the structure and purpose of academic genres, to enable students to read with understanding and then write an equivalent text which conforms to the relevant genre and demonstrates understanding. Aspects of academic scientific writing that often pose a challenge to underprepared students include specialised/technical terminology, the use of the passive voice, and nominalisation (Wellington and Osborne, 2001). In descriptive reports, the passive voice is used to foreground key themes and to background agents; for example, in the first sentence of the original abstract, the concept of colour variation in the moths is a key theme of the paper. Nominalisation refers to the contraction of a clause into a phrase in which the verbs have typically been converted into abstract nouns. The effect of this is to make the text more concise and more lexically dense, and serves to generalise events, or turn events or processes into 'things' (e.g., 'they were less

vulnerable to predators' nominalised to 'lower predation'; 'what were believed to be flaws' nominalised to 'perceived weaknesses'). While the original text did not include many specialised terms, there were multiple instances of the passive voice and of nominalisation, which is often challenging for students who have English as a second language (Cobbing, 2011). Table 1 below shows how the students turned passive constructions to active ones and expanded nominalisations into clauses, resulting in a text that was more accessible to them, without the original meanings being lost.

Table 1: Instances of rewordings of passive voice to active voice and nominalisations to verb clauses in the joint rewriting of the Abstract from Cook, et al. (2012)

Category	Original text	New text
Passive to active	Was … accepted to be	people believed
	assumed	people believed
	to have been caused by predators	birds preyed···on
	Experiments and observations were … carried out by Michael Majerus	Michael Majerus conducted scientific research
	results, which are analysed and presented here	This paper represents an analysis of his findings
Nominalisation to verb clause	Lower predation	they were less vulnerable to predators
	predators selecting against melanics	birds preyed more on the dark moths
	general scepticism	more and more people doubted
	birds as selective agents	birds determined which colour moth survived
	perceived weaknesses	what were believed to be flaws
	There was strong differential bird predation against melanic peppered moths	The results clearly revealed that birds selected the black moths over the white/peppered/paler forms
	the recent rapid decline of melanism	the black moths have suddenly decreased in recent years
	camouflage and bird predation as the overriding explanation for the rise and fall of melanism in moths	the increase and decrease of the black form of the moth can be ascribed to selective predation by birds.

This attempt at practising three of the strategies of *scaffolding academic literacy* was encouraging in terms of its ease of application, enthusiastic student engagement, and accessibility of the text which was produced. While the *joint rewriting* stage would be difficult to do during a normal lecture, the first two stages (*preparing for reading*, *sentence-by-sentence detailed reading with text marking*) are certainly feasible, while *joint rewriting* could take place during tutorial sessions when the students are divided into smaller groups.

The following proved to be positive aspects of the workshop: the selected text was suitable in that it built on work covered in lectures and was of a manageable length and language level; focussing on the very important Abstract genre was valuable; the venue (a seminar room rather than a stepped lecture room or a laboratory) helped to foster participation and a sense of cohesion; the use of an overhead projector and flipchart provided enough space for writing up both the notes and the joint rewriting, which were clearly visible to all participants; the group size was large enough to maintain momentum but small enough for everyone to contribute, and providing the text to the students to read in advance meant they had been 'prepared for reading' to a certain extent at the start.

In terms of engagement, the students clearly enjoyed and engaged readily with the *sentence-by-sentence detailed reading with text marking* and *joint rewriting* stages and developed confidence in contributing to the discussion over the course of the workshop. In a brief feedback session requiring a show of hands, all responded positively to the questions "Did you find it mostly helpful?" and "Would you like a follow up?"

