Encouraging undergraduates’ academic writing development in e-learning contexts that students access independently or in subject-based groups

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Abstract

E-learning approaches employed in a variety of contexts, from instructional to collaborative and contested, currently support academic writing development (e.g. Goodfellow, 2005; Peretz, 2005; Brown et al., 2008). This paper is an early report on progress in developing a suite of six instructional e-learning modules on aspects of critical reading and writing at a research-intensive, science- and engineering-strong university. At this university, non-remedial academic writing development is supported by subject teaching staff, Royal Literary Fund fellows, the English Language Centre and through information skills courses run by the Library. The current project seeks to complement the existing provision by providing undergraduates with guidance through e-learning modules that engage the students in learning tasks that can be completed independently or under the guidance of teaching staff in subject disciplines (shifting between more instructional to more cognitive-constructivist and social-constructivist approaches; Mayes and de Freitas, 2004). Strengths of the e-learning project include collaboration between staff from widely different backgrounds, including a professional writer and academic writing facilitator, a faculty librarian, and a teaching fellow. In addition, detailed feedback on each module’s learning efficacy and ease-of-use is being gathered systematically from students both during the module’s development and after its launch. In designing the e-modules, the researchers and developers have been driven by pedagogical imperatives (Mayes and de Freitas, 2004; Beetham and Sharpe, 2007; Biggs and Tang, 2007; Race, 2007) rather than wishing to be led or overly constrained by perceived limitations of online technologies. Among the challenges have been how to design online activities that facilitate deep learning (Marton and Säljö, 1976; Biggs, 1987) and how to create experiences that are relevant to students from a variety of disciplines. The paper will consider the extent to which such aspirations have been met.

Key words: e-learning, instructional, online, deep learning, surface learning, strategic learning

Given undergraduate students’ burgeoning familiarity with the online world, and the pressures for universities to provide cost-effective learning solutions for large numbers of students, it is unsurprising that universities have ventured increasingly into online innovation to meet learning imperatives (Mayes and de Freitas, 2004; Bach et al., 2007; Beetham and Sharpe, 2007). E-learning approaches are currently employed in a wide variety of contexts, from instructional to those that encourage online communities with various kinds of learning culture (e.g. Goodfellow, 2005; Peretz, 2005; Brown et al., 2008). The University of Bath – a research-intensive, science- and engineering-strong university – is no exception in searching for diverse and effective e-learning provision.

The creation and nurturing of online communities of practice is commonly favoured as a means of engaging with students and encouraging their deep learning (Mayes and de Freitas, 2004; Chapman et al., 2005). Nevertheless, there continues to be a need to provide instructional, online resources for widespread use by students across a university, in a manner that students might access flexibly, either independently or under a staff member’s guidance. Such resources could be integrated into the practice of online learning communities, or not. Such is the learning resource considered in this paper.

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At the University of Bath the support and development of academic writing for undergraduates and postgraduates takes many forms. Provision ranges from one-to-one coaching sessions offered by Royal Literary Fund Fellows to courses, group- and individual-support provided variously by the Library, a Students’ Union training programme, Postgraduate Skills Training, the Learning and Teaching Enhancement Office, the English Language Centre and through individual departments and faculties. Only a proportion of students take advantage of such support, some of which is limited by supply. The success of the Royal Literary Fund Fellowship scheme at Bath, with the service expanding from one Fellow providing one-to-one writing coaching to Science and Engineering students in 2007-8, to two Fellows offering a coaching services to all schools and faculties in 2009-10, and demand exceeding supply, suggested that additional forms of academic writing support were warranted.

At the University of Bath, the Library service, which already provides a range of information skills courses for undergraduates and postgraduates, including online resources, recognised the need for a centralised academic writing resource that would be accessible to students across the University. The Science Faculty Librarian (LH) approached a Royal Literary Fund Fellow (TD) and a Chemistry Teaching Fellow (BD) to collaborate in creating and evaluating e-learning modules on the theme Academic writing skills. After winning funding from the University’s Teaching Development Fund, the three collaborated in creating a suite of six (originally five) e-learning modules (Table 1), which together would take a student more than six hours to complete. The modules were intended to be used flexibly, with only one module or part of a module being completed at a given time. In terms of roles, LH was the project’s manager, BD was responsible for evaluation, with TD as the main originator of the module designs; in practice there was some overlap in function but not responsibility.

