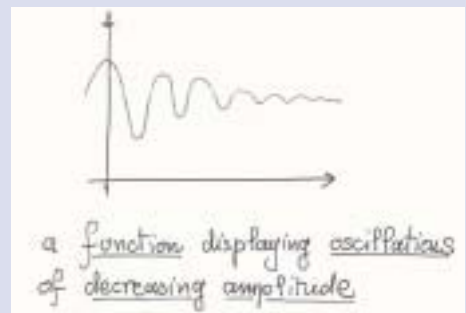


I teach the language. After introducing the terminology, I show the students how to describe the relevant mathematical objects, from an informal description to a sharp definition. At the end I deal with the more difficult issue of making a synthesis of the material, encouraging the students to abstract the essence without being overwhelmed by detail.

Here's an example:



Upon seeing something like this, an untrained person would say, 'Oh this is a wiggly curve' and this is not bad as a vague description. This object, as presented, does not lend itself to a precise definition, but you would nonetheless expect a person with higher education in mathematics to be able to say something reasonably precise, words that reveal understanding of the underlying mathematical structure. So if you say 'this is a function displaying oscillations of decreasing amplitude', then the process of modelling this function is facilitated enormously. Latching onto the notion of oscillations brings to mind the oscillatory functions, sine and cosine, and noting that the amplitude is decreasing starts you thinking in terms of what the amplitude of an oscillation is and how you may control it.

The English language – much like geometry – is a universal tool for teaching mathematics. Although not all students will benefit equally from it (much in the same way as not all students have geometrical intuition), this is a tool we cannot afford to ignore. It also gives you fantastic X-rays of the students' thinking process. In all these years, I have rarely found a clear mathematical mind hampered by language difficulties, the romantic image of mathematical genius. What I see instead is the inability to write combined with the inability to think mathematically, forming a lethal cocktail of learning deficiencies.



Dylan Morrissey (Sports Medicine) and Jan Marsh (RLF Writing Fellow) with workshop leader, Dr Peter Jones (Greenwich University) in the background

In my experience, the conceptual difficulties students have can partially be addressed by going very carefully through the processes that precede conceptualisation, and for this purpose language is very valuable. It's a well-recognised problem in mathematical education that weak students try to bypass conceptual difficulties by exposing themselves to a large number of worked examples, in an attempt to transform learning into training for examinations. The emphasis on language is very effective in countering this, because writing cannot be reduced to regurgitation of recipes.

With large classes there's a question of training and monitoring those who mark the writing. I've never had any major problem but I do need to tell the markers what I expect from them and then perform some random checks. When I return the writing to the students I must provide as much feedback as possible. Some of this can be done in class, but individual feedback is extremely important. It's not enough to give the markers model scripts: you really have to teach them how to flag and describe problems and how to correct the sentences that can be corrected. Sometimes there is nothing you can do because the writing is incomprehensible. But often you can do quite a lot.

At the beginning of a course, I declare what are the mortal sins – there are very few actually. Spelling mistakes, beginning a sentence without a capital or ending it without a full stop, sentences without subject or verb, and a couple of other things. Predictably, zero-tolerance on a few essential items brings about rapid progress on basics, and helps the students to develop the ability to judge what is laughable or totally inadequate, a skill many of them do not have.

### Results

Capable students make quick progress, responding positively to someone who has high expectations of them. It's also easy to persuade any reasonably motivated student that the ability to write clearly is a great skill: it's *the* transferable skill. The least motivated students tend to suffer from lack of attendance at lectures and exercise classes: they cannot deal with this problem on their own, and their learning is limited. In this respect, a more forceful policy on attendance would be very welcome. But above all, we need a clear policy across the



Delegates reading about the WiD project at the 2002 Writing Development in Higher Education Conference, at the University of Leicester

whole School on what we expect in relation to the quality and uses of students' writing in learning, and what we think should be the minimal standards of literacy for our graduates.

### More maths writing

Professor Wilfrid Hodges has designed a new course for second-year mathematicians, entitled 'Logic I: Mathematical Writing', which will run in 2003-4. Students will undertake regular short writing tasks based on mathematical problems designed to strengthen their understanding as well as their ability to communicate and explain.



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Ros King from the School of English and Drama has had an article published on the how and why of learning journals in her courses. She explores factors in her own educational and personal background that have contributed to her practice as a teacher: in particular, her innovative course Shakespeare in the Classroom.

R King (2002) 'Personal, Political, Theoretical: Learning journals and education' in *English in Education*, 36(3).