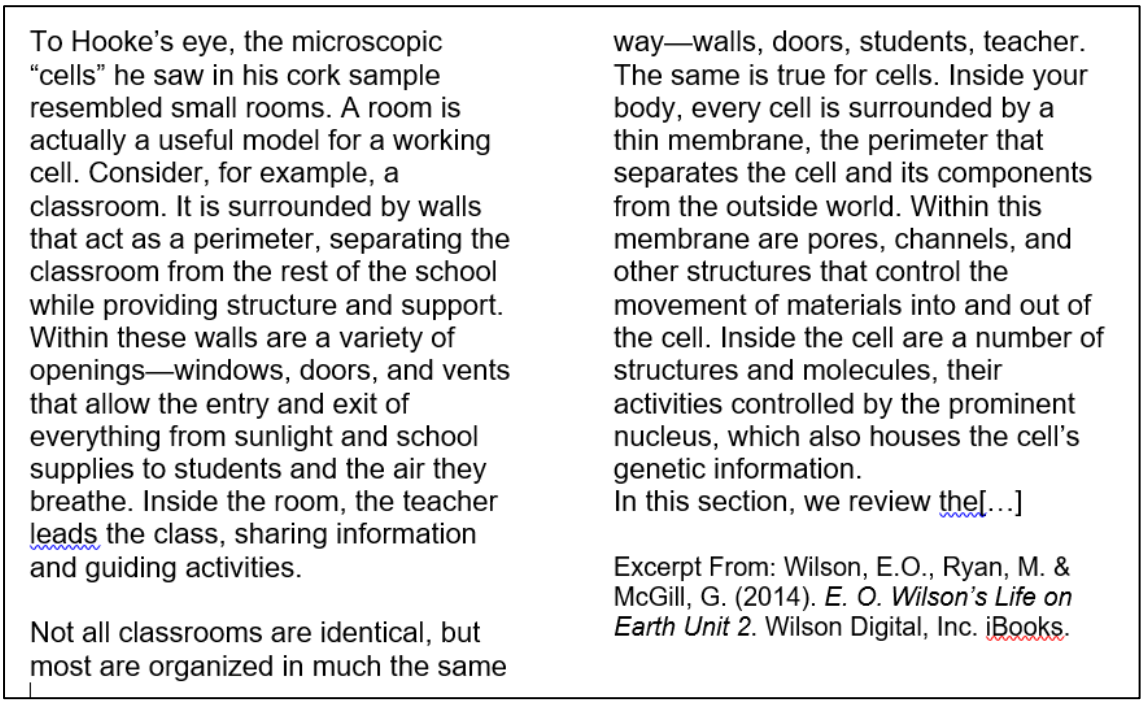
Case Study 2: Biochemistry Honours students

Students specialising in Biochemistry, Genetics and Microbiology are required in their honours year to undertake an independent research project which has to be written and submitted in the format of a scientific paper. Students must read a range of scientific articles about their chosen project to give the project context for the introduction and to be able to compare their findings in the discussion section with those of others working in the field. The more scientific journal articles a student reads, the better understanding of the field they have.

The sections of a scientific paper, which is regarded as a macro-genre (Dreyfus, et al., 2016) reflect different genres of writing which each has its own vocabulary and structure. For example, the methods section uses descriptive language to explain how experiments were conducted and the results section interprets the data presented in figures and tables. When reading scientific texts, it is crucial to understand the precise meaning of the text in order to convey complex scientific results and ideas in writing.

With a class of 23 Honours students, Dean Goldring examined two paragraphs from a scientific textbook in detail. The passage was taken from an introduction to a chapter called 'Guided tour of the living cell' in the e-book 'Life on Earth' by E.G. Wilson. The text (Figure 2) was chosen for the structure and logic of the ideas in the first paragraph that are repeated in the same order in the second paragraph and because it was sufficiently generic to be accessible to students from all three disciplines. The paragraph is well written and is not lexically dense. The purpose was to show students an exemplar of a coherent paragraph, which has the main focus in the first sentences of the paragraph (often called the topic sentence). This tells the reader what to expect in order to predict ahead. Making the coherent structure explicit has been shown to help students to gain a better understanding of the text because it enables them to predict ahead and link back and thus prepares them for writing their own paragraphs of scientific text. The first two sentences of paragraph 1 draw an analogy between a cell and a 'room as a model of a cell',

informing the reader that the remainder of the paragraph will be exploring this concept. Textbook writers and teachers often draw analogies between scientific concepts and everyday objects to support learners' understanding. The paragraph follows a logical pattern from the outside to the inside of the room allowing student to anticipate the next idea in the text. The structure of the paragraph is very elegantly repeated in the subsequent paragraph. The paragraphs start with the surrounding of the room/cell, connections between the room/cell and the outside world/extracellular environment, and ending with the teacher/DNA directing all that happens in the classroom/cell.



