Research Project (Report Writing, 2007-08)

Academics' needs in supporting student report writing

Introduction

In our first phase of research conducted in 2006-07 we adopted an action research approach in order to assess our existing report writing resources, and also draw upon our expertise as Study Advisers. The results of the focus groups we held with students indicated that our A4 report writing guides needed to be redesigned to be more attractive, lively, and targeted. However, when we trialled a briefer, tri-folded leaflet called "Ten Top Tips for Better Report Writing" we found that it was difficult to engage subject academics in helping to embed the resource in their courses and give us opportunities to promote the leaflet to their students. The difficulty we had in engaging academics in our "Ten Top Tips" project led us to realise, "there was a need to spend more time developing relationships of trust with academic staff, canvassing their opinions more fully, and working on ways of providing resources suitable for embedded teaching" (Shahabudin and Turner, 2007). This is particularly the case with report writing as it is often highly discipline-specific and related to vocational competencies.

Our action research method meant that we could take these observations and evaluations and apply them to the next cycle of research in 2007-08 in a process of continual development and refinement.

Ongoing cycle of action research

Consequently, the next stage of our research was targeted at academics, and aimed to:

1. Make initial contact with academics in a range of departments and gauge their concerns about student report writing.
2. Develop our relationship with these academics by following up their concerns, gathering their subject-specific expertise, and seeking their evaluations of our new resources.

We wanted to create closer links with subject academics by involving them in our research and enabling them to have a direct input into the development of report writing resources they can use in their teaching.

Back to top

Use of resources to engage academics in our research

Initial contact with academics was made through a brief email questionnaire and online survey which was posted to teaching staff mailing list. We asked what types of reports their students do and what aspects of report writing their students struggle with most.

Although the response rate to this questionnaire was lower than we had hoped (10 respondents), the replies were from a wide range of departments (from law to cybernetics). The academics who replied welcomed the opportunity to discuss report writing in more depth. As one respondent wrote, "I struggled to know what support students needed in this aspect...so would be very keen to hear what you learn from this survey".

We followed up this questionnaire with a series of semi-structured interviews with the respondents, and a range of other academics from departments that set reports as assignments. Semi-structured interviews were selected as the most appropriate research method because we wished to investigate how reports function as a genre of academic writing. In her study of using genre to teach engineering reports, Walker highlights the semi-structured interview as the most valuable research method for identifying report writing genre characteristics in their social context (1999: 14). In order to understand the report genre as a socially created communication form, we needed detailed, qualitative insights of those experts who define, maintain, and monitor the genre.

Previous research into reports as an academic genre use definitions of "genre" which emphasise it as a socially-constructed and socially-mediated communication, as opposed to a set of formal characteristics (see Carter, Ferzli & Wiebe, 2004; Marshall, 1991; Walker, 1999). As Sheehan and Flood state:

> More than an organizational structure, a genre embodies and articulates a particular social understanding about how a community interprets and responds to recurring rhetorical situations. Therefore, mastering a genre requires more than simply choosing the right "format" and lining up a report "structure" with the elements of a rhetorical situation. Rather, mastering the genre requires one to understand the social, political, and ethical reasons

> particular communities study and respond to recurring situations in their workplace (1999: 24).

This is particularly important for reports in Higher Education, as their highly formalised structure is often contrasted with the more discursive continuous prose of essays, which foregrounds form at the expense of purpose and audience.

In order to persuade academics to be interviewed, we used our report writing resources as a means of gaining their interest and giving "added value" in return for their time. We completely redesigned our range of study guides into more targeted, shorter guides in an eye-catching A5 format. This responded to students' previous criticisms of our old-fashioned A4 report writing guides, and their relative lack of enthusiasm for our "Top Tips" leaflet, plus the comments from our questionnaires with academics. Consequently, we contacted academics informing them of the new A5 guides and seeking their evaluations of the resources.

