

**Are Geography students good ‘environmental citizens?’ A comparison between
year of study and over time**

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Acknowledgements

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Abstract

Are geography students good 'environmental citizens?' Has this improved over time with increasing emphasis on sustainability within higher education? This paper compares environmental attitudes and behaviours of geography students at different stages of their degree and over a seven year period. The findings show that although geography students have an interest in environmental issues and feel a responsibility to educate others, this does not necessarily lead to pro-environmental behaviours, particularly more indirect behaviours. Environmental citizenship attributes in first year geography students show little change over seven years, other than where behaviours have been influenced by changes to the infrastructure around them.

Key words:

environmental citizenship; education for sustainable development; environmental attitudes; environmental behaviours; university infrastructure

1. Introduction

The notion of 'environmental citizenship' embodies an appreciation of the link between our actions and the environment, and a sense of responsibility leading to action on behalf of the environment; attributes that are integral to attaining the goal of sustainable development. Education is seen as having a crucial role in the journey towards sustainable development and developing 'environmental citizens,' and particular emphasis has started to be attributed to the role of higher education, in light of the positions that its graduates will hold in future society. This is reflected in educational policy in the UK such as the Higher Education Funding Council for England's first 'Sustainable Development in Higher Education' strategy published in 2005 and updated in 2009 (2005/28; 2009/03), and their forthcoming 'Sustainable Development Framework' which

went through public consultation in 2014, , and similar commitments in both Scotland and Wales. The 2005/2009 HEFCE Sustainable Development strategy states a goal that:

“Within the next 10 years, the higher education sector in this country will be recognised as a major contributor to society's efforts to achieve sustainability - through the skills and knowledge that its graduates learn and put into practice...”

This goal itself highlights an appreciation of the important role that Higher Education plays in working towards a more sustainable future, through the skills and attributes that its graduates develop while at University, rather than just through its estate. The development of such policy statements has been contemporaneous with research showing that students appreciate the need for lifestyles to change radically to achieve a sustainable future (Forum for the Future, 2007), and that there is a demand from students for sustainability to be embedded into their higher education experience (Bone and Agombar, 2011; Drayson, Bone, Agombar and Kemp, 2013).

Geography has traditionally been viewed as the ‘torch bearer’ of sustainable development education (Chalkley, 2002). However, there has been little work which directly engages with the role of Geography in shaping ‘environmental citizenship’ in students of the discipline. Furthermore, anecdotal observations suggest that Geography students sometimes express a disregard for the worth of environmental behaviour and are sceptical about both claims of anthropogenic influences on environmental change, and the ability of individual practices to make a difference; which are worrying signs for a discipline thought to be at the vanguard of sustainability education. There have been some previous studies that have touched on the environmental attitudes of students from different subject areas (e.g. Maffia and Silva, 2011; Teisl, Anderson, Noblet, Criner, and Rubin, 2011), but none specifically looking at a subject so intrinsically linked with sustainable development. This paper investigates the environmental citizenship attributes of geography (and related discipline) students at one institution in the UK to address the following questions:

- How do environmental citizenship attributes (attitudes and behaviours) differ between undergraduate students in the first year and final year of their Geography/Environmental Science degree?
- Have these attributes changed in first year Geography/Environmental Science students over a seven year period?

2. Methodology

The data presented in this paper, comprises focus group and questionnaire data collected as part of an ongoing project at a small, rural university in the UK, looking at student perceptions of environmental citizenship.

2.1 Case study description

The University at which this research was carried out was given university status in 1962 and is a small, rural campus-based university based in England. The University is set in a 617-acre wooded estate. Around 70% of full-time students, in addition to a large number of staff and their families, live on the University campus. The University was established with an ethos of broad interdisciplinary education, provided by a foundation year, and a dual honours degree structure. There is a gradual shift towards single honours programmes, with 39% of first year geography students in 2012/13 studying single honours Geography (only available as a single honours since 2007), with the rest studying dual honours geography/human/physical geography with another subject. During the period of this data collection, this University has seen a major shift towards a commitment to sustainability within its campus operations, curriculum and student experience.