To Hooke's eye, the microscopic "cells" he saw in his cork sample resembled small rooms. A room is actually a useful model for a working cell. Consider, for example, a classroom. It is surrounded by walls that act as a perimeter, separating the classroom from the rest of the school while providing structure and support. Within these walls are a variety of openings—windows, doors, and vents that allow the entry and exit of everything from sunlight and school supplies to students and the air they breathe. Inside the room, the teacher leads the class, sharing information and guiding activities.

Not all classrooms are identical, but most are organized in much the same way—walls, doors, students, teacher. The same is true for cells. Inside your body, every cell is surrounded by a thin membrane, the perimeter that separates the cell and its components from the outside world. Within this membrane are pores, channels, and other structures that control the movement of materials into and out of the cell. Inside the cell are a number of structures and molecules, their activities controlled by the prominent nucleus, which also houses the cell's genetic information.
In this section, we review the[…]

Excerpt From: Wilson, E.O., Ryan, M. & McGill, G. (2014). *E. O. Wilson's Life on Earth Unit 2*. Wilson Digital, Inc. iBooks.

Figure 2: Excerpt from (Wilson, et al., 2014)

I prepared the text based on the strategy described in case study 1 and gave each participant a copy of the first paragraph of text printed with sufficient spacing between lines for comments and notes to be written. My description of the R2L steps are in *italics*, following the convention used in case study 1. To ensure participation, all students were given tasks: reading, finding text, alternate word suggestions, underlining text and writing on the board.

I summarised the ideas in the paragraph. The students numbered each sentence for ease of reference. I read the paragraph aloud *sentence by sentence* providing alternative words and explanations to assist understanding. For example, in the first sentence of paragraph 1, the wording 'to Hooke's eye' implies that Hooke was looking down a microscope and saw cells that looked like small rooms. Then each sentence was read aloud by a participant. Participants *identified and underlined key words* in their hard copy and these were written on the board by a scribe. Alternative words were sought from individuals to see if they understood the meaning of the word. Students were encouraged to provide a range of different words where possible. The alternate words were discussed to ensure the original meaning of the word in sentence was not

changed. Synonyms that were not appropriate were identified. Students realised that some words cannot be replaced by another single word, e.g., a cell is 'the smallest structural unit of a living organism' and there is no other single word to replace it. Each sentence was reconstructed on the board by the class with nudging from me (*joint reconstruction*). Our discussions ensured that the meaning of the original text was not altered in the reconstruction. The participants were then asked to predict what they anticipated would be the ideas and order of the ideas in the subsequent paragraph. These two paragraphs are a good example of how the organisation of ideas is repeated to provide a logical progression of ideas and to enable the reader to both anticipate what is to come and to link back.

The *joint reconstruction* text was erased, and participants re-wrote the paragraph (*individual reconstruction*) in their own words. Examples from individual students are shown in Figure 3. This was done to ensure that each student participated and had to engage with the text.