The time pressures on university staff, plus the increased number of evaluation activities in Higher Education, has taught us to maximise the benefit gained from any one research activity. Consequently, the semi-structured interviews served multiple aims: 1) To disseminate our LearnHigher resources and gain evaluations of our report writing guides, 2) to understand how academics perceive reports as an academic genre, and 3) to investigate what academics see as students' greatest needs in report writing.

In contrast to the difficulty in engaging academics with the online questionnaire, we had a far more enthusiastic response to our request for interviews. This is because we had already established a relationship with these academics and demonstrated that we valued their opinions, plus we were responding to their concerns by offering them resources. In addition, the timing and method of research also played a role, as the interviews were held at the end of the summer term just after coursework had been marked, so issues of effective writing were at the forefront of many academics' minds. It also seemed that academics were keener to talk about their experiences of teaching than respond to online questionnaires, as the discussion generated ideas and was personal. They perceived it as less of a burden on their time, because it was like the ongoing interactions they have with members of their departments. Consequently, the semi-structured interviews helped academics regard us as peers rather than separate Study Advisers.

We interviewed a total of 12 academics from 7 departments. The questions focussed on:

- What kinds of reports students are asked to do on the course / in the department?
- Do they have assignments which require other forms of factual or informative writing?
- Where do you recommend students to get advice on report writing?
- What defines good report writing?
- What are the areas students have problems with when writing reports?
- What are your first impressions of our report writing study guides?
- What other resources would you find useful for report writing?

Back to top

Findings from our interviews with academics

Reports as an aspect of informative writing

A key finding of our research is students are being asked to do a far wider range of written assignments than just reports or essays. A number of academics responded saying they set assignments such as portfolios, reflective accounts, literature reviews, and factsheets. They identified these assignments as "falling broadly" within the area of report writing.

Although these are not called "reports", they share a number of key features with reports:

- They are aimed at a specific purpose and audience
- They have a formal structure often with headings or bullet points
- They are focused on reporting the results of research or an investigation
- They aim to inform the audience of the key findings.

This finding backs up what we had already noticed in our role as Study Advisers; in the last few years an increasing number of students have been coming to see us about assignments which have detailed instructions and a formal structure broken up into sections, but are not clearly defined as a "report", hence students are not sure where to start or what kind of writing is required.

Over the course of our research, we termed this broad category as "informative writing" because this emphasised what we saw as the key feature linking all these forms of writing: They are written for a specific audience and for a specific purpose. The term "informative" draws attention to the audience being informed and the overall aim of the information. This choice of broad term was confirmed by

contrasting it with the term used by Parkinson in her study of scientific literacy. She argues that that being proficient in the discourse of a specific subject (in her case - science) requires an "acquisition of a range of literacies...rather than acquisition of skills or grammatical form" (2000: 369). She identifies reports as part of this range of literacies which all involve "expository writing" (2000: 380). The term "expository writing" emphasises setting forth an explanation, so it focuses on the internal content and object of the writing, not its purpose. It is more productive to see report writing as part of a range of literacies in sciences and social sciences (such as portfolios, reflective accounts, literature reviews, and factsheets) which all require "informative writing" with the focus on who is being informed, of what, and why.

When producing our report writing resources we need to be aware that reports come into this wider range of literacies known as "informative writing". In order for our resources to be applicable to students engaged in informative writing they need to place emphasis on being able to identify the audience of the writing, and the purpose of the writing.

Back to top

Differences in report writing within and between subjects

The responses from our interviews with academics showed that there are considerable differences in types of reports between departments, for example a field report in Agriculture, a lab write-up in Psychology, and a technical report in Cybernetics. More importantly, our research showed that students are being asked to write a number of different types of reports on one course, often within a single module, for example an introductory module to Animal Science may require a student to write reports on field visits, a report reviewing a journal article, and scientific reports demonstrating different research methods. This is also the case for modules in subjects like Geography and Archaeology. This variation of reports within modules supports our finding that reports are not a single genre of academic writing, but a number of loosely related forms within the range of literacies known as "informative writing". This means that it is especially important that students pay attention to their specific briefs whenever they are asked to write a report.