2.2 Focus groups

Between December 2006 and April 2007 (towards the end of the first and second semesters respectively) four focus group meetings were held with undergraduate students in the first and third year on geography or related programmes. The focus group meetings aimed to provide a deeper understanding of student perspectives on the motivations for, and barriers to, environmental citizenship. One group, with 18 students,

was conducted as part of a year three geography option module called 'Nature, Politics, Society'. One group of five 1st year students, and two 3rd year groups of five students were held in an informal setting. Focus group participants completed the project questionnaire immediately prior to commencing the focus group discussions. All focus groups were recorded for later transcription, coding and analysis. No financial incentives were given to students for participation in the focus groups and therefore there may be a bias towards participation from environmentally-minded students.

2.3 Questionnaire data

Evaluating the extent to which 'environmental literacy' is acquired throughout students' university experiences is seen as achievable through the use of survey tools (Shephard, Harraway, Lovelock, Skeaff, Slooten, Strack, Furnari, and Jowett, 2013). A questionnaire was developed for this study using a mixture of quantitative (including likert-type questions) and qualitative questions to explore students' environmental attitudes and behaviours/practices, and allow comparisons between students from different year groups (from 2006/2007 data), and for first year Geography-related students from the academic years 2006/2007 to 2012/2013. The first phase of data collection took place in 2006/2007, when the questionnaire was completed by 89 students (28 third year students, 61 first year students). Third year questionnaire responses were collected from students taking part in the focus groups. First year questionnaire responses were collected from students at the beginning of a lecture entitled 'Environmental Citizenship' towards the end of a second semester module 'People and the Environment'. This module is compulsory for students studying degree pathways in Human Geography, Physical Geography, Geography, and Environment and Sustainability (since 2009/10), it is an option module for Applied Environmental Science students, and is also taken by several exchange students every year. For comparison over time, the same questionnaire, was issued to students at the same point in the 'People and the Environment' module every year between 2006/7 and 2012/13. Table 1 summarises the number of questionnaire responses for each year.

Table 1

There are many different survey tools used to assess respondents' environmental attitudes, such as the NEP (New Ecological Paradigm) scale (and derivatives) used in several studies of higher education students (e.g. Teisl et al., 2011; Harraway, Broughton-Ansin, Deaker, Jowett, and Shephard, 2012; Mann et al., 2013), or data sets to assess different environmental behaviours, for example the BHPS (British Household Panel Survey) data used by Cotton and Alcock (2012). A tool developed by Dono, Webb, and Richardson (2009) addresses three different scales: an environmental activism scale (including financially supporting an environmental group, participating in events organised by environmental groups, protests, letters etc); a pro-environmental behaviour scale (subdivided into i) consumer behaviour (ie. special effort to buy recycled products), ii) willingness to pay (ie. willingness to pay higher taxes to protect the environment) , iii) environmental citizenship (ie. reading publications written by environmental groups); and a social identity scale. The research presented in this paper addresses environmental attitudes *and* behaviours/practices, and several questions are similar to those of the NEP, BHPS and Dono et al., (2009) scales used in other studies.

Ethical approval was not sought at the time of data collection because at the time the research was initiated there were no university ethics requirements for such projects. However, we conducted our research in the spirit of ethical good practice and adhered to transparency of process and consent procedures were in keeping with the University expectations.

3. Findings

3.1 Student views on their 'environmental citizenship'

Students' definitions of 'environmental citizenship' were broadly consistent, including references to both pro-environmental attitudes and behaviour. Figure 1 shows how first year students across the seven years, and third year students from 2006/7 rate themselves as environmental citizens. On average 61% of first year students rated themselves midway between being 'a model environmental citizen' and 'making no effort at all to be a good environmental citizen', while 22% of 1st year students place themselves in the two categories

closest to non-engagement with environmental citizenship. The number of students placing themselves in the lower environmental citizenship performance categories is always equal to or higher than the higher environmental citizenship performance categories, showing a leaning to, or self-perception of, less engagement with environmental citizenship. In contrast, 79% of students in their third year give themselves mid ranking, and only 4% place themselves in the lower environmental citizenship categories. This suggests that 3rd year students are more engaged in environmental citizenly behaviour, or they *perceive* themselves to be. However, the mid-ranking given by most students may reflect a sense that there is always more that can be done. One student says,

'I get this feeling though...you should be doing more all the time than you actually are. ...you can do this, you can do that...but there's still all these things telling you...do this, do that, and then you never feel like you're doing enough.' (3rd year NPS focus group)

Insert Figure 1

Students were specifically asked whether their environmental behaviour had got better, worse or stayed the same during their time at University. Third year students were not asked this question. On average 27% of students said that their behaviour had got better, and 28% that their behaviour had got worse since being at university. Figure 2 suggests that over time there may be a decreasing proportion of students who claim that their behaviour has got worse while at university (until a return to a higher proportion in 2012/13), although this trend is inconclusive with the series of data available. The data suggest that the proportion of students who believe the *university* to be a good environmental citizen may also have changed over time (figure 3). A much lower proportion of students say that the University is not a good environmental citizen in recent years compared to earlier years. In 2006/7 29% of first years and 46% of third years stated that the university was not a good environmental citizen, compared to 5% and 3% of first years in 2011/12 and 2012/13 respectively. This suggested change over time, likely reflects some of the improvements that have been made in the University's environmental infrastructure over this time (such as increased recycling facilities, only introduced in November 2010).

Insert Figure 2

Insert Figure 3

3.2 Ways of becoming more environmental 'citizenly'

Environmental citizenship goes beyond individual behaviour to contributing in a wider arena. Students were asked if they would like to take a more active role in different levels of environmental 'citizenly' activity. This included 'making my community more environmentally friendly', 'making my university more environmentally friendly', and 'taking a more active role in national and international environmental campaigns'. On average, 25% of first years would like to be more involved in their community, 34% more involved in their University, and 15% more involved in national and international campaigns. There is no trend in these figures over time. Responses from third year students are similar, other than a greater proportion (46%) wanting to be more actively involved in making environmental improvements within the University. These figures perhaps reflect that students are more inclined to get involved in their immediate surroundings. Third year students may feel a greater sense of responsibility and commitment to the institution after having studied there for two and a half years, or, as a higher proportion of third year students do not think the University is a good environmental citizen, they see greater potential for improvements.

When students were asked for other ways in which they would like to become a better environmental citizen, some students referred to a desire to educate others. This ranged across different scales of influence from educating their peers, to a much wider audience, for example one student writes '*I'd like to get the message of environmental problems to the USA and China*'. Students also said that they were sometimes called upon to educate others, one student says,

'I've had people ask me, 'you do geography...tell me what this is all about [environmental issues]...makes you feel because we study it we should know about it and be able to explain it'
(1st year focus group)

As a result of their greater perceived understanding of environmental issues, students also feel some pressure to act as role models,

‘I think you should really set an example...if you understand more about it...then you should be doing something about it rather than someone who doesn’t know much about it and is ignorant about what effect they are having’ (1st year focus group)

3.3 Sense of responsibility and thinking about actions

Students express a strong acknowledgement of their own responsibility to the environment, with an average of 90% of 1st year students, and 89% of third year students, agreeing or strongly agreeing with the statement ‘We have a responsibility not to damage the environment’, with no change for first year students over the seven years of data collection. However, on average 34% of first year students and 25% of third year students, disagree or strongly disagree that they ‘think about the environmental effect of their everyday actions’. Although a similar proportion of first year students (33%) and higher proportion of third year students (40%) agree or strongly agree that they do think about this. A separate question asks students to respond to the statement ‘I don’t think about my impact on the environment’ (in contrast to the previous question with the emphasis on links with everyday actions). Only 7% of first year students and 15% of third year students agree or strongly agree with this statement, compared to 79% and 82% of first year and third year students respectively, who disagree or strongly disagree with this statement. These findings suggest that although students accept a level of responsibility for, and awareness of, their impact on the environment, they do less to relate this to their day-to-day lives, which may be because other concerns are more important.

3.4 Student environmental behaviours and practices

The questionnaire asked about three different broad types of behaviour i) direct, no-cost actions, for example, recycling and taking their own bag to the supermarket; ii) measures relating to purchasing, for example choosing to consume low impact goods and services, purchasing of Fairtrade goods etc (see Table 2); and iii) ‘activist’ measures, for example taking part in protests or lobbying MPs. Based on these self-reported behaviours, very simple actions, with no negative impacts on themselves are the most likely to occur (for example recycling and taking a bag to the shops), whereas when it comes to purchasing decisions,

less students take part in pro-environmental behaviours. For example, on average 32% of first year students, but only 18% of third year students, disagree or strongly disagree that they 'choose to consume low impact goods and services'. Whereas, an average of 75% of first year students, and 60% third year students, claim that they 'often' or 'always' recycle. The majority of self-reported behaviours do not show any change over time. However the percentage of first year students who report that they often or always recycle is greater in the last three years of data collection (since 2010/2011; figure 4).

Insert Figure 4

Insert Table 2

The lack of any discernible trend over time in self-reported environmental attitude or concern, suggests that the reason for what appears to be a slight improvement in recycling is due not to changes in internal motivation, but to external factors. For example, the University only established an institution-wide recycling scheme in November 2010. There could also be greater engagement with these behaviours due to external factors such as more media coverage and more visibility of these issues, including improved council recycling. In contrast there is no clear trend in students' taking their own plastic bags to the supermarket (although 2012/13 is the highest percentage of students often or always using their own bags, this is equal to data from 2008/9; figure 5), despite the University introducing a charge for bags in the campus shop in August 2012, and external factors such as Modbury's plastic bag campaign in 2007, and legislation in Wales meaning all shops must charge for bags since October 2011. On average, 92% of first year students said that they would recycle more if recycling facilities were more easily accessible. This percentage has remained remarkably consistent throughout the seven year study period, despite the significant increase in the recycling facilities available.

That students are less likely to take part in behaviours relating to their purchasing habits, may be due to a combination of lack of awareness of environmental issues linked to purchasing decisions, and also lack of access to more sustainable alternatives (for example limited stocks in the University shop), or budgetary constraints. The proportion of first year students never or rarely, and often and always buying Fairtrade goods has remained very consistent across the seven years (42 and 20% respectively) and is consistent with

3rd year students (36 and 21% respectively), despite the University gaining Fairtrade University status in 2008, and hence a likely greater availability of Fairtrade produce and promotion. Although students acknowledge their responsibility for the environment, there is little to suggest that thinking about their actions goes beyond the simplistic, to more indirect impacts of their everyday behaviour such as purchasing. This suggests an area for focus on environmental education within geography programmes, where these interconnections between individual choices and environmental and social issues can be explored more fully.

That third year students surveyed in 2006/7, are less likely to recycle and take their own bag to the supermarket than first year students in that year (figures 4 and 5), suggests that a lack of university infrastructure may erode students' willingness to partake in pro-environmental actions that may have been established in the home. However, Table 2 highlights that 3rd year students may be more likely to take part in environmental activism activities, with a lower proportion (75%) of third year students never or rarely lobbying their MP about environmental issues, than 1st year students (average = 90%). This may suggest that by the third year students may be becoming more aware of their potential to influence through the political sphere, and have a wider understanding of what it may mean to be a genuine environmental citizen, or it may be a reflection of the high proportion of third year students completing this questionnaire as part of a 'Nature, Politics, Society' module. If the latter is the case, it highlights the potential positive influence that the curriculum can have on students' understanding of wider issues of environmental citizenship, beyond simplistic individual actions.

One further behaviour that students were asked about where 3rd year students consistently reported more pro-environmental behaviour than 1st year students, related to buying second goods rather than new. Thirty-nine per cent of 3rd year students compared to an average of 55% first year students said that they never or rarely bought second hand goods instead of new, and 29% of 3rd year students compared to, on average 12% first year students, said that they often or always did. The increased likelihood of buying second hand goods in the third year is likely to reflect greater experience of managing within budgetary constraints, and possibly a different cultural norm which is established amongst the student cohort, which makes buying second hand goods seem more acceptable.

3.5 Factors affecting personal motivation of students: role of the individual, controversy and 'jadedness'

The findings of this study suggest that there are several barriers to students' environmental behaviour. One of these is disempowerment that arises from a number of different sources. Students feel disempowered by the scale of individual actions in the face of wider perceived public and international apathy, for example one student writes 'I would like to improve [environmental behaviour] if there was a higher public surge to', and another writes 'I'd like to take part in campaigns if I thought they would be effective.' Even though we might expect geography students to be amongst the most informed about climate change, a significant number admit to being confused by the perceived controversy surrounding the subject. On average and with no change over time, 35% of first year students agree or strongly agree that 'There is so much controversy about climate change you can't be sure your actions will help.' This view does not diminish with level of education, with 43% of third year students stating this, the highest of any year group. One third year student explains how for them the greater coverage of environmental issues in their courses has (worryingly) led to them to be less engaged,

'The more I've learned about it, the more I understand that the scientific advice on climate change is debatable, it's not as conclusive as what people seem to make out, and that means that I'm less inclined at the moment to be worried about the environment than I was before doing this year's modules.' (3rd year student)