Original paragraph	**Rewritten paragraph**
1. To Hooke's eye, the microscopic "cells" he saw in his cork sample resembled small rooms. 2. A room is actually a useful model for a working cell. 3. Consider, for example, a classroom. 4. It is surrounded by walls that act as a perimeter, separating the classroom from the rest of the school while providing structure and support. 5. Within these walls are a variety of openings—windows, doors, and vents that allow the entry and exit of everything from sunlight and school supplies to students and the air they breathe. 6. Inside the room, the teacher leads the class, sharing information and guiding activities.	1. Hooke examined a cork sample under a microscope and observed minute cells that looked like small rooms. 2. A room is a relevant representation of a functional cell. 3. For instance a classroom. 4. It is encircled by walls that function as a barrier that cuts the class from the whole school at the same time giving its frame-work and support. 5. Within the walls are specialized openings i.e. windows for sunlight, doors for entry of students and class supplies and vents for air for the students. 6. In the classroom the teacher directs learning by sharing information and giving instructions.

Figure 3: Example of reconstructed paragraph
(The sentences are numbered to make it easy to follow)

Students provided the following feedback after participating in these activities over three days.

We got to really interact with the given material.

I could put together what we were being taught and construct a paragraph.

One learns how other people interpret a sentence and one sentence can be interpreted in different ways.

During the course I was able to see the extent to which I have improved.

All the skills taught were used in an exercise which taught us how to practically apply our new skills.

I feel that since we were practically doing what we need to learn made the lesson stick more with me than just reading from notes.

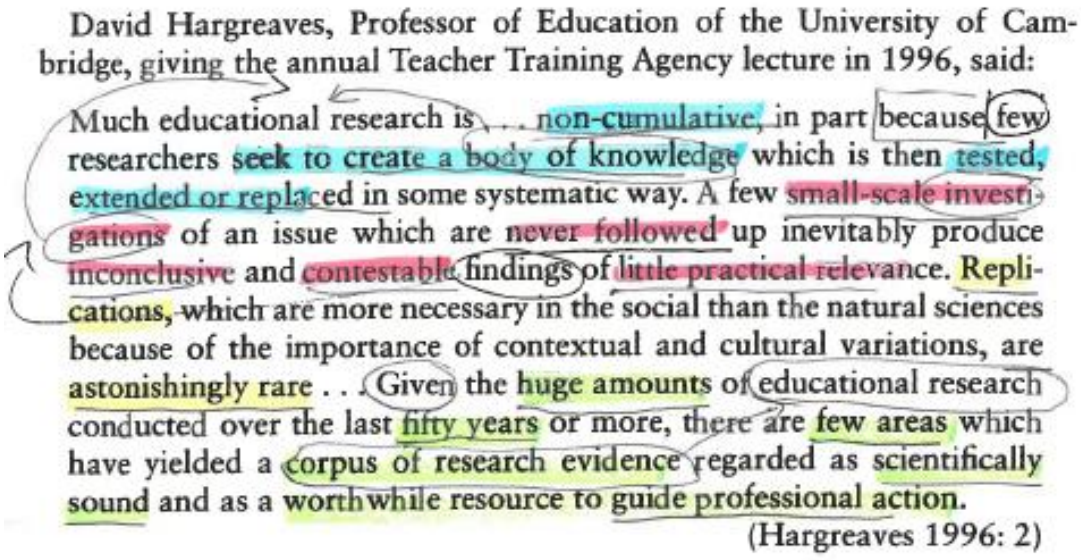
Case study 3: Education post-graduate students

The Education case study focuses on post-graduate students who are registered for a Masters in Education. They are all teachers who are studying part-time in a field such as Education Leadership and Management, Teacher Development Studies, or Social Justice Education. These are fields that draw on a range of disciplines like sociology of education or management theories. Most of the teachers have a home language other than English and many have completed their Honours in Education ten to fifteen years ago. All Masters students need to write a research proposal before they complete a dissertation. The discourse and practice of education research is new for most students, particularly those who studied many years ago. They need to learn new specialised terms that are lexically / semantically dense, such as research paradigm, research design, epistemology, methodology, ethics, and trustworthiness. They also need to understand what the literature says about their study's focus by reading both empirical and conceptual research articles. Research articles typically present different perspectives and then argue for a particular stance, which is different from the texts that learners read at school which are more likely to be explanation or description.