However, academics state that although they give very precise and detailed instructions in the brief, students have difficulty following them. This is perhaps because the instructions for writing a report are not isolated in the brief, but in a complex interaction of many different texts. For example in a report for a field visit to a nature reserve on an Ecology module, the brief was broken down into "broad aim", "objective and assessment", "points to include" and "activities to undertake". It is also common that a brief is accompanied by a longer breakdown of what the report is expected to include, as well as a marking criteria that is specific to that report. All

these different texts can be considered as making up part of the varied academic discourse that students have to negotiate in their subject.

This complex interaction of texts, means that students are not merely "writing up" the record of an investigation, visit, or experiment. They are actively engaged in interpreting the discourse of their chosen academic field, and understanding the language and methods required for this subject. Carter, Ferzli and Wiebe identify 12 different texts associated with writing a lab report, ranging from the lab manual for the course outlining the experiment to the graded report returned to the students with the markers' comments (2004: 399). These all contribute to the "genre set" of related texts which contribute to the act of writing a report. The finished report is only one of these many texts with which students have to engage in order to develop their understanding of an academic subject. As Carter et al. explain in relation to the lab report:

> As a genre set, we understand the lab report not simply as an isolated discourse act (the write-up to be done after the main work of the lab is finished), but as a complex of interrelated discourse acts used to advance the same overall goal of helping students learn science (2004: 399).

This could be applied to all reports. As students at Reading are being asked to write multiple types of report in a single module, it shows that the main aim is not for students to learn how to write each type of report and the formal differences between them, but to use the report writing process as a means of inducting students into their academic discipline and the types of thought processes, knowledge, language, and research methods appropriate to that discipline.

Consequently, students need to be encouraged not to see briefs merely as a list of instructions, but to interpret briefs as part of the wider discourse of their subject, some of which may be implicit and not obvious to novices in the discourse community. For example a brief for a Social Work report may ask students to "refer to their own practice and relevant social work theories". This apparently simple instruction actually involves a complex process of comparing and contrasting two very different types of evidence (empirical observations and academic theories). Such a process may be straightforward and obvious to an initiate in the discipline, as it underpins the academic verification of the Social Work profession. However, it can be frustratingly opaque to a student who is unfamiliar with the purpose of theory and also unsure if their professional experience counts as evidence.

The key thing is for students not to identify what *type* of report they are being asked to write (field, lab, business, technical etc) but the research methods appropriate to that report, and also the discipline-specific discourse used to explain these methods and approaches.

Back to top

Report structure as means of communication, not formal characteristics

Academics identified structuring of reports as a key area where students needed support. They found the main issue was not that students failed to organise their reports into the correct sections or headings (e.g. introduction, method, results discussion, conclusion), but that students did not have a logical order of points within the sections. Academics commented that students did not seem to appreciate the purpose of the report structure. They simply treated headings as sections to be filled in, as opposed to stages in the communication of a research process. This was particularly evident when the sections of a report were not specified in the brief, so students found it difficult to deduce what sections were best to include. It was also evident when students were switching between reports which had different formal conventions (e.g. between a lab report which does not require a literature review and a longer technical report which does need a review of background literature).

The majority of academics we interviewed said they wanted reports to be correctly structured but they did not want to be "prescriptive" in specifying exactly what structure a report must have and what each section should include. This was true in the more vocational courses such as Real Estate and Planning, where the academics said that when students go into real estate companies each firm will have their own preferred format for reports, so it is important that students understand the rationale behind the way a report is formatted to communicate information, as opposed to slavishly following a model.

The comment about not being prescriptive with structure was also true in less explicitly vocational subjects, such as Psychology and Cybernetics. Academics wanted students to "design" their reports, just as they would design an experiment, as opposed to following a set of headings.

This fits with the concept of reports as a socially constructed genre determined by the needs of a specific discourse community, as opposed to a set of formal characteristics. Academics use reports as a means of creating a conventional order out of a complex research process. The formality of the report genre is a necessary response to often difficult, iterative, and messy investigations. The report itself is a means of shaping and managing the research process. As Sheehan and Flood write about engineering project reports:

[Students] use the genre to **impose** a conceptual structure on an indeterminate situation, creating order in an otherwise fluid space. Then students learn how to interpret the situation **through** the genre to determine appropriate issues and information worth pursuing as they work towards their purpose (1999: 24).

A number of researchers have noted the parallels between the scientific method and the structure of a report (Marshall, 1991; Willmot, Clark & Harrison, 2003). However, Swales makes the important observation that a report, and its more developed form, the research article, are not narratives of the research process, but "reconstructions" (1990: 175). He notes that investigations, experiments, and empirical research are often prone to serendipity. For example, a result is found by accident and the whole purpose and rationale of the investigation are reversed and reconstructed to suit the findings (1990: 118). This is true of empirical research, but it is also true of reports involving secondary research. The iterative mapping process of searching for journal articles and books then analysing the relationships between their findings is very different to the ordered and prioritised summary of the findings found in a report. Consequently, reports are rarely straightforward accounts of an investigation, but a means of making sense of them.

The difficulty that students have in structuring reports perhaps indicates a difference in expectations and expertise between the novices of a discourse community (students) and the proficient experts of that community (academics). When students write reports they are most anxious about getting the structure correct and understanding what is appropriate to include in each section. Yet academics want students to understand *why* a report is structured in a certain way, not to slavishly follow a set model. It may be, however, that academics are so accustomed to using reports as a means of reconstructing a research process that it has become naturalised; they have an implicit understanding of the artificial order it imposes on any investigation which they fail to make explicit in instructions to students. This suggests that students need to have greater opportunity to evaluate and understand reports as a means of communication in their subject, and explicitly note the differences between the conceptual order of a report and the research process it reconstructs.

Back to top

Time management and planning reports

A number of the academics we interviewed suggested the difficulty students have with structuring reports is related to time management. Students do not leave sufficient time to plan their reports, hence this contributes to the muddled structure within each section. This demonstrates the integral importance of time management to all forms of academic writing; allowing sufficient time for planning and redrafting.

However, the lack of planning may also be due to students perceiving reports as simply "writing up", hence they see no need for planning, only recounting what they did. In addition, some students may regard the overall formal structure of a report (the IMRD model – introduction, method, results, discussion) as a sufficient plan.

Nevertheless, the complexity and individuality of every report indicates that there may be a need for students to plan each section in more detail. Far from simply being "writing up", a report often involves a synthesis of different types of research methods, analytical thinking, and different styles of writing. For example, in his investigation of scientific reports, Braine identified that "they require a mixture of activities such as summary, paraphrase, seriation, description, comparison and contrast, cause and effect, interpretation and the integration of mathematical and scientific data into a text." (cited in Parkinson, 2000: 372).

These different activities map onto different sections of a report such as precise summarising in the abstract, expository description in the methodology, and discursive analysis in the discussion. The differing writing styles are linked to the different communicative purposes of each section. Moreover, some of the more complex and longest sections, such as the introduction and the discussion, involve a synthesis of research methods, like integrating secondary reading with empirical research.

This all suggests that reports are a more complex form of writing than they initially seem. The academics we interviewed stressed the need for reports to be written in a clear and simple manner, but perhaps this glosses over the complexity and range of writing required. More emphasis may need to be placed on showing students the benefits of planning each section of a report, and also explaining that there is a difference between a report needing to be clear and simple, and it being easy and straightforward to write. The best reports often communicate clearly to the audience because the author has taken the necessary time for the complex thinking and planning process involved behind the clear writing.

Back to top

The problem areas of report writing – a report as an hourglass

When talking in more depth to academics about what they see as the areas of report writing that students find most challenging, they tend to identify the abstract, discussion, and conclusion sections. Interestingly, these are the parts of a report that the audience often turn to first to judge whether the report is relevant, and they are also the sections that involve the most challenging forms of writing using higher-level abilities such as analysis and selection.

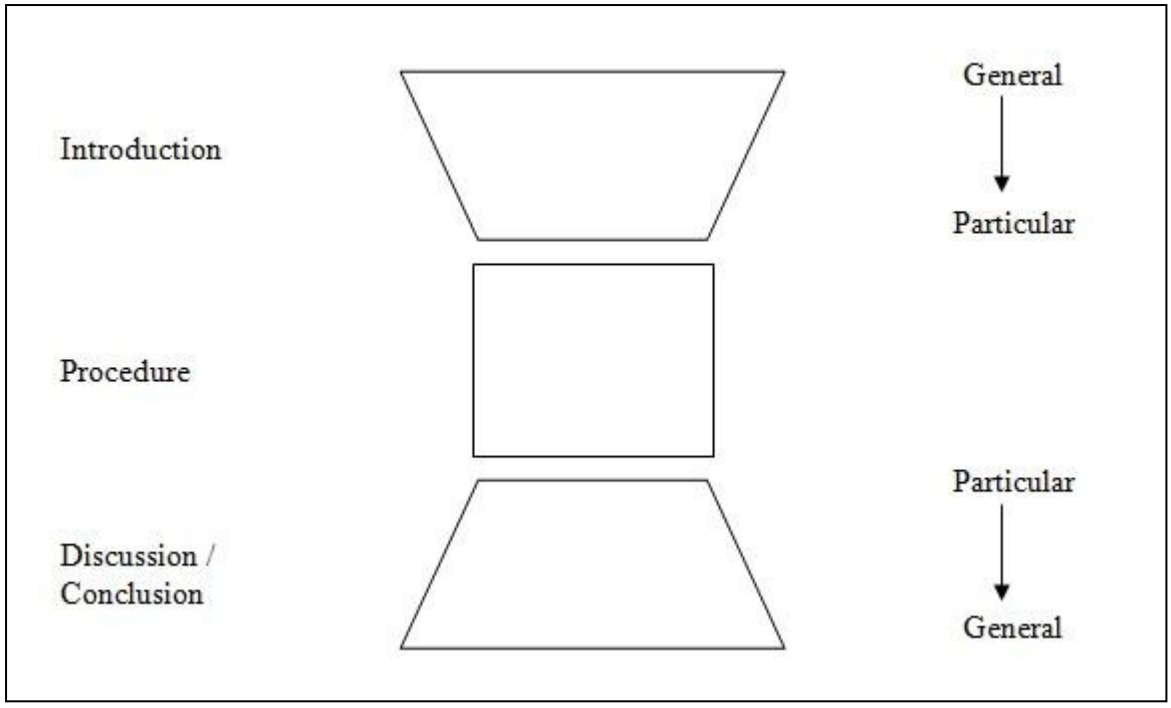
There is a need to write selectively in the abstract. Academics note that students tend to write too much in an abstract and describe what the audience already knows, as opposed to the key methods used and findings (e.g. in surveying report students describe the size and position of a building when the client is already very familiar

with these details as it is their own building). This form of selective writing is determined by an awareness of the needs of the audience.

In the discussion section, academics would like students to link their findings with the findings in the background literature and assess whether they confirm or challenge these. The academics in our study described this in various ways such as “critical synthesis of data”, “triangulating different evidence”, or “linking what they found in the field with the secondary literature”. They also compare these discursive writing practices with those used in essays. However, when asked, most academics do not make this similarity with essay writing explicit to their students. It may be that with a complex writing task like a discussion of results, students need the chance to deduce and form the requirements from analysis of similar examples instead of having them presented as a fixed list of requirements of what a discussion should be. Indeed, when using a genre-based approach to teaching report writing, Marshall states that it is far more effective to allow students to “discuss examples and arrive at a consensus on the principles to be used in their writing” (1991: 6). By evaluating examples of the writing required, students are encouraged “to use basic principles of communication to decide how to write their reports” (Marshall, 1991: 6).