# Thinking Writing: News from the Writing in the Disciplines project

Summer/Autumn 2003



Sally Mitchell at the Universitat Autònoma de Barcelona's conference on self-access learning, in April

Now in its final year of HEFCE Teaching Quality Enhancement funding, the Writing in the Disciplines (WiD) initiative at Queen Mary continues to make progress in pursuing its aims:

- Raising awareness of the role of, and possibilities for, writing in university learning
- Providing practical and theoretically-based staff development
- Disseminating practice across the College
- Supporting the creation of new courses and pedagogical approaches in all disciplines.

This newsletter provides some examples of how academic staff at Queen Mary are using writing in disciplinary teaching and learning.



Julia Carter (Widening Participation), Dr Mike Edwards (SED) and Dr Josep-Anton Fernández (SML) engaged in a workshop activity

### Continuing the initiative

We've been pleased to learn that internal funding will enable the initiative to continue, so that its work can become more firmly established in the College.

This year the initiative was awarded one of the College's Drapers' Prizes for developments in teaching and learning, a pleasing recognition that its work is having a valuable impact. The award brought with it £3,000 in prize money, part of which is enabling Dr Josep-Anton Fernández and Dr Kirsteen Anderson (both from the School of Modern Languages) to attend the European Association for the Teaching of Academic Writing (EATAW) conference, in Budapest, in June.

### WiD secondments

The WiD initiative was also successful this year in bidding for funding from the Westfield Trust. The award will enable four staff members from the Arts and Sciences to develop and evaluate new pedagogical approaches or writing-intensive courses. We hope that the secondments will make a significant contribution towards embedding a writing-intensive approach within the College. Colleagues and departments who are interested in the scheme should contact Sally Mitchell.

### Workshops

The series of Writing in the Disciplines workshops has continued this year and we are now able to offer workshops to other institutions. Please visit the website or contact Sally Mitchell for further details.

Here's what one workshop participant, Roger Lee, Head of Geography, said about WiD:

'WiD activities are engaging precisely because they begin from, and are driven by, well-founded but contestable ideas on writing and its relation to teaching and learning, rather than merely on some possibly good tips... WiD has provided many immediately useful and easily implemented suggestions... It offers both guidance and intellectual challenge to those who get involved in it. It is, quite simply, a great project in both intellectual and practical terms and if all such projects were so interesting and helpful, teaching and learning would be infinitely better than it is.'

### Web resource

Access to WiD ideas and practice has been greatly enhanced this year by the development of a new website:

[www.thinkingwriting.qmul.ac.uk](http://www.thinkingwriting.qmul.ac.uk)

The site is the result of collaboration between the WiD team (Alan Evison and Sally Mitchell, Learning Development), and Sam Brenton and Catherine Haines in the Office of Educational and Staff Development. The work was supported by a grant from the LTSN Generic Centre, who have placed a link to the site on their Continuing Professional Development web pages. The site contains a rationale for the writing-intensive approach as well as numerous practical ideas and examples. Users can work through the sections to develop a thorough grounding in 'thinking writing'.



Sam Brenton who developed and designed the Thinking Writing website

Information on workshops and other WiD activities is available on our website: [www.learndev.qmul.ac.uk/wid/](http://www.learndev.qmul.ac.uk/wid/)

The Thinking Writing website is at: [www.thinkingwriting.qmul.ac.uk](http://www.thinkingwriting.qmul.ac.uk)

Alternatively, please contact the project directly:

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## Reaching for more variety: A writing-intensive course in English

In 1999, Dr Catherine Maxwell, a senior lecturer in the School of English and Drama, took part in the Summer Consortium for Writing in the Disciplines at Cornell University in the United States. When she returned it was with a strong sense that she and her department might ask their students to do more writing, and more with writing, than they may have done previously. Catherine started an ongoing discussion within her School, but more concretely she designed a new writing-intensive course, which has run in the last two academic years.



Dr Catherine Maxwell talking to colleagues about her course at the WID Exchange of Practice Forum

### Extracts from a student's work

Exercise: Using the pieces by Beerbohm and Beardsley as a guide, and with reference to the portrayals of the toilette or levée, write a short scene based around the theme of getting dressed-up or made-up.

'...Yanking apart the clothes hangers, Helen puffed out her cheeks and released a large sigh. The clothes she was promised by the PR department of her new agency still hadn't arrived. As her eyes skimmed the bulging clothes rail, she knew this wouldn't do. Rolling her large blue eyes, Helen went back to her dressing table, stretched over her straightening hair tongs, reached past her bottle of body glitter, and poured herself a tall glass of her favourite wine, Lambrini. Jangling her many bracelets, Helen finally reached in the wardrobe and decided on a black red and gold tiger print asymmetric Lycra dress. Nodding to the sound of Eighties pop, Helen threw the dress onto her bed, blinding the vision of her teddy-bear audience. Letting her lavender dressing gown drop from her body, she kicked the robe into the corner of the room and caught sight of her rear view in the wardrobe mirror...'

The course – Nineteenth-Century Aesthetic Prose – reflects developments in literary style as well as ideas and concerns from the period through a focus on texts ranging from Walter Pater's art criticism to Oscar Wilde's short stories.

In designing the course, Catherine was concerned to achieve a match between her assessment practices and the learning process. She opted for a combination of a writing journal, which accrues 40 per cent of the overall mark, and a portfolio of selected short exercises. The exercises are set weekly and students have the opportunity to revise them in the light of written and oral feedback from Catherine.

Many of the weekly exercises ask for a 'creative' approach to the set texts. For example:

'With Pater's *The Child in the House* as a guide, and using the third person, write two paragraphs from your own or someone else's early autobiography.'

'Write the opening, or a scene from a fairy story of your own making, using themes and stylistic devices which seem to you characteristically Wildean.'

'Write a paragraph in the voice of Count Almive in *A Wicked Voice*, giving your impression of Magnus.'

The students respond to these tasks in a wholehearted way:

'They told me that they would spend a portion of each week where they would lie in their bath and think about what they were going to write. And they would get quite interested by the whole process of composition. They would talk about it quite a lot, they would sometimes come and discuss ideas with me.'

(from the writing journal) ... Throughout history the image of Venus has always been inextricably linked to beauty and natural female perfection. It is therefore both amusing and intriguing to consider that Beardsley presents a grotesque picture of Venus' toilet. Rather than focussing on the women, Beardsley presents a picture of her dressing room and all her horribly rude attendants. Beardsley lists bottles of beauty products and describes the mountains of clothes strewn across the floor. [...] Beardsley shatters the usual perfect image of Venus, and without detracting from her obvious physical assets, he presents a nasty sordid world where make-up and dress can hide a multiple of sins.

I thoroughly enjoyed writing a humorous description of one woman's dressing table. I decided on writing about a minor celebrity, known for her bad taste, called Helen as inspiration. I thought this was rather appropriate as I was playing on the image of ultimate beauty – Helen of Troy. The humour comes across to the reader as I employed a rather ironic, tongue-in-cheek picture of Helen. I did not want to be cruel to Helen, but I did want to produce a picture of a beautiful Helen that totally went against the mythical women of beauty,

Catherine also expects her students to engage analytically, to give what she calls an 'intellectual response' to the texts they are reading. This is not in the conventional form of the essay but in the more open and inclusive form of the writing journal. Here, students are expected to develop their critical responses to the texts but with the freedom to follow their own thinking processes and to make connections with the short writing exercises and the discussions and activities that take place in class.

Catherine is pleased with the work students have produced in their writing journals and she is particularly struck by what she calls the 'loosened-up voices' that make themselves heard. She attributes this loosening not solely to the journal form itself but to the combination of writing tasks the students are regularly engaged in. Reflecting initially on the short writing tasks, she comments:

'What was lovely was actually seeing the creativity coming through – there was a sort of fluency that was very nice. I think there is something about being able to write creatively which did actually loosen up people's creative voices. But it also, I think, loosened up their academic voices in writing the log book. I've no ambition to replace the standard student essay, but what was nice, I think, about the log books is that it actually made students reach for more variety in their expressive voices and there are things that come through in the log books that you would actually be quite glad to see coming through in the student essays – kinds of playfulness and experimentation with voice which were really enjoyable. They were writing intellectually but they were writing on their own theme [...] That's one of the things for me that the log book did – it brought up this use of voice in different ways and opened up a range that one doesn't find in normal student essay writing.'

When staff are asked to consider the merits of a writing-intensive approach to learning they often balk at the apparent implication of an increased marking load, but this is an aspect that Catherine plays down. From the outset she has set the 'golden rule' that exercises should cover no more than one side of A4 in twelve-point font. She concedes that 'towards the end there is a bit of a rush where I mark a lot of stuff to give it back to them so that they can revise it for final submission'. But she also notes, because the work is being done throughout the course, she can get on with marking it almost as soon as the term is over: 'So it is one of the courses I can get out of the way before Christmas, and not be greeted by in the New Year when I come back'. Moreover, she says: 'The pay-off is that it is a lot more enjoyable to mark this course – the students are doing really interesting work.'

## Change to learning

Report by Jan Marsh (Royal Literary Fund Writing Fellow), with thanks to Caroline Brennan, Maurice Elphick, Chris Faulkes, Conrad Lichtenstein, Mark Trimmer and John Viles (SBS).

'It's been much more satisfying – at last I feel I am facilitating learning.' Six members of the School of Biological Sciences met to describe for this Newsletter changes to the second year ISBS course. The course, Integrative Studies in Biological Sciences, is designed to teach the ability to think critically about conflicting or controversial evidence within the whole field of biology. Taught to all Year 2 in groups of eight to ten, it is essay-assessed.

Change was born out of some desperation. 'We had a dismal repeating cycle of abysmal essays regurgitated or taken direct from the Internet, showing no improvement through the semesters.' So instead of six such essays per year, with WID assistance the ISBS tutors devised a new strategy, based on the same sort of topics (animal phylogeny, future BSE risk, etc.) This starts in semester 1 with individual 200-word summaries of a scientific article that are critiqued and revised, followed by collation and assessment of up to 50 relevant citations by each tutorial group, leading to individual 1,000-word essays.

'The aim is to compare and assess evidence – and express the results in written form.' Whether or not the essays were of better quality – in the energetic discussion there was some debate over this – all agreed that the strategy made students more positive. 'In tutorials the students became active, even enthusiastic, with tasks to complete and judgements to share – although in practice 50 citations became a paper collage on the floor; in future we'll have to reduce the number.'

'We also required students to keep workbooks, which we monitored along the way, even sharing practice by displaying our own examples, with all the doodles, post-it notes, erasures and exclamations.'

Professor Conrad Lichtenstein initiated the new approach last year (see Newsletter Spring 2002), and a dozen faculty members volunteered to pilot it on this year's ISBS course.



Dr Chris Faulkes in an ISBS tutorial

Semester 2 began with a tutorial collectively unpacking six essay titles, with two to be chosen. Then half the class took each title and delivered three copies of their own essay, plus a brief self-appraisal. The next seminar combined discussion and tutorial feedback, leading to peer review, with each student assessing two essays on the other topic and then in turn receiving feedback from two classmates.

'This was logistically complicated! And difficult when students missed tutorials without warning.' One tutor found that the better students were rather poor at self-assessment. 'The weaker students were more rigorous and harsher with themselves. But most enjoyed the peer review.' Dismayingly, many were quite unable to correct spelling and syntax errors in others' work.

Finally, students were offered the option of submitting a revised essay for re-marking, or, from one tutor, a re-written summary.

Is it more work? 'About the same', according to some. 'More preparation', according to others. But a lot less marking of scripts cobbled together the night before. In fact, the discussion between the staff was so lively that it was hard to take everything down, as experiences were shared, future modifications proposed, and differences aired. All agreed that 'everyone's learned an awful lot – and that's as well as the students.'

The programme allows for some variation and flexibility in teaching methods. 'We feedback to each other via email, and also have monitoring and post-mortem meetings, to see how it's all working.' Two of the tutors present had used the teaching experience in relation to their own Postgraduate Certificate in Academic Practice (PGCAP) and the whole ISBS group are currently involved in plans to extend the initiative into Year 3.

'We need to refine and improve the model, but so far there's no one who wants to return to the old system. Oh, and the WID input was invaluable – we'd still be struggling without it.'

## STOP PRESS!

Second-year Biology students interviewed this summer say the work they've done in ISBS has helped them to plan, structure and time their writing in exams.

## Writing to Learn Mathematics

Since 1997, Franco Vivaldi, Reader in the School of Mathematical Sciences, has used short writing tasks as part of his teaching and assessment practices. He spoke to colleagues at an Exchange of Practice Forum about what he does and why, arguing both that writing can be used as a way of developing students' mathematical understanding, and that students should be expected to learn to write. This article is based on a transcript of Franco's talk.



Dr Franco Vivaldi working with students

### Background

Among mathematicians there are what you might call 'mathematical nerds'. The mathematical nerd has got in his mind this beautiful representation of, say, Galois cohomology, but often cannot communicate this clearly. In fact there are some excellent mathematicians who are almost illiterate. But, of course, the competent mathematicians who are also excellent writers are far more numerous than the competent mathematicians who cannot write. It is the latter, however, not the former, that are romanticised. And so mathematicians tend to make allowances for colleagues who do not know how to write, and then they extend these allowances to the students, regardless of whether they are good or bad at mathematics. At Queen Mary, we also have many students from non-English backgrounds, and some lecturers respond to this by lowering expectations and excusing illiteracy. I've heard lecturers say, 'As long as I understand vaguely what's written, that's enough for me'. Well, it is not enough for me: I regard teaching the students how to express themselves in writing as an essential part of my job as an educator.

### Specifics

I am interested in a scheme that can work with large classes. Every week, in every course I teach, I ask the students to write short essays – from one sentence to about 100 words. The trick is to forbid the student from using any symbol whatsoever, and that decision prevents them from copying from books or lecture notes. I have to free lecturing time for this activity, and I do this by putting lecture notes on the web. The allocated time – 30 minutes a week at the beginning of the course, maybe 15 minutes towards the end – is organised around a revision of the material covered during that week. During this process,