

# Enhancing the curriculum through bioscience fieldwork: wider effects on student engagement in a cohort of first year students

Larsen C., Walsh C., and Parry D., Department of Health Sciences, Liverpool Hope University, Liverpool L16 9JD



Social dynamic, through collaborative learning, is strongly associated with the process of student empowerment. “The opportunity for students to communicate with each other, inside or outside of class, can create a new social dynamic, based on student-student collaboration, with the teacher as facilitator” (Warschauer 1996 :4 Computer learning networks and student empowerment System, 4: 1-14). Residential fieldwork is valued as a pivotal mechanism through which to enhance the bioscience curriculum; elements of ‘student-staff contact’, ‘active learning’, ‘respect for diverse learning styles’ and ‘co-operation among students’ are all fostered through fieldwork. It seems, therefore, that the benefits of residential fieldwork may be inextricably linked with student empowerment through a change in the social dynamic and collaborative learning. In this study we aimed to investigate whether early residential field work enhanced the social dynamic in first year students and therefore whether this tutor lead intervention could be used to enhance student empowerment.

Despite considerable anecdotal evidence, few studies have investigated the particular aspects of wider engagement and empowerment that are influenced by fieldwork. Here, a questionnaire based on the seven scales of engagement proposed by Krause and Coates (Students’ engagement in first-year university Assessment & Evaluation in Higher Education 33:493-505), was used to investigate the effects of residential fieldwork on engagement in a large cohort of first year students studying diverse subjects. Questionnaires were administered before field work was undertaken and again at the end of the first University term. A control group, not undertaking field work, were administered questionnaires in the same way. Due to the non-normal distribution of the data a nonparametric ANOVA, Kruskal Wallis, was used to determine the effects of fieldwork on student engagement. A Wilcoxon signed ranks test was used to compare the mean scores of matched pairs of students.

201 students completed the pre-field work questionnaire (87 went on fieldwork)

176 students completed the post - fieldwork questionnaire (120 of whom had been on fieldwork)

**The Seven Scales of Engagement**  
Krause and Coates (2008)  
‘Academic Engagement (AES)’  
‘Peer Engagement (PES)’  
‘Student-Staff Engagement (SSES)’  
‘On-line Engagement (OES)’  
‘Transition Engagement (TES)’  
‘Intellectual Engagement Scale’ (IES)  
‘Beyond-Class Engagement (BES)’.

The Wilcoxon test (sampling 52 students before and after fieldwork and 37 before and after no fieldwork) showed that the mean scores of each student after attending fieldwork significantly increased for the scales PES,  $p=0.049$ , and SSES,  $p=0.016$  only. There were no significant changes in the mean scores for each student not attending fieldwork. It appeared that fieldwork, and not time, caused the increase in the scores for these scales.

In the group of students who went on field work there was a significant increase in scores in the following questions:

- I regularly work with classmates outside of class on a group assignment  $p < 0.000$
- I regularly borrow course notes and material from friends in the same subjects  $p < 0.000$
- I regularly study with other students  $p = 0.008$
- Most academic staff take an interest in my progress  $p = 0.021$
- Staff are enthusiastic about the subjects they teach  $p = 0.015$
- I regularly use online discussion groups related to my study  $p < 0.000$ .

In the group of students who did not go on field work there was a significant increase in scores in the following questions:

- I regularly borrow books  $p < 0.000$
- Regularly study on the weekends  $p = 0.048$
- I regularly seek advice and help from teaching staff  $p < 0.000$
- Staff make a real effort to understand difficulties students may be having with their work  $p = 0.002$

In addition, there were significant increases in scores for both post fieldwork and post non field work students in the following questions:

- I regularly get together with other students to discuss subjects  $p = 0.047$  and  $p = 0.016$  respectively
- Staff are usually available to discuss my work  $p = 0.014$
- Teaching staff usually give helpful feedback on my progress  $p = 0.004$  and  $p < 0.000$  respectively
- I regularly use email to contact lecturers  $p = 0.043$  and  $p = 0.002$  respectively
- I regularly use email to contact friends in my course  $p < 0.000$  and  $p < 0.000$  respectively

**Our study suggests that fieldwork enhanced the social dynamic when undertaken in the early part of the first year. After field work students placed more value on collaborative learning with their peers, both face-face and in virtual learning environments; we therefore conclude that changing the undergraduate first year curriculum to include early residential fieldwork can be used as tool through which to enhance student empowerment.**