The vast majority of academics interviewed said they would like students to make definite recommendations based on the report findings. Some academics suggested that students were reluctant to make definite recommendations because they did not have confidence in their own findings, or were not aware that the audience expected a judgement based on their expertise. The need to make recommendations in a conclusion is closely linked with having an understanding of the needs and requirements of the audience reading the report. If students have lost focus of audience and purpose of their report by the end, then they are less likely to make specific recommendations. It suggests that students need to ask themselves “What does my audience want to find out from reading this report?”

The relationships between problem areas in a report were well explained and visualised by one academic we interviewed who compared a report to an hour glass shape; starting with wider research and narrowing down to the precise investigation, then widening out again, so that the conclusion considers the broader implications of the findings. This is supported by Hill et al’s model used by Swales in his in-depth genre analysis of the academic research article:



(Hill et al., 1982 cited in Swales, 1990: 134)

It seems that this diagrammatic representation of reports (and possibly other visual representations) may be helpful in making explicit the different writing styles and synthesis of research methods required in a report, plus demonstrating that it is different to a simple linear narrative of an investigation.

Back to top

Overlap between reports and dissertations

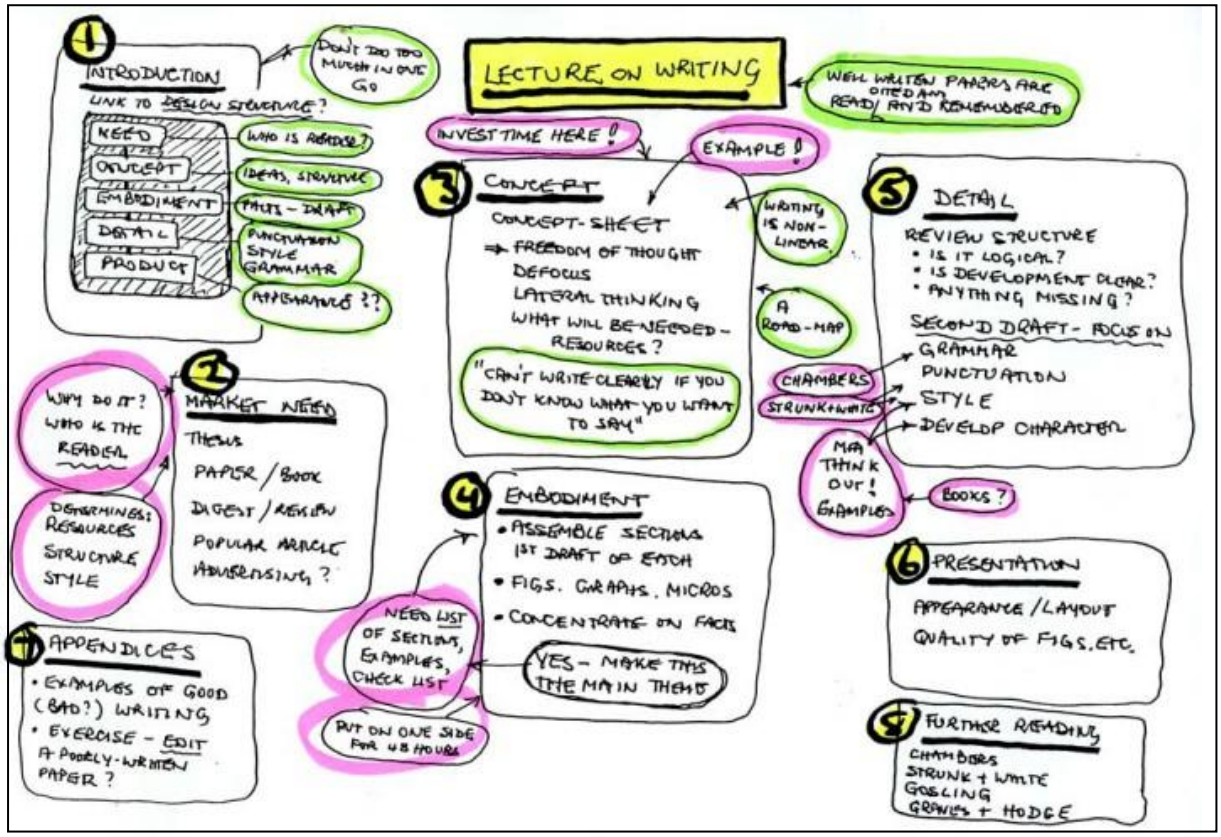
Many of the academics in our study emphasised the overlap between reports and dissertations, especially in the sciences and social sciences. Academics viewed dissertations as more than simply longer reports, but as the culmination of the various research methods, experiment design, and understanding of the subject learned throughout the course. Although the academics we interviewed did not explicitly describe it as such, the dissertation is the final chance for an undergraduate to demonstrate their competency and initiation into the discourse community of their subject.