I (Carol Bertram) describe here two strategies that I have used to support post-graduate students in their academic reading and writing. The first is the *prepare for reading practice* which provides an overview of an entire text before students read it in-depth. It provides a 'road map' so students know how the text unfolds (Rose, 2017a). When I give students a journal article to read, I start by discussing who the author is, the audience, the time and context in which the article was written. I then describe the structure of the article (i.e., the abstract, the introduction, the literature review, methodology, findings, discussion) and focus on the abstract as a short summary where the authors should make the purpose of the article clear. I make explicit where students should look to find the main argument of the article, which is usually in the abstract, the introduction and the discussion. We then identify the main topic of each paragraph and students underline the main idea to see how the text unfolds. This shows students what the broad ideas of the article are, which should enable them to read it with greater understanding. Students then work individually more closely with the text and answer key questions, such as what is the purpose of the article, what is the main argument and what evidence is used to support the argument.

This structured reading task scaffolds students' reading and makes it clear that it is important to read for meaning, and to engage actively with the text.

The second strategy I describe is *sentence-by-sentence text marking* of a short text, making notes of key words or phrases and then re-writing the short text together. For a cohort of 20 Masters and PhD students, I selected a short text about educational research that would be relevant to all students (Figure 4). First, we discussed who David Hargreaves is and whether his argument is still relevant 25 years after he wrote it.



David Hargreaves, Professor of Education of the University of Cambridge, giving the annual Teacher Training Agency lecture in 1996, said:

Much educational research is . . . non-cumulative, in part because few researchers seek to create a body of knowledge which is then tested, extended or replaced in some systematic way. A few small-scale investigations of an issue which are never followed up inevitably produce inconclusive and contestable findings of little practical relevance. Replications, which are more necessary in the social than the natural sciences because of the importance of contextual and cultural variations, are astonishingly rare . . . Given the huge amounts of educational research conducted over the last fifty years or more, there are few areas which have yielded a corpus of research evidence regarded as scientifically sound and as a worthwhile resource to guide professional action.

(Hargreaves 1996: 2)

Figure 4: Extract from Bassey (1999) for detailed reading, showing annotations made in class

We discussed the key ideas in each sentence which are highlighted in Figure 4. Students underlined these in their own text and are written on the board as key words. In each sentence we defined lexically dense terms like *non-cumulative, inconclusive, replications, corpus of research.* We noted how the conjunction *because* in the first sentence shows cause and effect. Words that refer to the same idea (namely, educational research) are circled in the text *(body of knowledge, investigations, educational research, corpus of research evidence)*, to show how these create coherence through the paragraph which has one main idea. Using the notes made together, the class re-wrote the text as a joint reconstruction (Fig 5). For example, the word 'non-cumulative' is rewritten as 'does not build on previous studies'. For many students, this was the first time they had participated in the process of paraphrasing, and could finally 'see' what this practice actually entails.