<table>
<thead>
<tr>
<th>Module</th>
<th>Coverage</th>
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<tbody>
<tr>
<td>3. Writing a practical report</td>
<td>Personal or impersonal - 'I', 'we' or 'it'? Which tense? Know your purpose and audience. The structure of a practical report. Choosing your title. What is an abstract? Writing the introduction. Writing the method. Writing the results. Writing the discussion. Writing the conclusion. Writing an abstract.</td>
</tr>
<tr>
<td>4. Getting your argument across</td>
<td>What is an argument? A clear line of reasoning. Creating sound arguments: necessary and sufficient; in all probability; arguments from authority. Cheap tricks: using emotive words; assuming cause and effect; distracting the reader from examining the argument. Connecting the points in your argument. Closing your argument.</td>
</tr>
<tr>
<td>5. Plagiarism, and how to avoid it</td>
<td>What is plagiarism? Why is it important to avoid it? Why you should not buy essays from the web. Collaboration or cheating? Self-plagiarism. How to avoid plagiarism. How to quote. Paraphrase don't plagiarise.</td>
</tr>
<tr>
<td>6. Citing and referencing</td>
<td>Why citing and referencing are so important. What is citing? What is referencing? Referencing styles. Quoting and paraphrasing. The Harvard (name-date) system of citing and referencing. Numeric systems of citing and referencing. To cite or not to cite? Managing your citations and references.</td>
</tr>
</tbody>
</table>
The *Academic writing skills* project aimed to support the learning and teaching of academic reading, writing and information skills, with the resulting suite of e-modules being available to all University staff and students, but directed primarily at undergraduate students in their early years. The material is interactive, insofar as students answer questions and carry out tasks and gain feedback on their activity (at the very least, being offered model answers to compare with their own). The modules were intended to be used by students in a self-directed manner or alongside facilitation by a staff member. They were written so as to help ensure students did not simply take examples in the modules as templates for their own essays and reports, but adapted the underlying writing principles to their own situation. It was emphasised that students should scrutinize their course’s assignment structures and assessment criteria to ensure that their written work, outside of the writing modules, met such requirements. The assignments were based on environmental, social, political and communication topics, which had been demonstrated in TD’s courses with postgraduates to be comprehensible and of interest to students across the University’s schools and faculties.

The quest for many university educators is to encourage the deep learning of their students – the cognitive engagement of students with learning material to the extent that they uncover deeper meaning and associations, appraise material critically, and generalise and apply their learning from one context to another (Marton and Säljö, 1976; Biggs, 1987). Surface learning is seen as superficial cognitive engagement with learning material primarily for short-term recall or application. Surface learning can be a precursor for deeper learning (Race, 2007). Strategic learning is the capacity to shift strategically, between deep and surface approaches, often in a ‘fit-for-purpose’ manner, such as when studying for examinations. Some university educators view strategic learning as a not unreasonable aspiration for students (*ibid*), while others remain firmly of the view that deep learning is *the* approach to be fostered (Garrison and Cleveland-Innes, 2005).

A wide range of contextual factors have been implicated in the fostering of deep learning among students, including how learning is assessed, the nature and timeliness of feedback, giving students the opportunities to manage their own learning, and the enthusiasm, empathy and explanatory skills of the learning facilitator (Ramsden, 1992; Trigwell et al., 1999; Garrison and Cleveland-Innes, 2005; Biggs and Tang, 2007). Given that we were designing a series of instructional e-learning modules, to what extent could we encourage deep learning in their use, without the benefit of an online community of practice approach? Three of the strategies we wished to incorporate in the modules’ design to help bring about deeper learning are considered briefly in this paper:

- encouraging students to reflect critically on their own practice
- encouraging students to engage meaningfully with text, by highlighting, labelling or manipulating given text
- seeking to provide deeper explanations as to why a given practice was important, before suggesting how students might engage in such practice

Given tight constraints on our time and resources in developing the modules, we nevertheless wished to engage the students in a multi-sensory manner – using sound and images as well as written words. We sought to use questions, both formatively and summatively, to engage students in reflecting on their practice, to check their knowledge and its application, and to provide feedback on progress – all regarded as elements of sound pedagogic practice (e.g. Biggs and Tang, 2007; Race, 2007).
The current paper is an early report on progress in developing and evaluating the Academic writing skills suite of e-learning modules. The modules are being hosted by the University of Bath Library through the University’s Moodle virtual learning environment (VLE).