Academics noted that often students had trouble transferring the appropriate research methods and skills, such as literature searches, from reports to their final year dissertations. This is perhaps because dissertations are perceived by many students as something large, intimidating, and “other”, as opposed to a logical progression in their learning. It may also be because the modular structure of the

courses separates the dissertation and isolates it from the process of learning as a unit of its own.

The difficulty in relating what has been learned from writing reports to dissertations may also be connected to another issue, mentioned earlier, that students do not tend to "design" their reports, but want a fixed model to follow. The type of report required for a dissertation very much depends on the design of the project. The structure of the report is both determined by, and shapes the project; they both develop in tandem. This is supported by observations from academics who note that students refine their title, project, and chapter outline in an ongoing, integrated process. Although this is how it happens, students rarely approach it in this integrated way, and it is only through experience that they understand that changes to the chapter outline will result in changes to the purpose of the project and vice versa.

This agrees with Sheehan and Flood's recommendation that "the report genre should be taught as a tool for invention, not merely as an organizational pattern or formula" (1999: 24). An interesting model for seeing reports as a means of invention and a creative process is Ashby's "How to Write a Paper" (2005) which uses the idea of a concept sheet as a means of both planning and using a report to aid invention and design. Ashby's concept sheet is an idea derived from engineering in which the whole report is represented by separate blocks on a large sheet of paper, with the links between sections, figures, references, and questions needing answering are included in colour-coded or visual form:



(Ashby, "How to Write a Paper", 2005: 8)

It acts as a more structured form of mind-map or spider diagram tailored to the needs of report writing. The visual form helps focus on a design process and the development of the report as a project, not simply a "write-up". It would also be useful for people who are more comfortable with graphical, diagrammatic and visual forms of communication instead of writing.

Back to top

Evaluations of our report writing guides

As mentioned at the beginning of this paper, we encouraged academics to engage with our research by showing them our newly developed report writing guides and asking for their evaluations. We found that most departments had guides on how to write reports for that specific subject. In addition, some of the academics we interviewed had written their own short advice on how to write reports for their students in addition to the department guides. All the guides were subject-specific.

When shown our report writing guide series, the responses were very positive. Academics said that the guides provided a very good complement to their subject

specific guides. They said that it would be good for students to have both, as having the key principles of report writing explained separately to the subject content helps clarify what is important. This enables students to understand the core aspects of report writing without having to grapple with subject knowledge at the same time. Academics thought this was especially useful for students with English as a second language.