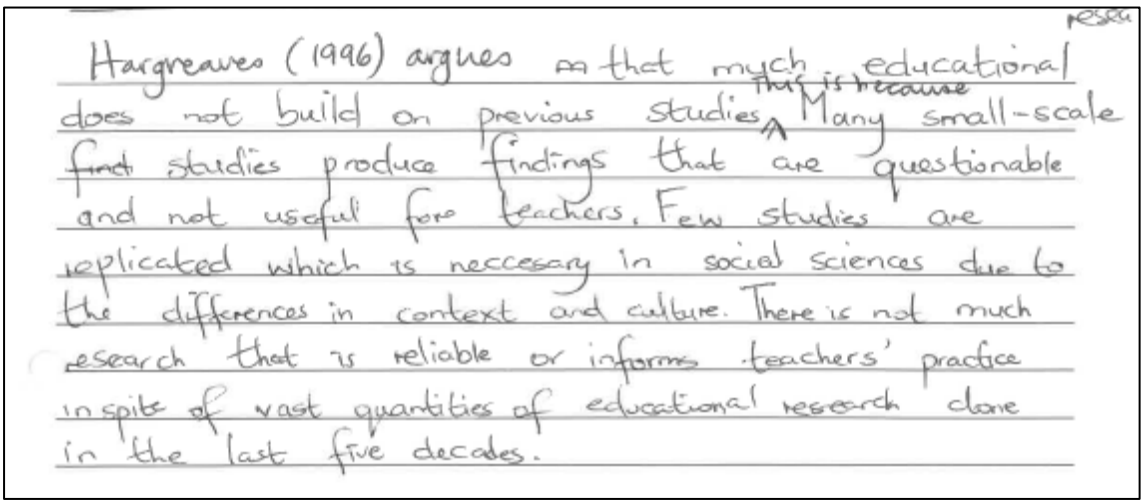


Figure 5: Joint reconstruction of Hargreaves' paragraph

In answer to the question "what did you learn that you did not know before?", students noted the following:

> *I learnt with paraphrasing, that not all words can be changed, as they may lose their correct meaning.*
>
> *I learnt that not everything is important, it's okay to leave some things out.*
>
> *There are different ways of rewriting a paragraph, but it must have the same meaning.*
>
> *Finding the synonym that carries the same meaning is hard.*

Noteworthy from students' comments is that selecting the most appropriate synonyms for speakers of English as a second language can be a challenging task. The teacher can play an important role in providing assistance here. It was also useful for students to realise that there are disciplinary terms that should not be changed when paraphrasing.

Discussion

We have provided three snapshots of how different scaffolding academic literacy strategies can be used in teaching at tertiary level. In this section, we elaborate on four reasons why we think this is a worthwhile approach to making explicit the practices of reading and writing in tertiary classrooms, and also discuss the challenge of time.

The first reason that we believe it is worth considering is because it *foregrounds both reading and writing*, and is premised on the principle that these practices are inseparable. In a recent literature review of the field, Baker, et al. (2019) note that there are few studies that focus specifically on academic reading. A similar point is made by Hill and Meo (2015) who argue that reading tends to be underemphasised in many academic literacy modules, which focus more heavily on writing. Students can only write what they understand, thus it is essential to engage

with both reading and writing practices. This scaffolding academic literacy approach enables students to see the connection between reading and writing within their specific disciplinary field.

A second reason is that this methodology offers an *educational approach* rather than a punitive or technical approach to the problem of plagiarism. There is growing consternation at the way in which many higher education students are plagiarising (Ndebele, 2020), particularly from online sources, which has been exacerbated by remote emergency teaching necessitated by COVID-19 lockdowns. A recent study (Mphahlele & McKenna, 2019) shows how many universities use software like Turnitin in punitive rather than pedagogical ways. Plagiarism is typically regarded as an intentionally dishonest act, when it may instead reflect the fact that those students lack the language resources and literacy competences to understand and paraphrase what they read. Rose and Martin (2012: 192) argue that the strategies for scaffolding academic literacy are vital

> for mitigating the escalating pandemic of plagiarism in tertiary institutions, as students undertake research by downloading texts from the web and cutting and pasting them into submissions … Most of these students have never been taught skills in note-making and rewriting from notes, and in any case may find the material they are cutting and pasting too challenging to read.

A third reason is that the strategy requires all students to *participate in reading*, by underlining key ideas and rewriting the text. This models that reading is a practice that requires active engagement with the text, both to understand what the authors are communicating and to engage in a conversation with their ideas, which is particularly important in the humanities and social sciences. Before a reader can critique an idea, he/she must understand what the author means. Effective learning process are supported when both teachers and students interact and participate in learning activities. The three case studies noted that with the R2L approach student participation has developed into rich active engagement with the text which is pedagogically desirable (Pianta, et al., 2012).

