

# Responding to Diversity: Assisting higher education students develop written communication skills

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## Abstract

*This paper describes an education program, funded by the Equity and Social Justice Branch of Victoria University; the program's evaluation; and, the evaluation's findings. While the diversity of backgrounds of students studying in the Faculty of Engineering and Science at Victoria University is regarded in many ways as a strength, in terms of students developing valuable cross-cultural awareness and understanding, for those from non-English speaking backgrounds, lack of proficiency in written communication skills can be an impediment to reaching their full academic and professional potential. The aim of the project was to devise sets of integrated, discipline-specific language learning resources that could be used systemically by students, mainstream staff and academic skills advisers to provide students with meaningful feedback on their writing and relevant, accessible information for improving those areas where further development is needed. The evaluation, based on written surveys and individual face-to-face and telephone interviews, determined student usage of the various resources that were developed, student and staffs' perceptions of the value of the materials and of their impact on student learning. Successful applications for further funding, beyond the initial seeding grant, attest to success of the project with respect to modest anticipated and unanticipated outcomes for the short-term.*

*In the case of this project, evaluation has provided a valuable means by which one academic community, a higher education institution, has strengthened its contribution to the growth and development of its students with respect to their acquisition of language skills appropriate for academic and professional contexts. This in turn, we hope, will lead to better educational outcomes for graduates and a more prosperous communities once these students graduate and become integrated into Australian and international general communities and workforces.*

## Key Words

English for academic purposes, communication skills for engineering and science, program evaluation, higher education equity program

## 1. Introduction

This report describes the outcomes of an equity-funded project undertaken to assist Non-English Speaking Background (NESB) students, studying in the Faculty of Engineering and Science at Victoria University, to develop their written communication skills for academic and professional purposes. The aim of the project was to devise resources that students can access, both in writing skills workshops conducted by the SLU and independently, and that mainstream academic staff can direct students to when providing them with feedback on their course assignments.

Specifically these resources are in the form of hardcopy handouts and on-line materials that focus on conventions of writing at the micro-skills (or sentence) level in the context of scientific and technical discourse.

The project was a joint venture involving staff from the Faculty of Engineering and Science and from the Centre for Educational Development and Support (CEDS) - Student Learning Unit (SLU).

## **2. Background**

That NESB students have additional challenges, beyond those faced by native speakers, in their university studies is evident in a study by Morrigan (1997) that indicated a gap in the University's equity performance with respect to NESB student success. Based on the Martin (1994) indicators, Morrigan reported NESB student success rates at VU were below those of ESB students. This finding, however, may not mirror the performance of students in their final year of secondary college. The results of a study conducted in 1998 of more than 13,600 year 12 students throughout Australia, indicated a stronger performance by students of NESB to the extent of nine percentage points (Paxinos 2002).

Although the populations of the two studies were different (one study was conducted in 1997 and limited to VU students, and one was carried out in 1998 and considered students Australia-wide), such a discrepancy does raise questions about the adequacy of supports available to NESB students during their university studies. It suggests that when students of NESB enter higher education, where there is a greater focus on graduates possessing professional level communication skills, unless resources are available to further foster their language skills, their general academic potential will not be reached. This situation is of special concern to students and staff in the Faculty of Engineering and Science at VU because of the high percentage (approximately 61%, Reidy 1998) of students from NESB enrolled in the Faculty.

Arising from this concern, we embarked on the current project. An integral aspect of our approach was the extensive use of formative evaluation protocols. These involved our conducting needs analyses wherein we sought the perspectives of staff and students on topics of relevance, and subsequently the staff and students' critical comments on the materials developed by the project team. In all phases, feedback was sought from Engineering and Science students with a range of backgrounds and studying at various levels from year one to PhD (see Webb, previous project reports for details). Wherever practical, the suggestions made by students and mainstream staff were incorporated into the design and presentation of the materials that have emerged.

Both the hardcopy and on-line materials integrate explanations and examples with 'self-check' exercises designed to reinforce each component that makes up a complete topic. The purposes of the self-check exercises are to reinforce the students' learning related to the current topic and to enhance their self-perceptions as learners of academic and professional writing conventions in general. In other words, they are designed so that the students will increase their knowledge of principles of formal written English and achieve success when this knowledge is 'tested'. Answers, and where appropriate, explanations of answers, are provided for each self-check exercise in both the hardcopy and on-line formats. The on-line version of the self-checks is interactive. The workshop version of the notes incorporates 'class activities' wherein students have an opportunity to apply what they have learnt to an original piece of writing.

