COMMITTEE FOR THE ADVANCEMENT OF LEARNING AND TEACHING

FINAL REPORT ON UNIVERSITY TEACHING DEVELOPMENT GRANT

Name: John Harraway (on behalf of the research team)

Department: Mathematics and Statistics

Title of Project: Understanding the worldviews of undergraduate students

Date on letter notifying award of grant: 1 December 2010

General progress report:

The project has been completed but additional data, for another publication, will be collected this year from senior students in Surveying, Human Nutrition and Zoology allowing a mixed model longitudinal analysis to be carried out with fewer missing values over three years.

One paper already published is attached. This paper, based on an earlier survey, incorporated changes as a result of the current CALT supported study. A second attached paper has been accepted both as an oral paper at an international conference in Rio de Janiero in June and as a refereed book chapter which will be published this year.

Seminars were held in the Departments of Surveying, Human Nutrition and Zoology during 2011. A paper was presented at the University *Spotlight on Technology and Learning Conference* in 2011. These presentations reported on changes if any to student attitudes to sustainability in the three Departments based on the data analysed up to that point. It is intended to publish applied versions of the research in discipline specific journals. There will then be discussion about ways in which it may be possible to introduce sustainability ideas into teaching.

Specific objectives achieved and any notable successes:

The software for optical reading of survey data was installed and used successfully saving considerable time processing data.

A good picture was obtained of the way in which student attitudes change during their university experience.

One paper has been published, one is in Press and a third is close to submission. In addition conference presentations have been made and seminars delivered in Departments.

Specific objectives not achieved (plus a brief statement of the reasons):

All but one objective was achieved. The outstanding objective was to explore and compare on line surveys with optically marked paper surveys. The research group considered the latter superior and effective and so have continued with it.

Student groups directly involved in the project or whose learning might indirectly benefit from the project:

Students in STAT115 were the first to complete the NEP Questionnaire. They have been surveyed again as they proceeded through the second and third years of study in Surveying, Human Nutrition, and Zoology. The results of this study may impact first on these Departments at the higher levels of their teaching.

Details of publications arising from the research:

Shephard K, Harraway J, Lovelock B, Skeaff S, Slooten, Strack M and Jowett T (2012) Monitoring changes in the sustainability attributes of higher education students in a New Zealand university In W Leal (Ed) Sustainable Development at Universities: New Horizons" Peter Lang Scientific Publishers, Frankfurt, 2012 (in press)

Harraway, J., Broughton-Ansin, F., Deaker, L., Jowett, T. & Shephard, K. Exploring the Use of the Revised New Ecological Paradigm Scale (NEP) to Monitor the Development of Students' Ecological Worldviews. *The Journal of Environmental Education.* 43(3), 177-191, 2012.

Shephard K, Harraway J, Lovelock B, Slooten E, Skeaff S, Strack M and Jowett T (2011) Monitoring changes in the environmental attitudes of higher education students, in K Shephard, T Harland, A Cohen (eds) Proceedings of Spotlight on Technology and Learning Colloquium 2011 Dunedin Higher Education Development Centre, University of Otago. ISBN978-0-473-19469-7.

Financial information: December 31, 2011 Financial Summary attached

Summary:

Higher education institutions are encouraged to develop campus-sustainability initiatives and related curriculum-changes. An expectation is that these initiatives will impact on all of our students (not just those studying 'sustainability-related' programmes), increase the proportion of nations' citizens who embrace sustainability and confirm the status of higher education as a key agent of social change. The challenge for higher education is to better understand what and how students are learning and how this links to what and how universities teach. University teachers have varied views on teaching sustainability outcomes and some have limited engagement with sustainability at a personal level. Few institutions have systematic processes in place to monitor sustainability outcomes. Higher education will find it difficult to meet society's expectations unless it finds appropriate ways to explore and evaluate its impact. Researchers at the University

of Otago have been exploring how to benchmark and monitor changes in the sustainability attributes of students and have established a study in several university departments, based on cohort means, multinomial regression modelling and longitudinal analysis, to monitor changes in students' environmental concern, as students experience higher education. The results so far suggest that the environmental concerns of students in this university are highly department-dependent throughout students' stay at university, and that changes, when they occur, are relatively small.

Signature:

Date: