WHEN SOUTH AFRICA made the transition to democracy in 1994 there were clearly many issues to be addressed if the declared objectives of removing previous disparities among different sectors of the population with regard to quality of living and opportunities for progress were to be met. Among the most important of these aims was the eradication of limitations in access to higher education due to the inferior primary and secondary schooling given during the apartheid regime of over forty years to pupils belonging to race groups other than white. Once students from these previously disadvantaged groups had gained entry to the universities formerly limited to those classified as white, it became necessary to institute various programmes directed at helping such students to “bridge the gap”. These academic support programmes offered, inter alia, special courses aimed at English language development for those whose home language was not English, but one of the several African languages spoken in the various regions of South Africa, or in some cases French or Portuguese, still widely spoken in African countries that were formerly European colonies. Central to this, in the academic development programme that soon evolved from the original academic support initiative at the University of Cape Town, was the establishment of a Writing Centre, with the objective of addressing a particularly serious problem: the difficulties experienced by students emerging from the previously disadvantaged primary and secondary education system in acquiring “academic literacy”. By this we mean the writing and reasoning skills required to produce the written assignments – essays and scientific reports – that are an essential part of any university study in that they prepare students for the type of written communication they will have to use in their subsequent professional careers.

In 1994, at the outset of the “new” South Africa, the University of Cape Town (UCT) opened the doors of its Writing Centre, which had the following aims:

- To offer a one-to-one consultancy service for students around any academic task; such consultations were to be learning experiences for the students, not an editing service.
- To collect findings from these consultations in a computer database, which could be used in various ways to generate information leading to a better understanding of students’ needs in learning how to write at university level.
- To work with teaching staff in various academic departments with the shared aim of making writing instruction an explicit, integrated component of course curricula.

I was one of four writing consultants appointed to the UCT Writing Centre in 1994, and remained on the staff for six years, as the project developed in various directions, mainly along
the lines laid down originally but sometimes requiring modification to meet special circumstances. Initially we had perforce to draw on the experience of similar facilities in other countries, notably at some American universities with a heterogeneous student population (including those from Hispanic as well as African-American groups) experiencing language difficulties similar to those of South Africa’s diverse population. We also derived much useful information from the published reports of academic staff at certain Australian universities where this problem had been adopted as a special concern. Here I should mention in particular Alex Radloff (then at Curtin University of Technology in Perth, WA), whose ideas proved especially pertinent to our task. Perhaps it was no coincidence that she was a former resident of Cape Town. However, as the mass of data gleaned from our consultation records grew, we gradually developed our own approaches to many of the difficulties experienced by our students at UCT, based on what we perceived as the prevalent issues facing them in their journey to academic literacy in this major African university.

The services of the Writing Centre were available to students at every level, from first year to postgraduate, and in all faculties. I had been appointed as a consultant mainly because of my training and experience as a scientist and my special interest in scientific writing, but during my years in the Writing Centre I was required to engage in discussion about many different disciplines – an interesting learning experience in itself. What I found particularly significant was how similar the main issues arising in consultations were across all fields of university study. These major issues are outlined below.

THE MAIN ISSUES

Where students whose home language is not English are concerned, and especially those coming from a disadvantaged background, there will inevitably be linguistic errors in their writing. Among African students, in particular, the use of articles, definite and indefinite, seems to be foreign to them and the correct use of tenses also presents difficulty. However, in the training we were given prior to our becoming writing consultants, we were told that these "surface errors" were of minor importance compared with other problems that were likely to manifest themselves in students’ writing. Our consultation records indicated that the most prevalent of these could be grouped under the following headings:

- **Conceptual**
  - Not understanding the writing task and/or its requirements
  - Not understanding the underlying concepts