Meeting Challenges

In this paper attention is focused on how the project team has sought to respond to four key questions, and the degree of success in doing so.

1. How to design meaningful materials for students from disparate disciplines?

Ultimately the e-learning modules will be available to all registered University of Bath undergraduates (as well as foundation students and those on continuing professional development and postgraduate courses). That being the case, how could we make the modules meaningful to students from such diverse backgrounds, levels and disciplines? We adopted a number of strategies:

• **Focusing on generic principles that can be applied to environmental, social, political or communication topics**

For example, Module 1 (Critically evaluating what you read) considers what it means to be critical in terms of academic writing, how to devise a literature search strategy, and how to evaluate what you read. In doing so activities included how the essay assignment 'Is the enhanced greenhouse effect responsible for the shrinking of the North polar ice cap?' might be researched, judging whether particular websites on the theme of 'assisted death' were balanced or biased, and whether an article about a leading UK politician was timely or not, and in what circumstances it might be.

• **Explaining choices and using disclaimers**

Different disciplines clearly foster different writing genre practices (Mulvaney and Jolliffe, 2005). For example, engineering disciplines at Bath tend to prefer an impersonal writing style for most writing assignments, whereas in the Education department, a more personal style might be encouraged in which the writer explicitly draws on their experience. We tackled such diversity head on. In Module 3 (Writing a practical report) we used a video sequence to explain how whether you use the personal or impersonal form in your writing depends on the purpose of your communication, the intended audience within your discipline and their reaction to your communication. In other words, as a writer you have to be keenly attuned to purpose, audience and the academic cultures within your discipline.

In Module 6 (Citing and referencing) most of the examples we used employed the Harvard method of citing and referencing. Nevertheless, the use of numeric approaches was also included, and explicit reference was made to the diversity of preferred styles of citing and referencing at the University. It was made clear that students should check with their tutors about recommended practice in their department. This injunction was made on several occasions across the suite of modules.

• **Seeking to accommodate widely agreed good practice**

With the project members being a senior library staff member, a scientific teaching fellow, and a Royal Literary Fund fellow with a background in science and social science, we were in a position to draw upon a wide range of views, from departmental, Library and across-University
perspectives. Nevertheless, it became clear during our researches, as might be expected, that there was inconsistency of opinion or practice across the University on some important writing-related issues. For example, it was apparent that the strategies used by different departments to raise awareness about plagiarism, and whether to adopt a more positive or a more punitive approach, varied somewhat. In conceiving Modules 5 (Plagiarism, and how to avoid it) and 6 (Citing and referencing) we emphasised the nature of academic practice, creative endeavour and intellectual property, and the requirement for proper citing and referencing to enable the strength and originality of a student's work to be assessed (Neville, 2007, 2008). We offered a range of practices that students could employ to honour sound academic practice and avoid plagiarism. We sought to deal with plagiarism in a positive, educative manner while raising awareness of potential disciplinary consequences of being caught plagiarising – whether purposefully or through ignorance or inattention. It is hoped that our approach will help raise awareness of the issue and encourage more uniformity of practice across the University.

• Enhancing credibility with students

We employed two explicit approaches to enhance the credibility of our modules with students. On the one hand, we sought the views of students about their reading and writing practices, and recorded them on video, as tasters to raise awareness near the beginning of a module. For example, in Module 2 (Writing an essay) we asked students ‘What is your experience of writing essays at University?’. Student responses captured a range of University activities and views, meaning that most or all students could relate to at least one of the videotaped respondents, thus encouraging their engagement with the topic. The second approach was to videotape leading academics at the University, talking with credibility about some aspect of writing, such as a Chemistry Professor introducing the nature and importance of practical reports in Module 3. We believe, based on early evidence, that both approaches were successful in engaging with the intended audience.

2. How to develop effective e-learning practice within the project and beyond?

Library staff had previously created an Information Skills courses consisting of individual web pages, videos and quizzes, but drawing upon comparatively little background in pedagogic theory. None of the project members had previous experience of creating in-depth, sequenced e-learning modules. Our intention was to develop such enhanced e-learning practice among a small multidisciplinary team. This is the manner in which many small-scale curriculum initiatives develop at Bath, with a core group of interested staff wishing to respond to a recognised need, and encouraged to do so by bidding for financial support from a Teaching Development Fund.