## **3. Indicators of the project's outcomes**

In reporting the project's outcomes, two dimensions are described. First, the contribution that the project has made to the strengthening of the language-learning resource base available to students and staff of Engineering and Science is outlined. Second, student usage, perceptions of the value of the materials, and perceptions of their impact are reported.

### **3.1 *Strengthening the language-learning resource base***

- The project has produced a bank of relevant, accessible materials of professional quality that can be used to support writing workshop discussions and can be accessed for independent use by those who are unable to, or who prefer not to, attend the workshop series.

While the materials were written specifically for the in-semester writing skills workshops, they will also be drawn on for the SLU summer school program that is conducted in February each year.

- As an adjunct to these materials, which deal with topics in depth, a series of 13 *Two-minute tips* handouts was developed.

One purpose of these handouts is to stimulate student interest in issues related to writing in a format that is not overwhelming. Where space permits, these handouts are used also to inform students of the availability of the writing skills workshops and web site.

- Materials developed for the workshop program have been adapted for on-line delivery using FrontPage and Java Script.

To assist students who are unfamiliar with on-line learning programs adapt to this resource, it is proposed that in 2002 facilitated workshops be conducted once a week during semester. In these sessions, students will be guided in how to use the site and to topics of individual relevance. The facilitated computer-based workshop format will enable attendees to work simultaneously on a range of topics.

- To help students maintain interest and motivation when working on either the hardcopy materials or on the web site, a proforma has been developed on which students can 'track their progress' by marking those self-checks that they have successfully completed.
- To assist staff in providing feedback to students on the quality of their written work, a proforma is available which staff can use to inform students of their areas of need and the availability of materials that are relevant to these needs.

In 2002, as part the CEDS / Faculty Schools Agreement with Engineering and Science, it is proposed that regular workshops be held to inform staff of the resources that have been developed through this project and to discuss ways that staff might draw on the materials when informing students of the University's resources and when providing them with feedback on their written work.

In summary, the availability of these materials for students and staff to access across the three campuses where the Faculty has a presence, has contributed to the building of a culture wherein students can work in constructive ways to improve their written communication skills as opposed to an environment where they are told that they 'need to improve' but not given strategies to work with.

### **3.2. Student usage, student and staff perceptions of the value of the materials and perceptions of their impact**

#### **3.2.1 Student usage**

During 2001 there were 1,852 students enrolled in the Faculty of Engineering and Science<sup>1</sup> (Norwood, 2002). These students were based on three campuses: Footscray Park, St Albans or Werribee. The extent to which students accessed the materials generated by this project was explored using a number of methods.

*Methods:* SLU student participation records and CEDS web site 'hits' data were used to provide an indication of the extent to which students accessed the hardcopy workshop materials and the web site during 2001. Indications of student usage of the *Two-minute tips* were given by numbers : (i) distributed in formal class settings, (ii) used by staff when providing feedback on assignments, (iii) used by SLU staff in academic support settings and (iv) collected by students who self-accessed the materials from a pick-up point at the SLU reception.

*Findings:* During Semester I, 45 students received the hardcopy workshop material either in conjunction with attendance at the weekly workshops or independently of attendance. During Semester II, the number of students participating increased slightly to 51, despite an overall drop in enrolments in the Faculty.

Students who did not attend the workshops accessed the material either (i) through a friend who did attend, (ii) during individual consultations with SLU staff, or (iii) from the SLU reception. Those students who received them through the SLU reception either picked them up personally or had the materials mailed to them if personal collection was not convenient (This option was especially applicable to students who were studying on the Werribee or St Albans campuses).

The October 2001 (Zorzenon) report of usage rates of the various web sites sponsored by CEDS shows that the *Improve Your Writing* site was the third most frequently visited site, with over 15,000 requests since its inception.

For the 13 weeks (equaling 13 topics) that the *Two-minute tips* materials were available, an average of 237 were distributed or collected each week.

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<sup>1</sup> A breakdown by semester is not available; however, it is known that there were attritions, and so the total number enrolled in semester I was greater than the total number enrolled in semester II.

### 3.2.2 Students' perceptions of the value of the materials

*Methods:* A survey of students studying Physics I (SPH 1010) and individual in-depth interviews with students who attended the workshops and/or accessed the web site for private study purposes, provided quantitative and qualitative case-study information on students' perceptions of the value of the materials.

*Survey: an overview* Two classes of first year students, majoring in physics, were surveyed in the twelfth week of Semester II, 2001. Twenty-eight surveys were distributed; 26 were returned. All of those that were returned contained usable data. Students could return their responses anonymously. Only three identified themselves, and those who did, volunteered to be interviewed as well. Simple numerical calculations on the data were possible for the responses made to many of the questions given the small number of participants in the survey. Open-ended responses were coded, categorized and grouped.

*Individual in-depth interviews: an overview* Sixteen students participated in individual in-depth interviews. All students who (i) participated in the weekly workshops, (ii) received the workshop handouts on a regular basis and/or (iii) were known to be users of the web site, were invited by letter to participate in an individual face-to-face interview. Those students who responded represented a range of backgrounds. Although all were from NESB<sup>2</sup>, some were local students and some were international students. Some were mature and some school leavers. They were studying across a range of courses and were enrolled in each of the three Schools of the Faculty. They were studying at a range of levels from first year to PhD.

An independent interviewer conducted the interviews. Interview times were determined by student availability. Some were conducted during end of year 'SWOT vac.' and others were conducted after individuals had completed their examinations. In all, the interviews were conducted over five weeks during October and November 2001. Each interview lasted approximately 45 minutes. The interviews were semi-structured and among other things explored issues relevant to the hardcopy materials and the web site. The focus of each interview varied according to the individual students' experiences.

The interviewer made notes during the discussions, and with the consent of individual students, the interviews were audio recorded. Initially, an assistant in CEDS prepared incomplete transcripts of the interviews based on these tapes. These transcripts were subsequently checked and edited by the interviewer who was well placed to decipher the unfamiliar accents and unconventional expressions used by some of those interviewed.<sup>3</sup> Students were invited to review the transcript. Whilst several did, most declined the invitation owing to work, travel and further study commitments. Interview data were coded grouped and categorised.

Following is a summary of the main findings based on the data collected by the surveys and during the interviews.

*Student perceptions of the value of the hardcopy materials available to workshop participants and non-participants:*

For the most part the students made favourable comments about the materials across a range of themes:

- the information presented in the notes is readily accessible for students of NESB regardless of the students' prior experiences of English language education and level of confidence
- the materials are a valuable adjunct to class discussions
- the materials provide a useful resource for those unable to attend an individual workshop or the workshop series
- the materials are useful as a reference when students are revising drafts of assignments
- the topics covered by the materials are relevant to the students' needs
- the self-check exercises assist students' learning
- the use of scientific and technical content assists students' learning
- the use of summaries assists students' learning
- the materials provide a useful resource for those studying areas outside of the Faculty of Engineering and Science.

However several suggestions were made for how the presentation and distribution of the notes could be improved:

- the individual topics could be combined into a single publication

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<sup>2</sup> The first languages of the respondents were Arabic, Cantonese, Malay, Mandarin, Nepalese, Farsi, Romanian, Tagalog, Thai, Vietnamese and Urdu.

- the self-check activities would be improved if more of the answers were accompanied by explanations
- add further topics to those currently available
- publicity about the program (and the availability of the notes) should be improved.

*Student perceptions of the value of the web site 'Improving your writing':*

Because the topics on the web site are based on the workshop hardcopy materials there is significant overlap in students' responses to each format.

- the information presented on the web site is readily accessible for students of NESB regardless of the students' prior experiences of English language education and level of confidence
- the design of the site is appealing
- the web site provides a valuable adjunct to the weekly workshop program
- the web site informs students of issues pertinent to scientific and technical writing
- the web environment has particular appeal for students who like to learn through technology
- the web environment has particular appeal for students who like to learn independently
- the self-check exercises assist students' learning
- some unintentional benefits could arise from the site in terms of students' general academic skills
- some unintentional benefits could arise at the Institutional level.

In addition to the positive remarks made about the site, some students did express reservations and made suggestions for how it could be improved.

- add a mechanism for explaining unfamiliar scientific and technical terms
- provide facilitated computer-based sessions
- publicity regarding the existence of the web site should be improved
- add further topics to those currently available
- facilitate access to a 'word' version of each topic so that students can obtain a version in print
- the existence of the web site should not lead to the cancellation of the workshop program

One student was critical of the site on the grounds that:

"The interaction part with the tutor is not there. You have no discussion. It's just black and white."

All of the Physics I students who were surveyed indicated that they intended to visit the site over the summer break. Most of those who provided an additional comment, indicated that they felt that without the pressures of their course work assignments, the period November to March provided an ideal opportunity to do some productive work toward improving their writing, and expressed appreciation that the site was available for them to access out of semester.