Fourthly, the *professional learning* provided us as academics with opportunities to develop both our knowledge of language and knowledge of the genre pedagogy. We have found that our own academic and scientific writing has improved. We have learned how to explicitly identify the aspects of writing that create a coherent text and thus are able to show this to students. We are now able to better understand how student writing can be ameliorated and coherence enhanced, by providing exemplar texts to illustrate coherent writing and thus guide student writing. For example, DG leads regular in-depth discussions of scientific articles and paragraphs which include sentence reconstructions done by each individual participant, and believes that all members of his research team have developed a better and deeper understanding of complex scientific articles followed by a considerable improvement in their writing skills.

A challenge to the uptake of this pedagogy is that of time for teaching. The scaffolding academic literacy approach is time-consuming: thorough preparation is required by teachers/lecturers, and as the above case studies demonstrate, a significant amount of time is

required to cover a relatively short section of text, particularly during the "joint rewriting" stage. This could be viewed as a barrier by lecturers feeling hard-pressed to cover large amounts of content during lecture time which in recent years in South Africa has been limited by student protests, frequent power outages, and the COVID-19 pandemic. However, across the range of contexts where it has been practiced, the support it provides to students has been shown to be a valuable investment of time in terms of the skills it affords students towards becoming successful readers and writers within their chosen disciplines, in other words, promoting their academic literacy. For example, in Colombia, academics were initially skeptical about the time required for this approach, but then noted that students were working through the course content more effectively as their reading competences strengthened (Benítez et al., 2018).

Rose (2017a) provides a useful guide as to how the different stages of the process could be enacted either during lecture time, or tutorial time, or in the students' own time. We suggest that working through selected relevant texts during lecture time could sometimes replace traditional lecturing. Most lectures, particularly in the natural sciences, focus on knowledge about scientific content and concepts as well as the nature of science and scientific enquiry. However, scientific literacy in its fundamental sense, that is developing the skills to read, interpret and write scientific texts, tends to be neglected in science education (Kirby and Dempster, 2015). The scaffolding academic literacy approach fosters the development of scientific literacy in this fundamental sense.

Conclusions and recommendations

The main principle underpinning the R2L approach is that 'successful language learning depends on "guidance through interaction in the context of shared experience"' (Rose and Martin, 2012: 58). It is a scaffolding approach in that teacher support is gradually withdrawn as students develop proficiency in their use of language appropriate to the academic context. Instead of bemoaning the fact that many students are inadequately prepared to read and write academic texts at the requisite level, lecturers could assist in fostering epistemological access to their specific discipline by guiding them through a sample of relevant academic texts in order to develop the competence in reading independently for meaning.

The underlying imperative behind the R2L approach is that of social justice (Rose & Martin, 2012), that education should provide equal opportunities for academic success to all students, irrespective of their backgrounds. Given the differing throughput rates for students from different backgrounds in South Africa, the R2L approach is an appropriate choice of pedagogy. The examples described here demonstrate the potential of this approach to assist students at several levels in both understanding academic texts relevant and appropriate to their disciplinary level and demonstrating this understanding through rewriting these texts.

In order to make this a reality, we plan to collaborate to adapt and streamline the current training course material and to include more appropriate tertiary level texts. Collaboration with staff at the Universidad del Norte in Baranquilla, Colombia who have been using this approach successfully for a decade, has been initiated. It is imperative that a variety of forms of data are

collected - from the participating lecturers' lesson plans to audio or video recordings of the lectures themselves, to the students' resulting written work – and analysed to assess the effectiveness of the approach in different tertiary contexts.

We argue that the case studies we have presented demonstrate that the pedagogy enables students to recognise patterns in disciplinary texts and to understand these texts better. This is not a 'quick-fix' method, as students' reading and writing are unlikely to improve significantly in a short space of time (cf. the research by Millin and Steinke). However, research at school level and this small-scale tertiary level research shows that it certainly can make a difference to how students read and write texts, and thus is worth pursuing.

Author Biographies

Carol Bertram is a professor in the Teacher Development Studies discipline in the School of Education, UKZN. She teaches and supervises post-graduate students and has a keen interest in developing academic literacies in her teaching and supervision. Her research interests are in curriculum, sociology of knowledge, and teachers' professional knowledge and learning.

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