• Reviewing existing research and practice

Given the speed at which the modules were to be designed, the e-learning literature was consulted in parallel with the modules being written. Examples of e-learning practice that we admired were examined, bearing in mind that our intention was to enable the modules to be used flexibly, by students independently or as part of blended learning approaches employed by staff. The Writing for Assignments E-library (WrAssE) project (LearnHigher/University of Plymouth, 2010) and Cardiff University's Evaluating Information Learning Objects (Cardiff University, 2010) were major influences on our practice. With the experience of one us (TD) in providing writing-related courses and coaching, the intention was to create modules that would enable students to reflect on their practice and to interact with text; for example, allowing students to identify the different roles that particular sentences and paragraphs were performing in an argument.
• Consulting the University’s e-learning support team

Project members and library staff contacted the University’s e-learning team for support on a variety of matters: choosing which learning design software to use in association with Moodle (eXe was recommended); specific advice on functions within eXe; and how to incorporate our pedagogical vision using eXe. The University’s e-learning policy is geared towards encouraging the use of free-access software, such as Moodle and eXe, developed and supported by a community of interested users. The policy also encourages the development of online communities of practice. With a turnover of e-learning staff, we soon found that eXe was not as well supported as we wished. Given that we did not have software developers in our project team, the standard software proved inadequate to manifest our pedagogic intentions to encourage deep or strategic learning using more or less self-contained e-learning modules.

• Sharing and sustaining good practice

Through being involvement in the Academic writing skills project, two library staff have developed e-learning software design skills and the project members have come to appreciate more about e-learning module design and associated pedagogy, and e-learning module usability testing. Our experiences, and the lessons learnt from them, are being shared internally through reports and in learning and teaching enhancement workshops, and externally through events such as the current conference.

In responding to requests to incorporate material on plagiarism and the peer review process, the project grew well beyond its original confines, and the generation of additional material diverted attention from addressing some important pedagogical issues at an early stage (see 4. below). Also, the writing of later modules took place before receiving systematic feedback from earlier modules. Nevertheless, the last two modules of the six were written with much greater ease, and with less revision, than other modules. This reflected that many lessons had been learnt during the project; including making the modules text-lean and media-rich, and making answering questions a vehicle for as much student engagement and learning as possible.

3. How to test the usability of the e-learning modules?

The testing is currently in progress and is using opportunistic sampling – those people, either staff or groups of students, who have been asked by project members to participate. Nevertheless, the feedback so far appears to be relatively unfettered, with both students and staff saying what they consider to be weaknesses of the modules as well as their strengths.

• The online survey of users

Using the University of Bristol’s online survey software (University of Bristol, 2010) the library created a questionnaire survey for each module, maintaining respondents’ anonymity in each case. The survey incorporated questions detailing the respondent’s profile, their self-evaluation of progress against the module’s learning objectives (including what they liked most, liked least, and with suggestions for improving the module design), plus functionality issues, such as the kind of computer, internet connection and web browser they used, the ease with which videos could be viewed and heard, and inviting the reporting of any technical issues.

• Survey responses

The responses are invaluable at many levels, from identifying the problems students experience in accessing all the modules’ functions, to students’ difficulty understanding the purpose of a given task. The feedback is being reviewed to shape the next iteration of each module before...
the University-wide launch of the suite for the 2010-11 academic year. In Table 2 is a snapshot of some of the self-assessed responses for Module 3 (Writing a practical report), the first module to be designed and therefore the most pioneering one. Some first and second year Chemistry or Natural Sciences undergraduates tested the first version of Module 3. Given the comparatively small sample size, the various categories of student have been combined for summary data presentation. Given the lessons learnt from Module 3 and other early-written modules, we expect the feedback for later-written modules to be more favourable.

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>Not improved</th>
<th>Slightly improved</th>
<th>Greatly improved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall, how to write a practical report</td>
<td>0 (0%)</td>
<td>11 (55%)</td>
<td>9 (45%)</td>
</tr>
<tr>
<td>Matching your writing to an assignment’s context</td>
<td>0 (0%)</td>
<td>14 (70%)</td>
<td>6 (30%)</td>
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<tr>
<td>Your ability to describe the structure of a practical report</td>
<td>3 (15%)</td>
<td>8 (40%)</td>
<td>9 (45%)</td>
</tr>
<tr>
<td>Your ability to compose practical report titles</td>
<td>3 (15%)</td>
<td>13 (65%)</td>
<td>4 (20%)</td>
</tr>
<tr>
<td>Your ability to write abstracts, introductions and methods in the correct style</td>
<td>2 (10%)</td>
<td>8 (40%)</td>
<td>10 (50%)</td>
</tr>
<tr>
<td>Your ability to craft a practical report’s discussion and conclusion</td>
<td>1 (5%)</td>
<td>12 (60%)</td>
<td>7 (35%)</td>
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</tbody>
</table>

Second year Natural Sciences/Chemistry undergraduates already had considerable experience of writing practical reports when they tested Module 3. As some commented, the module would have been more helpful to them in their first year. First years will be the intended target audience when the modules are officially launched.

4. How to encourage deep and/or strategic learning?

In the first instance, we designed the modules so that they could be ‘stand alone’ and used in a largely instructional manner, rather than being employed with staff members present to encourage more cognitive-constructivist and social-constructivist approaches (Mayes and de Freitas, 2004). We were curious to know how, and to what extent, the design of our modules could encourage deep and/or strategic learning, given such limitations.

• Encouraging students to reflect critically on their own practice

The original intention was to offer students questions with multiple-choice answers that enabled them to reflect on their own practice; for example, to consider the techniques they used when planning essays, and the benefits of such methods, before introducing the students to other approaches. However, given that we did not have software developers within the project team, the limitations of the open source software meant that for multi-selection quizzes we could not give students tailored feedback for a wide range of responses. We were constrained in how we could encourage students’ endeavours no matter what answer they gave. This was one of the limitations that prompted us to consider more sophisticated software as a replacement for open source programs.

• Supporting students to engage meaningfully with text

Most of Module 3 (Writing a practical report) is based on students working through the practical report of a local air pollution investigation. Early in the Module students are asked to identify which parts of the report’s Introduction signify: How the subject is important or useful? Those
paragraphs that give the context for the investigation. And those parts which show the aims, questions to be answered, or hypotheses to be tested.

The original intention was to enable students to interact with the text, highlighting different parts and labelling their function(s). The software did not permit such functionality, and so we resorted to numbering paragraphs and providing multiple-choice questions addressing the different elements. This resulted in a very different experience for the student, and far removed from the engagement with text and the interactivity that we originally envisaged.

In many parts of Module 3, encouraging text engagement was not possible, given the software’s limitations. In some instances we resorted to providing students with good practice guidelines and examples, had them write their own versions of a particular part of the report e.g. the conclusion or abstract (which they submitted as a log, available to the staff member if the course was being facilitated), and then provided sample model answers. The inflexibility of the eXe software to support a wide range of question designs, and to allow for text interactivity, informed our decision to seek more sophisticated e-learning design software to employ in the Moodle VLE.

• **Seeking to provide deeper explanations as to why a given practice was important, before suggesting how they might engage in such practice**

In Modules 5 (Plagiarism) and 6 (Citing and referencing) there is an emphasis on being in a scholarly tradition as the context in which academic writing issues are addressed (Neville, 2007, 2008). It is argued that students and professional academics write to assemble facts, ideas and opinions to argue their case, reveal their understanding and push back the boundaries of knowledge. Their academic writing takes place within the context of work that has been done by others. For example, it is only by citing the work of others that the reader can appreciate where the writer’s work is positioned within the discipline, can check the credibility of the sources used, that the writer has interpreted them appropriately, and can discern how the writer has selected and assembled sources to promote a particular argument. The reader/assessor is then able to weigh up the strength of the evidence and reasoning in support of the writer’s argument, and determine the writer's contribution in comparison to the work of others.

In early feedback from staff members, the emphasis on working within a scholarly tradition has garnered favourable responses. We are waiting to see how students will respond.

**Current and future directions**

There is widespread interest among staff in the launch of the *Academic writing skills* e-learning modules given that they are credible sources that address key reading, writing and information skills practices about which staff are concerned. Teaching staff are looking forward to reviewing the modules and to consider how they might integrate them into their course learning designs. Before this happens, TD is reviewing all existing feedback to fine-tune the design of the modules in consultation with LH and BD. After launch, the online surveys will continue, and the modules will be revised taking into account further feedback received. It is hoped that the suite will relaunch in 2011-12, with an improved design benefiting from more advanced software and, by then, suffused with the greater wisdom of the project team drawing upon the experience of others who have sought to integrate the modules into their practice – whether within strong online learning communities or not.
Acknowledgements
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References