

Education for Sustainable Development: Student Perspectives at the University of Liverpool



A study report by

Liverpool Guild of Students

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Figures and Tables

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Executive summary

Background Advancing education for sustainable development (ESD) among the University community is a key theme in the Green Guild project. We explored the understanding of concepts of ESD, perceptions of its relevance and how it can be promoted further.

Methods This cross sectional study was conducted at the University of Liverpool among both undergraduate and postgraduate taught students. Quantitative and qualitative methods of data collection were used. Random selection was used for selecting participants to answer the survey questions (hosted on Survey Monkey) and focus groups were conducted for those participants who were available and able to attend with numbers up to 6 participants per group. Quantitative data was entered into Microsoft excel, cleaned and analysed to generate frequencies, percentages and charts/graphs.

Results The evident high proportion of both international students and those based in Humanities and Social Science probably reflected the distributions of Green Course Ambassadors recruited. An overwhelming 94% of respondents agreed that the University should promote sustainable development. Regarding understanding of ESD 88% of 501 participants described no or just one dimension of ESD. Most respondents were at pre-structural or uni-structural stage of learning regarding the ESD concepts. Just less than one quarter can be classified to be in category of the 'Positive Green' segment.

There was a broad spread of choice on where ESD should be delivered with the most popular being allowing the opportunity to specialise in these skills within the department as well as running extra-curricular activities both within the department and the Guild. Most common learning methods were lectures and seminars, case studies, essays, group activities and self-directed study. The preferred learning methods were identified as case studies, lectures/seminars and experiential project work.

There was some agreement that there are challenges in relating some theoretical subjects to sustainability. Some cynicism was evident from focus groups with views that sustainability is taught because it is good for business, reputation and the bottom line. Students welcomed the opportunity to work with colleagues from other disciplines and Engineering and Medicine were quoted as areas where strong links could be developed. The inclusion of cross cutting themes in teaching, such as 'electricity', was suggested.

Conclusion and recommendations It is clear from both the survey and the focus groups discussions that the demand and need from students for further knowledge, skills and understanding with respect to sustainable development is very high. It is recommended that the Guild build on the existing collaborative approach with the University to develop an appropriate strategy for implementation of the Quality Assurance Agency (QAA) Guidance on ESD and a programme of awareness and understanding of the relevance of ESD appropriate to all disciplines of students and staff.

Background

Empowering stakeholders including university students can contribute to addressing social, economic and environmental challenges. This has recently been recognised by the QAA and Higher Education Academy (HEA) through the publication of Guidance on ESD for Higher Education Providers¹.

Liverpool Guild of Students has taken initiative to engage the student community through sustainability projects. The Green Guild project runs activities in the University with active involvement of the students. The main themes include:

- Outreach to communities and schools
- Engagement through Student Switch Off, Seed Funding and the Roof Garden/Growing projects.
- Education for sustainable development (ESD)

In this report the definition of sustainable development used is:

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.²

The Higher Education Funding Council for England (HEFCE), through the NUS Students’ Green Fund, provides funding for the running of the Green Guild project activities within the Liverpool Guild of Students. The current funding is for a two year period. The funding supports student unions to actively engage in sustainable development in 24 higher education institutions and one further education institution.

Following on previous studies³ this study presents the findings of the Green Guild education for sustainable development strand during 2013/2014 academic year.

Study objectives

- 1) To determine the level of awareness of and engagement in student 'pro sustainability' attitudes and behaviours
- 2) To research student perspectives on ESD in the curricula

¹QAA (2014) Education for Sustainable Development: Guidance for UK higher education providers, available at: <http://www.qaa.ac.uk/publications/information-and-guidance/publication?PubID=533#.VAMUj8VdWSo>

²Our Common Future - Brundtland Report (1987)

³Rachel Drayson, Elizabeth Bone, Jamie Agombar and Simon Kemp, (2013). Student attitudes towards and skills for sustainable development

3) To Inform University curriculum planning and design methods

Methods

Study site, design and population

This was a cross sectional study in three faculties at University of Liverpool during February-April 2014. The study population was University of Liverpool Students.

Data collection

During December 2013 Information was circulated using our established communication networks including employment opportunities to recruit *Green Course Ambassadors* to support the research programme. A total of 21 Student Ambassadors were recruited who then assisted with carrying out the survey. In addition half of them were trained by University staff to facilitate the focus groups among students across all faculties in the University. Quantitative data were collected through Survey Monkey supervised by Green Course Ambassadors and qualitative through focus group discussions. Data were collected on ESD concepts, opportunities in the curriculum and preferred learning methods.

Quality control

In order to oversee the ESD project a working group was established with membership drawn from the Green Guild team, the University Sustainability Team, the Directorate of Academic Development and Centre for Lifelong Learning, the School of Engineering and the Management School.

Sample sizes

Although the total response to the survey exceeded 700, this number reduced to 592 once the incomplete submissions had been filtered out. This still exceeded the 378 required to achieve statistical representation.

Thus a total of 592 survey responses were collected over the data collection period and four focus group discussions were conducted.

Study results

Survey findings

Socio-demographic characteristics of respondents

The response were evenly spread across levels 1,2,3 and post graduate taught programmes with the majority being full time. Of the 592, there were 98% on full-time courses, 38% were international students, 92% were aged 18-25 and by faculty we had: Health & Life Sciences (14.1%), Humanities and Social Sciences (62.2%) and Sciences and Engineering (23.6%). Thus the proportions of both international students and those based in Humanities and Social Science were high which reflected the distribution by backgrounds of the ambassadors recruited.

Concept of sustainable development

In order to investigate the level of understanding by the respondents of the concept of ESD a free text question, asking, “What does sustainable development mean to you?”_was included. Each response was then assessed for the inclusion of the three ‘dimensions ‘of sustainability being Social, Economic and Environmental. Out of a total number of respondents of 501, by using the key word analysis for three dimensions including economic, social and environmental the study revealed that:

- Almost half (48%)of respondents identified no dimensions
- 40% identified one dimension only, mainly environmental
- 12 % identified two or more dimensions

Applying the Structure of Observed Learning Outcomes (SOLO)⁴ model to these data indicates that most are at the pre-structural or uni-structural stage of learning with respect to this concept. ⁵.

Values and attitudes

Students were asked to state their similarity to a series of characteristics in an attempt to segment the population by their values and attitudes. This is based on the Department for Environment, Food and Rural Affairs (Defra) model.

⁴Nicolaou, I. and Conlon, E. (2011) ‘What do final year engineering students know about sustainable development?’ Dublin Institute of Technology. [Online]

⁵ Carew, A. and Mitchell, C. (2002) ‘Characterising undergraduate engineering students’ understandings of sustainability.’ European Journal of Engineering Education, 27(4) pp.249-361.

This widely used model is based around values and attitudes towards the environment although models applicable to the wider sustainability dimensions are currently under development.

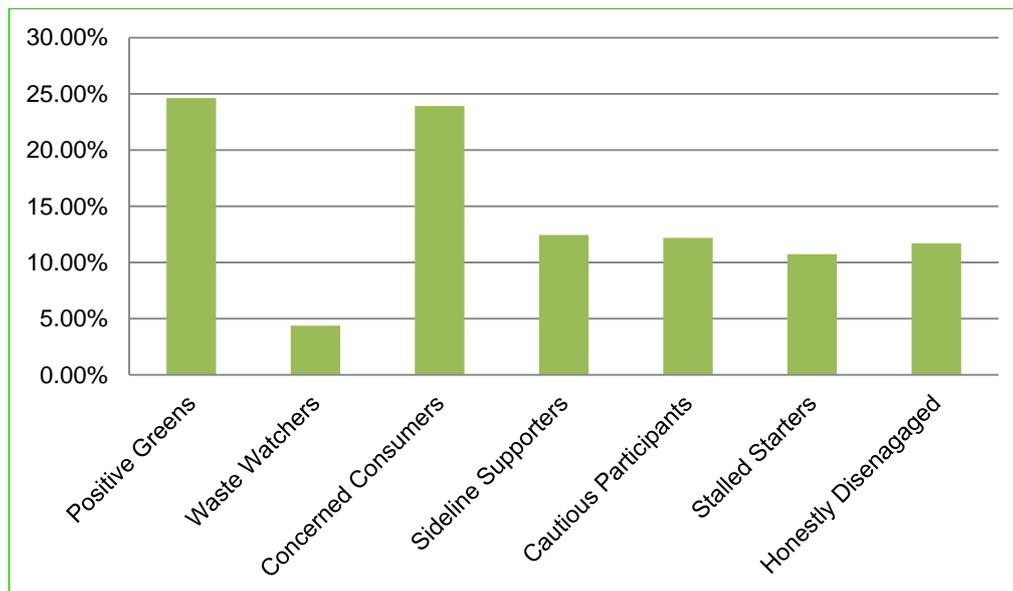
Segmentation

Following on the above, this segmentation is often used to target communications appropriately to ensure they appeal to their desired audience and improve engagement. Figure 1 shows that nearly one quarter were 'positive greens'. These can be described as:

- Positive environmental attitudes and beliefs
- Least embarrassed about being seen to have an environmentally friendly lifestyle
- Least motivated by saving money
- Most willing to change their lifestyle to help the environment
- Majority are willing to sacrifice home comforts to save energy

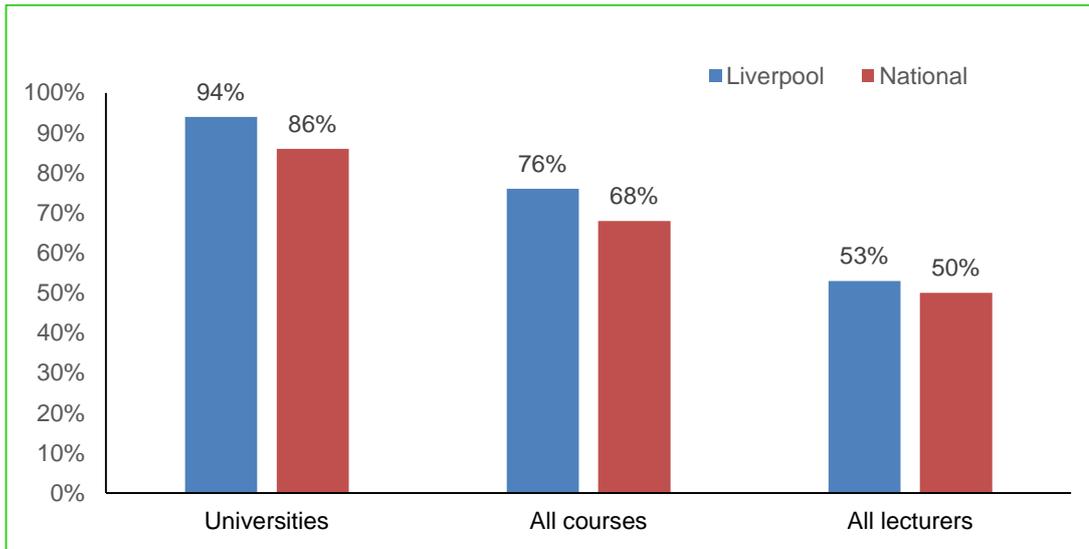
The next largest segment is the 'Concerned Consumers' followed by 'side-line supporters'. These are engaged in environmental issues and therefore represent a key opportunity to shift from awareness to action. There were less than 5.0% who were waste watchers.

Figure 1: Figure Defra's segmentation model



Promotion of sustainable development

Figure2: Who should incorporate and promote sustainable development? (n=592)



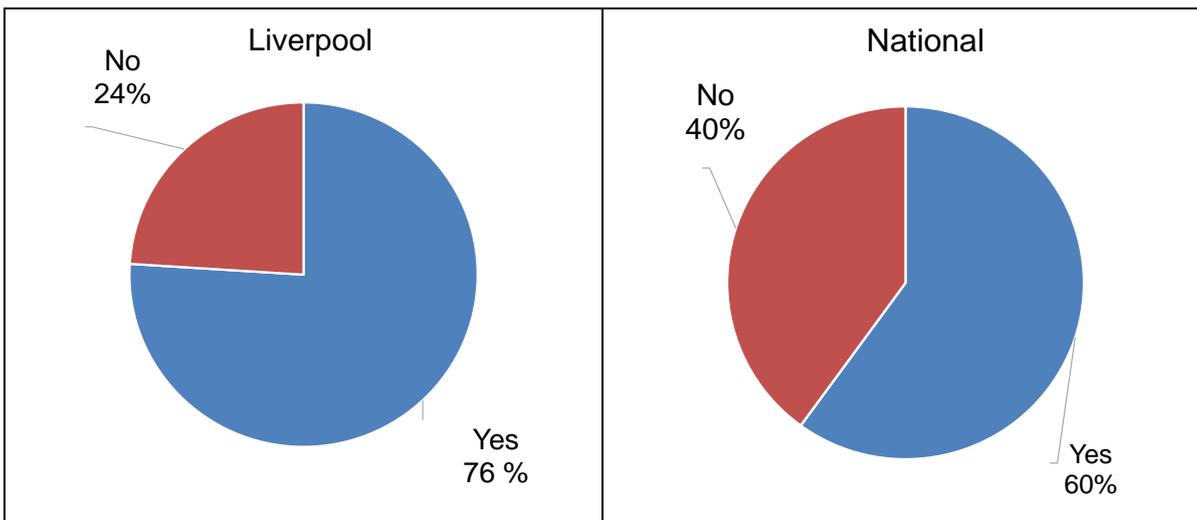
Key: brown represents the national study findings and blue this study findings at the University of Liverpool

Figure 2 indicates that there is overwhelming support (94%) for the University promoting sustainable development. This is well above the national average, which has been increasing over the last 3 years. Over three quarters of students think sustainable development should be a part of all courses and just over half think that all staff should be involved in promoting it.

Learning about sustainability

In Figure 3 it is evident that over 3 out of 4 students would like to learn more about sustainable development.

Figure3: Interest in learning about sustainable development



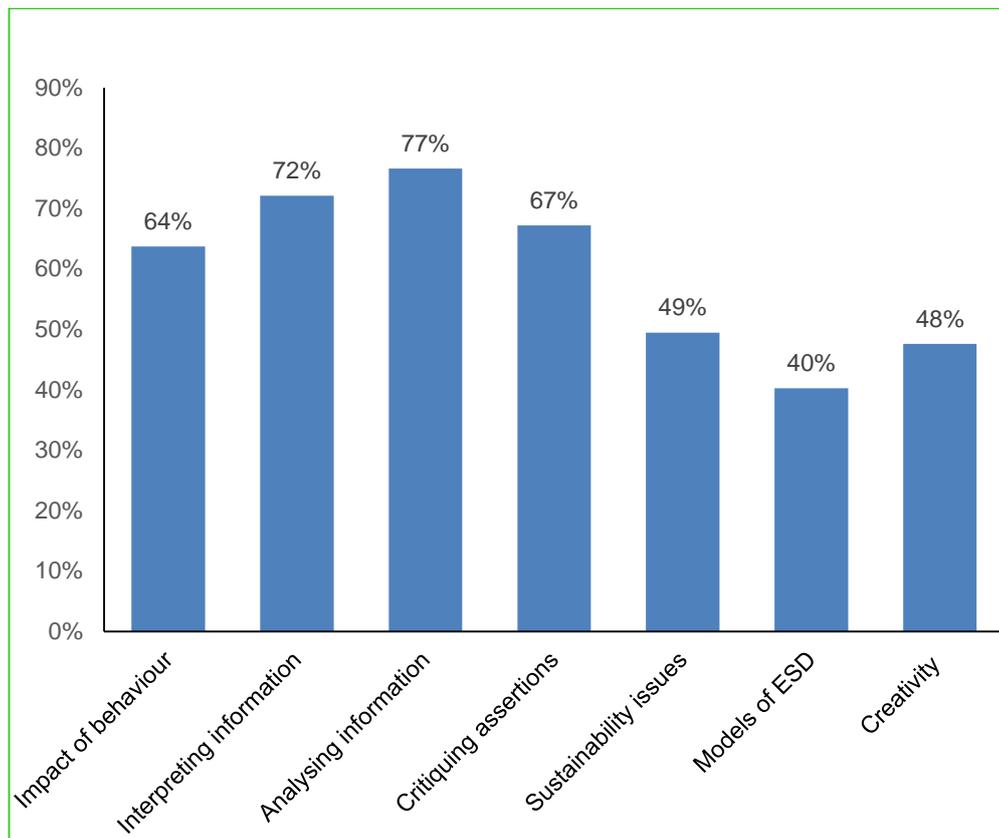
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Critical thinking skills in relation to sustainability

Figure 4 suggests that an average of 60% reported that they believe critical thinking skills included in the have been covered in their course so far slide in the context of sustainability.

Figure4: Sustainability and specific critical thinking skills covered, n=592



Common learning methods

Table 1 shows that when asked about the way students learn in any context the most common methods were lectures and seminars, case studies, essays, group activities and self-directed study.

Table 1: Top learning methods

| Method used in any context | Responses (%), n=532 |
|--|----------------------|
| Lectures, seminars | 76.7 |
| Case studies | 70.3 |
| Essays | 66.2 |
| Group activities | 63.9 |
| Self-directed study | 60.9 |
| Experiential project work | 32.9 |
| Field work | 30.6 |
| Stimulus/prompt such as poem, article, artwork | 27.8 |
| Laboratory work | 26.7 |
| Action research | 24.8 |

However, on rating we found that, In terms of *preferred learning* methodologies in ranked order the top three were case studies, lectures and seminars followed by experiential project work including interactive or participatory activities (table 2).

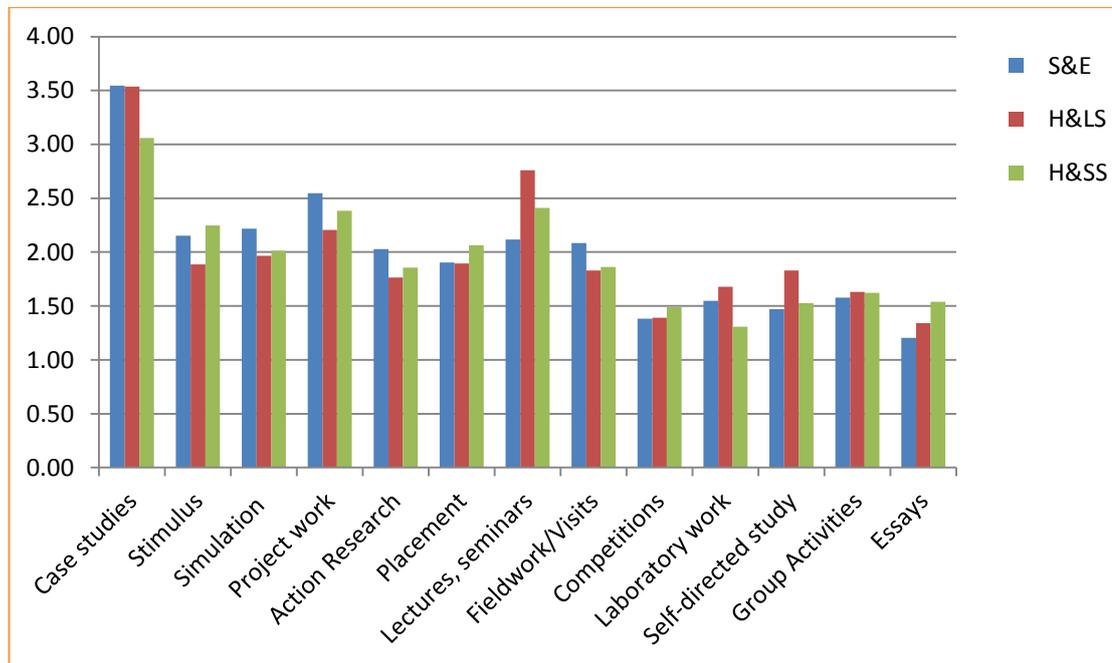
Table2: Preferred learning methods for sustainable development on rating

| Learning Methods | Average rating (n=517) |
|---|------------------------|
| Case studies | 4.02 |
| Lectures, seminars | 5.38 |
| Experiential project – participatory, interactive | 5.45 |
| Essays | 9.07 |

When examined in more detail by breaking down the preferences by faculty (Figure 5) there was little variation to the overall findings with case studies still having the highest ranking across all three faculties. Notable variations

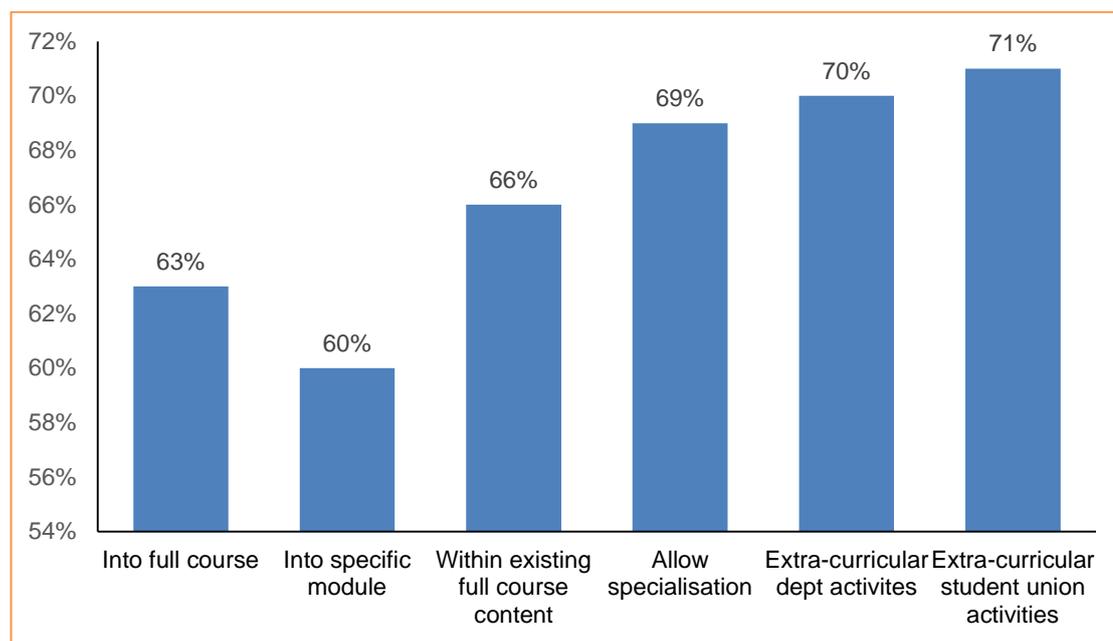
between faculties were that lectures and seminars were more highly favoured by Health and Life Sciences students whereas Science and Engineering favoured project work particularly highly.

Figure 5: Preferred learning methods by faculty



Additionally, when asked where the social, economic, and environmental skills should be included within the programme of learning there was a broad spread of choice with the most popular being allowing the opportunity to specialise in these skills within the department and running extra-curricular activities both within the department and the Guild (Figure 6).

Figure 6: Inclusion of social, economic and environmental skills into your course, n=592



Perceptions of the focus group participants about sustainability and education

During the study we explored respondents' perceptions on education for sustainable development to answer three objectives namely:

1. Identify general understanding on the ESD
2. Explore the content of courses and favoured approaches for learning
3. Establish the ways for improvement

Characteristics of participants in the focus group discussions

The participants in the focus groups included both undergraduates and post graduates who were drawn from all 3 faculties in the University of Liverpool. The undergraduates were mostly from politics, law, philosophy, history, environmental planning, medicine, veterinary science, resource management, and environmental climate change.

Understanding of the concept of ESD

As with the Survey, most participants are at the pre-structural or uni-structural stage of learning with regard to sustainable development (as described in the Structure of Observed Learning Outcomes (SOLO) model). The exceptions were the group including a Climate Change student who was clearly at the 'relational' level of learning.

There was a strong feeling in one group that much more needed to be done to raise public awareness of the issues around sustainability as well as the solutions. One of the groups commented that not enough students care or are passionate enough to do be activists.

Learning methods

Students across two groups made reference to learning experiences they had at school, particularly evident in China (where it was stated a national policy on sustainable development is in place, as in Wales). Learning methodology examples included simulation games (PG Business) to manage environmental issues, use of on-line learning materials (library inductions were seen as vital for this). Also similarly to the survey findings, group work discussions and using case studies was cited as valuable as these can be linked to one's own discipline.

Relevance of ESD

A Veterinary student commented that there were concerns over the unsustainable nature of current mass agriculture citing that the carbon footprint is greater than that of aviation but such issues are not discussed. According to US Government data the aviation industry contributes around 1.56% on global carbon emissions compared to livestock induced land use which is between 4 and 5%. This is highest in those countries with the highest per capita income – a good example of how economics and environment are closely linked! A medical student agreed that such issues are not addressed but acknowledged that some areas are touched on in the ethics components of courses. There was also concerned over the amount of equipment waste generated by the NHS, due in part to issues around sterilisation and safety.

There was some agreement that there are challenges in relating some theoretical subjects to sustainability however the importance of critical reflection was exemplified by the recent rejection by Manchester economics students of the models being taught them as inappropriate given the recent global financial crash!

Some cynicism was evident with views that sustainability is taught because it is good for business, reputation and the bottom line.

Several commented that including sustainability in the course should be compulsory as if it were optional then many would not choose it. Alternatively there was also a view that it should not be compulsory in the curriculum.

Two of the groups stated that there was a greater role that Guild Societies could play in the ESD agenda.

Students welcomed the opportunity to work with colleagues from other disciplines and Engineering and Medicine were quoted as areas where strong links could be developed. The use of cross cutting themes in teaching, such as 'electricity', was suggested.

Discussion

Our study has shown that there is great enthusiasm among the University students for the greater promotion of ESD. This is similar to findings in past year that explored students' attitudes towards ESD⁶

More participants were proportionally, international students and from Humanities and Social Science. The international may more keen to learn more about these concepts as active learners in an institution in a developed country and interested in take more for their future career. The fact that more students from humanities and social science discipline may have been influenced by proportionally more course ambassadors in that faculty. It may also be because they have time to take on for these activities that say medical students who may very engaged.

There is interest in learning cross cutting course between and across disciplines and faculties. This is an interesting finding since resources may be scare there is need to run programmes in an integrated manner to ensure efficiency and reaching more audience. It may be empowering to those who are not specialists in the subject by learn key concepts that can enhance awareness to inform personal choices.

However, more needs to be done to create awareness about the concepts among students as well as staff in the University. This study showed that various methods are preferred to learning ESD concepts and its application. The inclusion of the ESD in extra-curricular activities is also seen as crucial aspect for advancement of ESD concepts.

⁶Rachel Drayson, Elizabeth Bone, Jamie Agombar and Simon Kemp, (2013). Students' attitudes towards and skills for sustainable development

Conclusions and recommendations

Conclusions

It is clear from both the survey and the focus groups that the demand and need from students for further knowledge, skills and understanding with respect to sustainable development are very high.

Recommendations

It is recommended that the programme of awareness and understanding of the relevance of ESD to all disciplines and level, both for students and staff be enhanced. The suggestion is to achieve these through the following:

1. Green Guild Project: Increase communication - awareness and understanding of the relevance of ESD to all disciplines and levels, both students and staff. This could be through the development of a self-assessment diagnostic tool which signposts appropriate resources at suitable level of activity.
2. Faculties, institutes and departments: Develop an institutional response to the recently published QAA/HEA guidance on Education for Sustainable Development.
3. Green Guild Project: Consideration should be given to making future focus groups available in additional languages including Mandarin. There was a strong view from the international students who participated that it is sometimes difficult to communicate their views in such circumstances.