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PROJECT TITLE		
<i>Improving scientific writing skills of students from a non-English speaking background in First Year Biology.</i>		
<b>HEESP GRANT:</b>	<b>\$9880</b>	
SIGNIFICANCE OF PROJECT		
<p>This collaborative project sought to address and redress an issue that is problematic in the areas of education and equity. Our observations showed that students from Non English Speaking Backgrounds (NESB) were significantly disadvantaged in First Year Biology by inadequate English writing skills. The aim of this project was to improve the scientific writing skills of first year NESB students through the development and implementation of an integrated First Year program. This project addressed the Faculty of Science, Engineering and Technology's priority for equity for NESB students and Learning and Teaching Operational Plan to embed graduate attributes into the curriculum. The outcomes of the project are detailed below.</p>		
FINAL REPORT		
<p>The project has been completed.</p> <p><u>Outcome 1</u></p> <p>We have developed an integrated program of training, formative and summative assessment tasks which teach and build the skills of scientific writing throughout First Year. We developed common learning objectives for scientific writing skills for the four Biology units and mapped out a pathway of learning which clearly indicated to students when and how they would be achieving specific learning outcomes. We simplified scientific writing in First Year Biology by deciding on a single set of instructions and expectations, and adopting consistent style and formatting requirements across units. We streamlined delivery of training and staggered assessment tasks throughout the year to gradually build complexity and standard of writing skills.</p> <p><u>Outcome 2</u></p> <p>Working with staff from Language and Academic Skills (FSTE) and the Library we developed a First Year Biology Communication Skills Workshop. This workshop teaches students specific skills like paraphrasing, report writing and referencing and was run early in Semester 1, just prior to the first written assessment tasks in BIO1AD and BIO1OF.</p> <p><u>Outcome 3</u></p> <p>We also developed and produced a First Year Biology Communication Skills Manual (see attached Manual) which clearly states the objectives and learning outcomes of this initiative, the pathway of learning, timetables of training and assessment tasks, and a guide to expected styles, formats and referencing. This manual is a critical reference for NESB students and is used across the four Biology units.</p>		

### Effect on student performance

We tested the impact of the new program on the performance of NESB students by exploring three questions:

1. Did the new integrated program improve performance of NESB students?
2. Are NESB students now performing as well as students from an English speaking background? Has this been improved by the new program?
3. Does performance of NESB students on writing tasks improve throughout the year?

The new integrated program had no significant affect on performance of students from a non-English speaking background. Overall, students from a non-English speaking background achieved significantly lower marks for their reports than students from an English speaking background, however, when the comparison between students from the different backgrounds focused on individuals of similar academic potential (within the same range of ENTER scores), it was found that laboratory report marks did not differ significantly between groups in either year. Although there was a slight positive trend, laboratory report marks did not improve throughout the year.

### Effect on the student perception

The student perception on the teaching and learning of scientific writing improved as a result of the new integrated program. All students enrolled in the biology units were surveyed, so the perception of NESB is included in the overall results, but cannot be separated. The student perception of knowing what was expected, receiving helpful feedback, integration across units and usefulness of the resources all improved markedly between years. Students found the Communication Skills Manual particularly helpful (see attached table for details).

The results from this project are currently being written up as a manuscript to be presented at the UniServe Science Conference (September 2008, University of Sydney) and will be published in the Proceedings.

### Expenditure

The grant was used to support a project officer and assistant (see attached financial statement).

## Student Perceptions of Scientific Writing in First Year Biology

The following results from the student evaluation surveys are evidence that the students appreciate the value of writing skills to their future career. The student perception of knowing what was expected, receiving helpful feedback, integration across units and usefulness of the resources all improved markedly between years. Students found the Communication Skills Manual particularly helpful

Students were asked to indicate whether they agree with the statements on a five-point scale (5=true all of the time, 1= true none of the time) was used. Data are means of responses.

<b>Statement</b>	<b>2008 N=375</b>	<b>2007 N=264</b>
You get a lot of help and advice on ways of learning how to write scientifically	3.7	3.0
You're always confident that you know the standard of writing expected of you	3.5	3.1
The feedback on scientific writing assessments is useful in helping you learn	3.8	3.4
Laboratory manuals &/or handouts were helpful in teaching me to write scientifically	3.9	3.4
Laboratory manuals &/or handouts showed me how to format my reports	3.9	3.3
The teaching and learning of scientific writing was well integrated across the biology units	3.7	3.2
Previous scientific writing tasks have prepared me well for this unit	3.4	3.3
I have had enough opportunity to demonstrate my writing skills throughout the year	3.7	3.5
Scientific writing tasks in this unit build on scientific writing activities completed in other biology units	3.9	3.4
I have learned to write scientifically	3.8	3.3
Learning to write scientifically is relevant to my course	4.4	4.1
Learning to write scientifically is relevant to my career	3.9	3.8
I used The First Year Biology Communication Skills Manual	4.6	-
The First Year Biology Communication Skills Manual was helpful	4.5	-
The First Year Biology Communication Skills Manual helped me to correctly format my scientific reports	4.4	-
The First Year Biology Communication Skills Manual instructed me on paraphrasing	4.0	-
The First Year Biology Communication Skills Manual helped me to correctly reference in my scientific writing	4.2	-

**Expenditure:**

The grant was used to support a project officer and assistant.

Financial Statement

Run Date: 10.03.2009

HR COSTS by EMPLOYEE

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Period : 01.01.2008 to 31.03.2009

Staff Number	Name	Fund	and Description	Cost Ctr	Amount \$	
00260290	Blanksby	105347	OG-E Johnson	1150	6,669.24	<input type="checkbox"/>
00302125	Young	105347	OG-E Johnson	1150	3,105.45	<input type="checkbox"/>
<b>Grand Total</b>					<b>9,774.69</b>	