- **Organisation**
  - No division of a piece of writing into sections and subsections
  - Lack of cohesion and coherence
    - (The term “cohesion” refers to organisation of related points within paragraphs and “coherence” to the logical progression of the argument from one paragraph to another)
  - Absence of focus; inclusion of too many details extraneous to the main point of the discussion
  - Absence of elaboration; points made or conclusions drawn without substantive corroboration
Another recurring problem, which is universal in students’ writing, is the tendency to plagiarism. It proved difficult to persuade some of our students that, while it was acceptable to quote verbatim, with acknowledgement, short passages from the literature to which they had been referred (or, more recently, had found for themselves on the Internet) the extended use of long paragraphs culled from these sources, interspersed with a few linking sentences of the student’s own, was certainly not permissible. This tendency is prevalent in the writing of students grappling to cope with the use of English as a teaching medium, since the perception is that recognised experts in the subject can express themselves on a topic so much better than the student, and therefore the words of these experts must represent the definitive view on the subject under discussion.

**REMEDIAL APPROACHES ADOPTED BY THE WRITING CENTRE**

Once these major issues had been identified they were addressed in several ways:

1. Our main point of focus was always on the individual, and therefore we gave extensive feedback, written and verbal, to our students as they returned for further consultations on the same or subsequent writing assignments. Some visited the Writing Centre only a few times, but there were many who returned on numerous occasions, generally to see the same consultant each time, and it was gratifying to watch their progress, in some cases throughout their undergraduate years and even into postgraduate studies. This made possible interesting research based on longitudinal studies of these students’ development as academic writers.

2. In cases where we saw many students from a particular department, or from a course given by that department, we tried (with varying degrees of success) to persuade the academic staff concerned to allow us to present a writing workshop within the department to make explicit the writing issues we had encountered in their students’ work. Such intervention was, of course, all the more important where conceptual problems had been found to be widely prevalent among these students.

3. Sometimes our feedback to academic staff resulted in close collaboration with them on, for example, improvements in task design and mediation, and even the incorporation of writing development as an integral part of the departmental curricula. A special example of such collaboration between Writing Centre and academic staff can be seen in a project that started in the UCT Department of Chemistry in 1995 and endures, albeit in modified form, to this day.
THE CHEMISTRY WRITING PROJECT

Before the initiation of this project the UCT Chemistry Department had been typical of other university departments teaching the scientific disciplines, in that students at senior levels were expected, indeed assumed, to possess the writing skills necessary to produce reports and dissertations but little or no curricular space was devoted to the development of these skills. There are several reasons for the resistance of lecturers in scientific departments to the explicit development of writing within the undergraduate curriculum, but perhaps one of the most important is the fact that attempts to initiate students into the demands of scientific writing are perceived as “remedial activities” that compete with disciplinary content for precious curricular space. However, in 1994 a change in mindset was called for by the Dean of the Science Faculty, who had received disturbing communications from several of the main employers of science graduates in South Africa that many of the recent graduates from UCT, although sufficiently proficient in the laboratory and acquainted with the latest techniques in their discipline, lacked the skills in written communication necessary to enable them to report their findings clearly to others. He therefore issued a directive to all departments within the faculty that steps should be taken to impart the missing skills, but that this should be within the curriculum rather than being offered as an “optional extra”. This directive came at the same time as the Academic Planning Framework adopted by UCT as part of its declared objective of addressing the problem of differences in educational background (or “academic preparedness”) among the diverse student population now seeking admission to the university. This framework included a number of criteria that would be used to assess the quality of undergraduate programmes, inter alia:

- Are graduates skilled in written and oral communication?
- Do graduates meet employers’ expectations in this regard?
- Is the programme flexible and supportive enough to accommodate students with different levels of educational preparation?

The reaction of the Chemistry Department staff to this challenge was to consult with the Writing Centre, and as a result a project was initiated in 1995 that was directed at all second-year students in the department (this included chemical engineering students as well as those registered in the Faculty of Science). During the course of the academic year three writing tasks were set for these students: topics were drawn from different branches of chemistry and the students were required to produce reports of various types, intended for different audiences. A random selection (25%, with equal numbers of students having English as their first language and those whose home language was not English) were copied before marking and retained for independent assessment and a longitudinal study of the progress or otherwise of the students involved (known as portfolio assessment). All the reports were scrutinised by a specially trained team of markers and the results obtained throughout the year were compared. The main findings from this exercise were:

- Much of the communication problem experienced by students whose home language is not English is due to their weak grasp of the concepts underlying the topic of the assignment and/or of the requirements of the writing task.
- Students’ conceptual understanding of the science and their ability to communicate this understanding are inseparable.
- The existing curriculum did not accommodate the specific learning needs of students whose home language is not English.
On the basis of these findings, re-examination of the relationships between course content, teaching approaches and writing assignments took place and it was decided that in future years all assignments (now reduced in number to two per year) would become opportunities for students to consolidate and develop their understanding of material within the curriculum. Each writing task was to be mediated in a workshop designed to help the students to develop their understanding of the underlying concepts through group discussion of related topics and some simple writing on such topics. Students were given key references and encouraged to visit the Writing Centre. For the marking of each assignment a task-specific assessment framework was designed, with the emphasis more on conceptual understanding, organisation of the work and logical development of argument than on linguistic problems. The main criteria were:

- Has the student clearly understood the task?
- Does the student understand the scientific concepts involved?
- Has the student constructed a logical argument?
- Has the student reached a conclusion, or made a recommendation?
- Have the scientific conventions regarding layout and referencing been followed?

These criteria were made explicit not only to the markers but also to the students when the task was given to them at the writing workshop.

The tasks were chosen to give the students some experience of the type of writing they may be required to undertake in their professional careers. Some typical examples are given below:

- Compile a report for the Chief Executive Officer of De Beers (an important diamond producing company in South Africa) on the feasibility of manufacturing diamond films for industrial purposes. The concepts involved here included basic physical chemistry (thermodynamics and kinetics) as well as the structural chemistry of the carbon allotropes graphite and diamond. In addition, students were required to write an accompanying letter explaining the purpose of the report.
- Describe and discuss the industrial synthesis of nylon. This required knowledge of the organic chemistry involved in this synthesis, including the reaction mechanisms, which the students were asked to describe in words as well as giving the chemical equations.
- Write a report for the Minister of Energy Affairs on the feasibility of using hydrogen as a fuel for transport as sources of fossil fuels become depleted. This task required students to describe large-scale production of hydrogen and consider advantages and disadvantages of its use as a fuel, with regard to environmental impact, safety and cost.

There were many more, all with some relevance to real-life problems as well as illustrating concepts covered in the course curriculum.

As the years went on feedback from students (obtained from evaluation questionnaires) and academic staff was used to inform and improve the design of future writing tasks and workshops. It was from the resulting “action research spiral” that we learned more and more about the impact of writing within the curriculum. Gradually the emphasis of the project shifted from teaching communication skills per se (although the importance of that was never underestimated) to the use of writing as a tool for what has been described as “deep learning”, in other words enabling the students to gain a deeper understanding of the scientific concepts involved by engaging with them in appropriate reading and then writing about them in such a way as to make them comprehensible to others, not necessarily only those with a scientific training.
What of the “previously disadvantaged” students whose problems had been the prime focus of this initiative? It was gratifying to observe, in comparing assessment results over the course of an academic year, that while the average mark and overall distribution of marks for this group were at first generally lower than those for the students having English as their first language the discrepancy diminished or even disappeared later in the year, as these students assimilated the chemical concepts as well as the necessary writing techniques under the guidance of academic staff and writing consultants. Several went on to achieve considerable success in their senior years, graduating with good degrees that opened up many opportunities for them in their professional careers.

In conclusion, let the students speak for themselves. Some of the responses given in the questionnaires administered to the students in the course of our “action research” were as follows:

“Writing projects give students a chance to research on their own matters dealt with in class, in a deeper degree. Having to write a report helps us to gain skills of communication required at career level.”

“The assignment presents a unique way of teaching ourselves about chemistry, and of course writing English.”

Or, put more simply:

“This was part of my applied chemistry course and now I can see what is going on (before the project the section was Greek to me). I can just feel it in my blood.”

“It did help a great deal. I don’t have words to say it. God bless you.”

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REFERENCES