Whereas another explains how their level of learning has increased their engagement,

'it helped me understand the science of it a lot more, which made me realize the temporal proximity of the problem much more...it's made me want to do more' (3rd year student)

Students were asked to respond to the statement 'Humans are too insignificant to affect the global climate,' which is something that had been observed anecdotally in some students' writing and discussions. Figure 6 highlights the different responses from different year groups. The latter two years of first years have slightly higher proportions of students disagreeing or strongly disagreeing with this statement, and

lower numbers agreeing or strongly agreeing with this statement compared to earlier years. No third year students express any agreement with this statement. These findings may suggest that third year students are less sceptical about the influence of humans than first year students, perhaps as a result of greater influence from the academic literature rather than the media. There seems to be a slight decrease in scepticism in first year students over time, potentially reflecting a change towards acceptance of human influence in the public discourse of climate change. These trends over time and comparison between year groups need further investigation.

Insert figure 6

Although as sustainability education practitioners we might celebrate the extensive coverage of environmental issues in the geography curriculum, the sheer volume of coverage, as well as the way it is covered, may actually lead to students disengaging with environmental issues. Students were asked to respond to the statement 'I am sick of being told about climate change'. On average 23% of first year students, strongly agree or agree with this statement. In 2006/7, 32% of first year students, but only 11% of third year students, agreed or strongly agreed with this statement. There is no trend in these views across the seven years of data. Although the numbers of students who profess to being sick of hearing about climate change is worrying, the proportion of student disagreeing or strongly disagreeing with this statement is much larger (average = 48%). Although there is some difference between individual years, these do not seem to tally with years where climate change may be expected to have been more prevalent in the media, for example 2007/8 when the IPCC Assessment Report Four was released (November 2007), or in 2009/10 where there was much coverage relating to 'Climategate' and the 2009 United Nations Climate Change Conference. The fact that a higher proportion of first year students are 'sick' of hearing about climate change, may well relate to the amount, and low educational level coverage at schools, one first year student states,

'you turn on the news, you look in the newspaper and there's always something about climate change...and I know after a while I'm at the level where I don't want to study climate change...you get too much of it and it just makes people turn off.' (1st year student)

Another student states,

'I did chemistry and geography A-level, and...I was kind of getting to the point where I didn't want to study climate change anymore. Coming here...it's at a deeper level so it's much more interesting than 'sun traps energy in the atmosphere, earth warms up' and you know, it's quite interesting...' (1st year student)

When students were asked to rate how their environmental behaviour had changed since being at university, they were also asked to give an explanation for their answer. Many students who said that their environmental behaviour had improved since being at University referred to the role of education, in particular their environmentally-focussed degree. However, the change in circumstances that arises from studying at university, inevitably leads to changes in behaviour, in particular in relation to travel requirements. Students cited a wide range of factors which served as barriers to good environmental citizenship, including pressures of the student lifestyle (including cost and time), laziness, and a perceived lack of university infrastructure encouraging environmental behaviour. One student reported that they had become less motivated at university,

'before I came to university I was really, really environmentally minded. ... I'd do anything that I possibly could, but when you're doing your A levels you have all this time to do these things. But since coming here I've had so many different experiences, I have sort of tended to get the idea that there's more to life than playing around with tin cans and throwing them in blue boxes' (3rd year student).

4. Discussion

This study, like many others shows that students' self-reported behaviour falls short of verbal commitment and attitudes towards environmental behaviours (e.g. Maffia et al., 2011; Tekosz, Sahin, and Tekkaya-Oztekin, 2012). Several aspects of this study suggest that the way that environmental issues are taught can lead to greater feelings of disempowerment. The focus groups from this study reveal that greater knowledge has catalysed action for some students, while for others they have become mired in the complexity, leading to confusion and inaction. Further work to understand the impact on the way that sustainability is taught would be beneficial, leading perhaps to a refocusing in the geography/environmental curricula not on the

problems that society faces, but the solutions and positive future visions. This reflects a move towards 'futures' discourses by ESD practitioners, but one that may not yet be being translated into the geography curriculum. 'Empowerment' is a key contributor to pro-environmental behaviour and ensuring that we empower, rather than 'disempower' students, is essential to effective ESD.

