

Exploring students' perceptions of interactive pedagogies in education for sustainable development

Fumiyo Kagawa, David Selby, Colin Trier

Centre for Sustainable Futures, University of Plymouth

Abstract

There has been much academic discussion of appropriate content and pedagogy for education for sustainable development (ESD) in higher education. In terms of pedagogy, active learning (i.e. learning that is interactive, participatory and experiential) is frequently proposed. However, its impact on student learning remains under-researched. A small-scale qualitative research project was conducted in 2005–2006, particularly focussing on the start-of-year field week for the Masters in Sustainable Environmental Management Programme at the University of Plymouth. Some key findings are highlighted here. Students felt that they had widened and deepened their understandings of sustainable development through interactive modes of learning during the field week. Dialoguing with practitioners, peers and lecturers within a 'safe' environment was identified as effective in promoting learning.

Introduction

In the U.K. there is increasing government commitment to mainstreaming sustainable development in both school and higher education sectors (SQW Ltd, 2006). *Securing the Future*, the UK government's sustainable development strategy (HM Government, 2005) emphasizes the importance of equipping people with skills for building a sustainable society, emphasizing that "we need to make 'sustainability literacy' a core competency for professional graduates" (p.39). In the higher education sector the Higher Education Academy (HEA) is currently working to infuse sustainable development across the curriculum. Their recent document on ESD offers examples of skills and knowledge necessary for 'an-action-oriented, sustainability literate graduate' (HEA, 2006, p.6). They include: an appreciation of the interconnectedness of environmental, social, political and economic aspects of sustainable development; understanding contested notions of sustainable development; problem solving skills; creative, holistic and critical thinking; self reflection; and bridging the gap between theory and practice (HEA, 2006). At the time of writing, 15 out of 24 Higher Education Academy Subject Centres are also working to address ESD in their own subject areas.

Proponents of ESD point out the importance of moving away from traditional teaching and learning to more interactive and participatory modes so that the pedagogy employed harmonizes with sustainability precepts and principles and is more engaging for students. For instance, the list suggested by Wals and Jickling (2002) below summarizes the various shifts necessary in ESD pedagogies:

- from consumptive learning to discovery learning and creative problem solving;

- from teacher-centred to learner-centred arrangements;
- from individual learning to collaborative learning;
- from theory-dominated learning to praxis-oriented learning;
- from sheer knowledge accumulation to problematic issue orientation;
- from content-oriented learning to self-regulative learning;
- from institutional staff-based learning to learning with and from outsiders;
- from lower level cognitive learning to higher level cognitive learning;
- from emphasizing only cognitive objectives to also emphasizing affective and skill-related objectives (p.229).

As briefly described above, what constitutes the ESD curriculum and where it should become manifest across the HE curricular landscape is being discussed in government, professional and academic circles. The student voice is less heard and less considered. This study considers giving voice to students through interactive pedagogy as well as what they have to say about the approach in the light of experience.

Field course

The School of Geography at the University of Plymouth has been recognized for its excellence in the Government's most recent audit of teaching. The School has a strong track record in researching and teaching in sustainable development. Across the undergraduate curriculum the issue of sustainable development is frontally addressed. At the postgraduate level, the interdisciplinary MSc/MRes Sustainable Environmental Management programme, which also draws widely upon expertise from the Faculty of Social Science and Business and the Faculty of Science, is held to be an innovative programme, not least because it employs a range of experiential learning approaches.

A field course forms part of a core module early in the first term. In October 2005, it consisted of a three-day field trip to west Cornwall followed by a one-day on-campus workshop on education for sustainable development. All nine MSc students enrolled in the programme (a mixed group of female and male, young and mature, as well as UK and EU students), three academic staff members, and one researcher participated in the field course.

During the three-day field trip, the group visited several sites in order to understand local sustainability-related challenges and initiatives, such as sustainable tourism, flood defence, nature conservation, and farming. Each field visit consisted of: (1) meetings with practitioners within their working context including a relatively brief talk by a practitioner; (2) student-centred discussions and activities; (3) de-briefing sessions for shared reflection. During the field visits, ethical and values issues underpinning environmental management were often raised and discussed.

At the one-day workshop following the field trip, students had the opportunity to examine contested notions of sustainable development through several interactive learning approaches. The workshop explored, first implicitly, but later explicitly, a rationale for a specific pedagogy of sustainability. The workshop consisted of various forms of activities followed by discussions and short inputs. These included (1) an interactive exercise which helped

Active learning (i.e. learning that is interactive, participatory and experiential) is frequently proposed. However, its impact on student learning remains under-researched.



participants learn some interesting details about each other in terms of sustainability-related personal behaviours, values and dispositions; (2) an exercise which involved discussion, negotiation, and accommodation to each others' perspectives, followed by consensus-seeking, through the ranking of nine statements on ESD; (3) an activity to examine student's own value position regarding a controversial statement by interacting with people from same, different and radically different value positions; (4) a webbing activity to examine the links between different kinds of global issues through discussion and negotiation. The day was facilitated by the Director of the University's Centre for Sustainable Futures (<http://csf.plymouth.ac.uk/>).

Method

In order to explore students' experiences of field-based and classroom-based interactive learning, semi-structured interviews were conducted with all nine students immediately before and after the field course. During the field course, a researcher also kept observational field notes and analytical notes.

In order to obtain a retrospective view of the field course experience, follow-up semi-structured interviews were conducted in February 2006. Because of time constraints, only three students participated in the February interviews. Collated qualitative data were categorized and analyzed according to emerging themes. What follows highlights key findings.

Shifts in students' perceptions of sustainable development

At the beginning of the field trip, students were asked to explain their personal understandings of sustainable development. They described sustainable development in terms of: natural resource / land management (5 students); long-term/future perspectives (4 students); ensuring and maintaining a balance (between environmental, social and economic aspects of development), citing the Brundtland Report (2 students); biodiversity (1 student); awareness raising (1 student). Only one student pointed out what she saw as the oxymoronic nature of the term sustainable development.

After the field course, most of the students began to question what they now saw as their earlier simplistic understandings of sustainable development. For instance, one student said, "I didn't think [sustainable development] was as broad before as I think it is now. ... Sustainability for me was an environmental issue." In a similar vein, another student previously thought that sustainable development was about the environment, but, post-field week, she said:

"It includes so many other things. It's all very complicated ... so overwhelming, so many things involved, in everyday life as well as for the future, globally and locally, just very overwhelming."

Complex notions of sustainable development as well as its multiple and diverse implications for local contexts were also articulated. According to one student,

"I still have a similar understanding of what it is, but there's a lot more to it now. It's expanded my idea on different levels and how complicated it can be to obtain sustainable development as well. ... It's not just your basic economic, social and environmental thing. ... On the ground it's a whole different aspect and you have to take in the individual perspectives from people, because everyone's in different situations and everyone's got different problems, so it just shows how complicated it can be when you break it down. It takes you away from just the academic and eventually into the real world, dealing with people."

Another student also pointed out the importance of taking into account the 'multiple meanings' of sustainable development which individuals have. This student went on to say that "my opinion probably hasn't changed very much but it's been open[ed] [and] can be perceived in so many different ways." The following testimony by one student indicates a significant impact which the field week experiences had on him:

"It's really made me think about what I've known before. I feel like I'm in a big transition zone at the moment between going from what I was taught as an undergraduate ... all this week I've been thinking what does my course really mean, what is a sustainable environmental manager and I was really thinking about that and because learning really started this week for me. ..."

Catalyst for learning

The above suggests that the field course had some positive but challenging and problematizing influences upon students' understandings of sustainable development. Importantly, they began to think of notions of sustainable development more critically. Before the field course, students' understandings of sustainable development were perhaps formulaic in their repetition of a learnt theoretical perspective or definition. After

the field trip they began to express greater uncertainty, acknowledging the complexity and multi-perspectival nature of sustainable development.

During the interviews immediately after the field course, they were asked what facilitated their learning during that time. Most of the students referred to a rather simple fact - that during the field course they had opportunities to interact with their peers, local practitioners, and lecturers.

Most students made a comparison between their own catalysts and 'ordinary' university lectures. In the words of one student, a lecture is where "you sit ... and the guy talks to you and you just listen and you write and a lot of the times you're not even listening because you're writing." However, he said, "[during] the field trip ... we'd have a talk with a farmer; then we would all gather round again and we'd talk about it. We'd exchange ideas and things we hadn't thought about." By the same token, another student pointed out the importance of interaction with others, particularly in a non-hierarchical learning atmosphere:

"The interaction with everyone ... even with the lecturers themselves - everyone was on the same grounding. There wasn't a 'we're lecturers so what we say is right' or 'we're the experts in this field ...' I felt everyone was willing to listen to everyone else and hear their ideas. I was happy to say what I thought and what my ideas were ... they're not going to laugh at you if there's an idea you have.

The one-day workshop was also considered as a catalytic experience. Eight out of nine students strongly expressed their positive view as well as enjoyment, commonly saying that the workshop was interesting and different. One student felt it "opened [me] to new ways of thinking." In the words of another student: "I don't think I've ever had a similar thing at university." He went on to say that:

"I haven't done anything like that before where you're interacting ... it's really interesting, you're not bored, moving around, you get asked for feedback, not like a lecture when you just sit there and write notes. The interaction was very successful. A different way of learning which I thought was good."

The reasons why students enjoyed the workshop seem to be two-fold. First, they felt that they had had a significant level of involvement in learning processes by being given a space to exchange their opinions. One student emphasized the importance of moving away from teacher-centred pedagogy so that students have more chance to be involved in and negotiate learning. Another student felt it is critical for students to be involved in the learning process, saying:

"It's very important to get your ideas out into the open, even if you weren't quite confident about the topic you were talking about, it's a process of developing and initializing it and by feedback and communication with a lot of other people and a lot of links. I found it very useful."

Interactions with others also helped to meet the diverse learning needs of the students. For instance, one student who is dyslexic expressed that he learned a lot more from interactive learning than normally he would do by passively listening.

The second reason why students saw the workshop as catalytic had something to do with 'challenges' posed in their learning through interactions with others; where students were exposed to different points of view, and then had to reflect upon their own perspective. According to the words of one student, the workshop was "tiring, intensive, interactive [since] everyone

"I felt everyone was willing to listen to everyone else and hear their ideas. I was happy to say what I thought and what my ideas were."

had to think," but she very much welcomed such an opportunity. Another student also felt positive about the various activities which made "[me] think about the way [I] think, how [I] address topics." It is important to note that such challenges took place in a learning environment where students all felt 'safe' and so they could say what they wanted to say. In the words of one student, the workshop offered a space where "everyone was willing to listen to everyone else ... [and] they're not going to laugh at you ..." Clearly, students developed mutual trust and friendship during the field trip and that helped them to interact with each other in a positive manner.

What is lacking in 'ordinary' learning contexts?

The three students who participated in the follow-up interview in February 2006 all felt that the experiences they had had during the field course were very positive. "The problem is, because it was so good we had a very high expectation of the whole course," one student said, "... a lot of discussions that we had expected did not happen throughout the whole course." The other two also shared similar concerns saying that although there were some discussion opportunities in their modules, discussion was still limited and qualitatively different from what they had experienced in the field and workshop. One student referred to the 'formality' of the discussion in a lecture context. He felt that the informal and spontaneous discussions that took place during the field course - in the field sites, in the mini-bus, during the meals, at pubs - were different from the ones experienced in the regular round of sessions back at the university. He also felt the relation between students, and between students and lecturers reverted to being rather 'formal' within the normal programme.

The three students also expressed their craving for practical examples, which they found motivational. After one term, they felt a bit discouraged by realizing the challenges of sustainable development. One said,

"I was disappointed ... that everyone was so overwhelmed saying that we cannot do anything, ... I think we should be shown what can be done, so we can go out there to convince others what [needs] to be done. ... Good case studies, not just in the UK ... that is missing. A lot of things are changing and good things are happening."

Along the same lines, another student believed that it was important for students to leave a lecture "feeling positive," since she often felt overwhelmed by the issues presented in the lectures. She suggested that at the end of a two-hour lecture-style session the class should spend the last 10 minutes "just to balance it out [by] giving a few examples about how we can combat the bad things."



Further research opportunities

Concepts of sustainable development and the ways to deal with sustainability-oriented issues are indeed contested. Obviously, there are no universal definitions, nor remedies. Although they might feel more comfortable about receiving clear 'answers,' even at postgraduate level, it is more important for students to begin to raise critical and reflective questions, rather than simply accepting an answer given to them. A student's testimony below seems to be a sign of significant learning:

"My original thinking [about sustainable development] was environmental thinking. I still prioritize it, but my understanding has developed and deepened and I have a better appreciation about various strands. ... You have to look at contexts as well. I am not entirely convinced with any definitions at this moment. ..." (February 2006)

Reflecting on this small scale study, further studies into students' perceptions of interactive ESD pedagogies are suggested as important in the following interconnected areas:

Role of lecturers

In order to empower student enquiry, lecturers need to shift towards a new role as facilitator and co-learner, letting go of being the fountainhead of knowledge and centre of attention as much as possible. Such a shift in power relations - for that is what it is - might not be a comfortable one for some lecturers. Lecturers need to think through what they can cultivate in both broad terms and through specific concrete behaviours in promoting such a shift.

Students' engagement in 'ordinary' lectures and seminars at university

According to the students interviewed, a passive 'sit and listen' mode of learning still seems to be dominant. How could normal lectures at university create more student involvement in the lecture process? What are the obstacles within a university structure in seeking to increase student active engagement in lectures? How could they be circumvented? How could lecturers provide both formal and informal learning opportunities where students' voices are heard more? How could seminars be made more open, dynamic, and participatory?

Creating a safe learning environment

Interviewed students articulated that they felt 'safe' to express their ideas and opinions freely when there existed mutual trust and respect for each other. In a safe context, students are more receptive to different opinions or multiple perspectives. They are also likely to take more risks in their learning and be ready to take challenge on board. How could such a learning culture be fomented? What would be the role of lecturers in creating such a creative learning environment?

Ethnographic study is now being undertaken to explore further students' experiences of field-based and class-room based interactive pedagogies. The 2006-7 cohort of University of Plymouth Sustainable Environmental Management students are the research participants. The questions laid out above are being examined in this research, as are questions of power relationships and dynamics within the learning group.

References

- SQW Ltd. (2006), *Specialist review and evaluation of the higher education partnership for sustainability (HEPS) programme: Final report to the UK higher education funding bodies (HEFCE, SFC, HEFCW and DEL)* from SQW Ltd. [Accessed on 15 May 2006 at http://www.hefce.ac.uk/Pubs/rdreports/2006/rd08_06/rd08_06.pdf].
- HM Government (2005), *Securing the future: delivering UK sustainable development strategy* [Accessed on 23 June 2006 at http://www.sustainable-development.gov.uk/publications/pdf/strategy/SecFut_complete.pdf].
- Higher Education Academy (2006), *Sustainable development in higher education current practice and future development: progress report for senior managers in higher education*. York: Higher Education Academy.
- Wals, A. and Jickling, B. (2002), Sustainability in higher education: from doublethink and newspeak to critical thinking and meaningful learning, *International Journal of Sustainability in Higher Education* 3(3): 221-232.

Fumiyo Kagawa: fumiyo.kagawa@plymouth.ac.uk

David Selby: david.selby@plymouth.ac.uk

Colin Trier: colin.trier@plymouth.ac.uk

Centre for Sustainable Futures, University of Plymouth,
Plymouth, PL4 8AA.