*Student perceptions of the value of the 'Two minute tips':*

In response to five questions regarding their perceptions and use of the 'Two-minute tips' handouts, 24 of the 26 students who responded to the survey indicated that they found the topics were relevant to their needs and interests; 25 reported that they found the explanations were easy to understand; 19 reported referring to the handouts when preparing their laboratory reports and 25 said that they intend to keep them for future reference. All 26 respondents thought first year students in 2002 should receive copies of the 'Two-minute tips' handouts.

**3.2.3 Staff perceptions of the value of the programs (i.e. workshop materials, web site and 'Two-minute tips')**

Comments recorded during face-to-face and telephone interviews with mainstream and SLU staff who taught the case-study students provide insight into staff perceptions of the value of the materials. Five staff participated in the interviews each of which lasted approximately 30 minutes. Two staff were interviewed over the telephone and three interviews took place in the lecturers' offices. The interviews were conducted by an independent evaluator who took brief field notes during the discussions. At the conclusion of each interview, with reference to the notes, the interviewer reiterated his understandings of the interviewee's perspectives.

Those interviewed indicated that they thought the programs were beneficial in a number of ways which address both student and staff needs:

- the materials provide something tangible for the students to use as a reference to guide them in their writing
- the examples given provide useful reinforcement of course content
- the materials provide those students who are keen to develop their writing skills with a centralized, recommended base that facilitates students being given a consistent message with respect to writing expectations
- the materials provide an efficient means by which staff can provide specific feedback to students on aspects of their writing

- the materials can be drawn on for the staffs' own professional development with respect to students' writing difficulties and conventions in professional writing
- the materials can be used emphasise to students the importance of their developing their writing skills to a professional standard.

### **3.2.4 Student and staff perceptions of the impact the material on student learning**

While it is well recognized that language acquisition and development is for most a long-term proposition, we never-the-less sought to discover what, if any impact the programs had on students' learning in 2001. On the basis of our data, we are able to claim some modest gains over the year.

Although in the individual interviews, we did not seek to 'test' students' knowledge of the topics covered in the program, rather the focus was on their perceptions, it was clear in many instances that students had acquired some deeper understanding of the complexities of how the language works and that they were able to articulate these. For example, one student spoke at length about the use of active and passive verbs and the contexts in which it would be appropriate to use each. Another spoke in detail about the syntactical differences between her first language and English. A further student detailed her understanding of tenses and the structures that are applicable to academic writing as opposed to conversational interactions.

Students noted that participation in the programs had given them greater confidence in expressing their understandings in writing. Some noted that they began writing more easily, while others felt that they took to the task of proof reading with increased awareness. Several noted that they wrote more quickly or prepared fewer drafts.

Staff comments affirmed the students' self-evaluations of the learning outcomes derived from participation in the programs. One noted students' positive reactions to the materials by using an example of 'corridor conversations' between students that he had overheard on a number of occasions. In these conversations, students expressed pleasure at seeing their grades increase as the semester progressed and attributed access to the materials as a factor contributing to their improved writing skills.

One member of staff who held individual consultations with postgraduate students to discuss their writing, noted improvements in the students writing in the areas addressed by the materials. In particular, she reported observing improvements in students' writing with respect to subject/verb agreement and the appropriate use of tenses. She also noted that when the students had made errors that their confidence in their abilities to self-correct and the accuracy with which they self-corrected had improved.

### **Conclusion**

The aim of the project was to establish hardcopy and web-based resources for NESB students, studying in the Faculty of Engineering and Science, who wished to improve their written communication skills at the micro skills (or sentence) level. In addition to the proposed workshop materials and web site, the project has generated a series of one-page guides (*Two-minute tips*) which are designed to provide students with a quick reference and information promoting the more substantive materials.

Extensive formative evaluations were conducted in the initial years of the project, while the materials were being prepared, in an effort to ensure that they were relevant to and accessible for the intended student audience. In the final months of 2001, an evaluation was conducted following one year of SLU staff and some mainstream staff using the materials extensively and in integrated ways to support their teaching. This summative evaluation focussed on stakeholders' perceptions of the value and impact of the materials and its findings indicate that overall the projects' materials have been favourably received by both students and mainstream staff. Some suggestions for modifications and extensions, however, were also made. Of note, with respect to future work in the area, was the request that additional topics be added to both the hardcopy and web formats.

Whilst the favourable response of the majority of students and staff involved in the evaluation is pleasing and does indicate the usefulness of the formats to many of our students, we should not overlook the perspectives of those students who emphasized the importance of face-to-face interaction with a teacher who can guide students as to their area of need and provide dialogue which effectively addresses students' uncertainties and sources of confusion.

### **Note**

Sample copies of the project's materials and copies of the evaluation instruments used are available from the author.

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