Students from the geographical disciplines often refer to the importance of education in having made them interested and more aware of environmental issues and their responsibilities. Several students also talk about the importance of *their* role as educators of others, either informally through their peer networks or formally through future teaching careers. The fact that these students feel responsibility for educating others, shows a very positive contribution that the subject can make, suggesting other areas of the geography curriculum that could be developed, such as science communication. As students already naturally engage with many aspects of ESD through the core content of their subject area and see its relevance, further ESD work in these disciplines could be focussed on helping students to become more effective sustainable development educators themselves.

In addition to concentrating on *what* we teach, equally important is *how* we teach it (Jones et al., 2008). For example the importance of building in reflection strategies to encourage deeper questioning of the social model we live in (Maffia et al., 2011) may help to encourage more 'citizenly' behaviours such as thinking about purchasing choices and more political activism, which shown by this study, are poorly represented by current student actions. The opportunity to debate and explore different views is valued by students. One student reports,

"we did the debates after the lectures, and it was really, really cool, because you got to hear so many different opinions on so many different environmental issues and even things that I've already made my mind up on – some of mine actually changed, because I saw other people's views that I may not have really thought about myself...and I think that...really helped me, that opened up my eyes a bit more, not to be so biased on a few things..." (3rd year student)

Shephard (2008) suggests that to achieve transformative ESD we need to go further and embed the affective domain (values, attitudes and behaviours) into the learning outcomes of courses, something that the geography discipline, if it wants to measure its transformative impact, should consider.

The prediction of environmental behaviour is extremely complex and based on a multitude of factors (Hines, Hungerford and Tomera, 1986/87). Kollmuss and Agyeman (2002) identify two groups of factors having some influence on shaping pro-environmental behaviours, 'internal' factors including, *inter alia*, motivation, priorities, and knowledge and awareness, and 'external' factors such as institutional, economic, and cultural factors. Cotton and Alcock (2012) identify a positive link between environmental attitude of those having gone through university education in comparison to other transition pathways (when corrected for other likely influencing factors such as gender, social class and income), irrespective of discipline. They hypothesise that increased cognitive development might lead to increased commitment to environmental sustainability, due to the increased capacity for independent thought and critical analysis. This study suggests that third year students may tend to have more pro-environmental attitudes, (compare results between first and third years to the statement 'Humans are too insignificant to affect global climate change' (figure 6)). However, the role of the institution itself may also be important through the infrastructure and opportunities it provides for students to explore greater environmental citizenship. During the period of the study, the University has dramatically increased its student-facing sustainability activities, including work on embedding sustainability in discipline curricula and the availability of sustainability-related elective modules, sustainability 'events' such as Green Week and Earth Hour, increased communication about sustainability initiatives, and significant improvements in the environmental performance of the University estate. However, students' self-reported environmental behaviour only improves over time in very restricted ways (recycling behaviour), and there are no improving trends of other pro-environmental attributes over time. This shows that infrastructure barriers are perhaps most easily overcome, and that the impacts of other activities are less evident, or at least less measurable. One of the additional barriers to student environmental behaviours is the lack of personal control in many parts of their life, for example, students living on campus have no control over their heating, are not subject to the same incentives of energy conservation as energy bills are included in their rent, and may be restricted by budgetary considerations or limited by restricted choice in University shops. This also highlights the need for longitudinal research into whether sustainability education while in higher education has any effect on students' attitudes and behaviours beyond graduation.

Going to University is an important point of 'life-course transition' (Cotton and Alcock, 2012), where many students have their first taste of independent living (Robinson and Greenhough, 2009). The behaviours that they develop at this juncture may be replicated in their later lives. As our responses to environmental issues are shaped by the context in which we both live and work, and as higher education institutions provide both the living and working environment there is additional responsibility on the institution to positively influence environmental attitudes and behaviour. Although there is much focus on the curriculum in ESD, it should not be forgotten the role of the context in which this learning takes place. Campus developments may provide 'exciting possibilities for influencing the entire student population' (Cotton and Alcock, 2012: 12), but it should not be forgotten that institutions can also provide significant barriers preventing students from engaging with the behaviours that they might otherwise be attuned towards. This could potentially set up bad habits as students progress into more influential parts of their life course. As public institutions within which students live and study, campus universities provide an interesting arena for examining how environmental citizenship blurs the boundaries between public and private space.