It is very encouraging that, despite the differences in report writing in and between departments, all the academics we interviewed said that the guides contained relevant advice that their students would use. Comments included that the guides were clear, relevant, and easy for students to refer to at a glance because of the broken up text and A5 format. After our interviews, many of the academics distributed our guides to their students and made them available as a resource on the BlackBoard (virtual learning environment) area for their course.

The major suggestion for improvement was to extend the guides when they are put online to include more examples of good and bad reports which could be incorporated into exercises and used in teaching. Academics were keen to have examples that they could use, as they felt that the key aspects of academic writing in reports (such as conciseness, selectivity, thoroughness, and clarity) could only be taught effectively through modelling and examples.

Back to top

Future development of resources

After our first cycle of research in 2006-07, we identified an approach to developing resources which:

- Adopts a building block approach to resource provision
- Builds in adaptability for different disciplines
- Provides suggestions for embedding in subject modules

The requests from academics for more examples of good and bad report writing support this approach. However, as most subjects have their own guides for report writing, there seems to be less need for embedding subject-specific guides on writing reports, as these are already in place in departments. Instead, there is a need for exercises which can be adapted for each department by using specific examples.

The building block approach, therefore, can be applied to exercises which involve analysing examples of writing from reports, such as what makes a good abstract and

why, or identifying who the audience is for a report from the introduction or conclusion. The examples we offer could then be substituted for different subject specific examples by academics when embedding them in their courses.

Our research shows that our report writing resources need to have exercises which help students:

- **Identify the audience and purpose of the writing**
- **Interpret each brief carefully**
- **Analyse a brief as a form of communication, not simply a list of instructions**
- **Plan the different sections of a report in more depth – especially the discussion**
- **Demonstrate how to apply analytical thinking**
- **Understand that the structure of a report is a means of communication not just a set of headings to fill**
- **Be able to "design" a report structure to fit the purpose of the investigation**

The next step of our development of resources will be to produce "building block" exercises for inclusion on our own websites for use by students, but also as a kit which academics can adapt for their teaching.

We also need to investigate further the relationship between reports and dissertations, especially how students can access their experience of writing reports and use it to help their dissertations. There is a need for a development-level resource on writing reports for dissertation projects, and on designing reports; using them as a creative tool for shaping and ordering the research process.

Back to top

Works cited

Ashby, M. (2005) *How to Write a Paper*, 6th edition http://www.grantadesign.com/userarea/teachingresource/writeapaper.htm [accessed 18 August, 2008].

Carter, M., Ferzli, M. and Wiebe, E. (2004) 'Teaching genre to English first-language adults: a study of the laboratory report', *Research in the Teaching of English* 38.4, 395-419.

Marshall, S. (1991) “A Genre-Based Approach to the Teaching of Report-Writing”, *English for Specific Purposes* 10, 3-13.

Parkinson, J. (2000) “Acquiring scientific literacy through content and genre: a theme-based language course for science students”, *English for Specific Purposes* 19: 369-387.

Shahabudin, K. and Turner, J. (2007) “Developing resources for report writing in Higher Education: an action research approach”. LearnHigher CETL.

Sheehan, R.J. and Flood, A. (1999) “Genre, Rhetorical Interpretation, and the Open Case: Teaching the Analytical Report”, *IEEE Transactions on Professional Communication* 42:1, 20-31.

Swales, J. M. (1990) *Genre Analysis: English in Academic and Research Settings*. Cambridge: Cambridge University Press.

Walker, K. (1999) “Using Genre Theory to Teach Students Engineering Lab Report Writing: A Collaborative Approach”, *IEEE Transactions on Professional Communication* 42:1, 12-19.

Willmott, J.R., Clark, R.P. and Harrison, T.M. (2003) “Introducing Undergraduate Students to Scientific Reports”, *Bioscience Education E-Journal* 1 http://www.bioscience.heacademy.ac.uk/journal/vol1/beej-1-10.aspx [Accessed 15 August 2008].

Michelle Reid, University of Reading, 2008