It has been said that the geographical community has been slow to take a leading role in ESD, even though it is the discipline most readily associated with sustainable development (Liu, 2011). The very synergies that lie between geography and sustainable development may be slowing the engagement with transformative ESD. Maybe it is too easy for geographers to say that their discipline is addressing ESD, without really addressing or evaluating the transformative extent of ESD in their courses. More knowledge of environmental issues does not necessarily lead to greater environmental citizenship. Therefore, in order to promote an individual's environmentally responsible practices, it is necessary to concentrate not only on the development of knowledge and skills, at the core of the geography discipline, but also to emphasize the enhancement of desires to act while providing a suitable environment to act in. As geographical educators we should be careful not to 'rest on our laurels' thinking that ESD is part of what we have always done, rather we should endeavour to look at ways to enhance students' desire to act in pro-environmental ways should therefore look, and increase students' engagement with the different ways of being a 'good environmental citizen', and the links between their everyday choices and wider environmental and societal concerns.

Conclusions

This study suggests that despite a backdrop of increasing focus on sustainability issues, externally and institutionally, the only improvement in environmental citizenship attributes in geography students over a seven year time period is in the areas of simplistic, no-cost action, influenced by an improvement in university environmental infrastructure. Although geography incorporates a significant component of education about the environment, a significant proportion of students claim to be jaded by, or confused about, environmental issues. This has important implications to our consideration of the role of the geography curriculum in shaping environmental attitudes and behaviour and to how we deliver sustainability education to geography students. As providers of geography programmes we should ensure we explore fresh and different perspectives on sustainability issues, in order to keep students continually engaged with the sustainability agenda while at university, and in order to deliver genuinely effective, lasting and transformational education for sustainability. Although more work is needed to assess the impact of the geography curriculum on students' environmental attitudes and behaviours, this study points towards some potential developments in the geography curriculum for transformative ESD. 1) For the geography curriculum to be less problem orientated, and more positive future visions orientated; 2) to support students to become more effective communicators and educators of sustainable developments; and 3) to ensure a wider appreciation of everyday decisions and actions on wider environmental and social issues, to prevent a focus on overly simplistic pro-environmental practices. This study also highlights that it is not enough to address sustainability issues only in the curriculum, it is also necessary to allow students to develop good environmental 'habits' while at university, through the environmental infrastructure of the place in which students both study and live.

This study is based on data from geography students from just one small, rural, campus-based institution which is distinct in having a high proportion of its geography students studying dual honours. The study focuses mainly on first year students with a relatively small sample of third year students, hence the data allow the description of general trends rather than a statistically-relevant analysis. However, the findings of this study provide sufficient incentive for further extensive work tracking temporal trends in the

environmental attitudes and behaviour of geography students and the differences between students at the beginning and end of their university experience, and for the comparison of findings between different types of institutions.

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Table 1 Number of questionnaire responses from the 1st year 'People and the Environment' module (note all students taking the module are on a geography/environment-related degree programme)

Academic year	Number of questionnaires completed
2006/7	59
2007/8	69
2008/9	67
2009/10	79
2010/11	87
2011/12	65
2012/13	77
TOTAL	503

Table 2 Environmental behaviours of first year geography/environmental students over seven years

	Never/rarely		Often/always	
	1 st year	3 rd year	1 st year	3 rd year
Choose wooden products from sustainable sources	42	36	17	14
Buy organic food where available	55	50	16	15
Buy Fair Trade products where available	42	36	20	21
Recycle	5	15	75	60
Choose products with minimal packaging	39	46	26	29
Take own bag to the supermarket	22	43	57	25
Buy second hand goods rather than new	55	39	12	29
Lobby Local MPs about environmental issues	90	75	2	7
Take part in environmental protests	93	85	1	0

Figure captions

Figure 1 Student ratings of themselves as environmental citizens. 1 = 'I am a model environmental citizen', 5 = 'I make no effort at all to be a good environmental citizen'

Figure 2 Responses of 1st year students across seven years to the question 'How has your environmental behaviour changed since you have been at university?'

Figure 3 The response of students to the question 'Do you think your University is a good environmental citizen?' of 3rd year students in 2006/7 and 1st year students from 2006/7 to 2012/13

Figure 4 Student self-reported participation rates in recycling

Figure 5 Student self-reported participation rates in taking their own bag to a supermarket rather than using a carrier

Figure 6 Student responses to the statement 'Humans are too insignificant to affect global climate change'