Determinants of successful implementation of environmental policies across London universities: The role of *information*, *education* and *incentives*.

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Abstract:

Sustainable development is an increasingly important issue on the political agenda, as highlighted by David Cameron's declaration to make the current coalition 'the greenest government ever'. Yet, the very definition of 'sustainable development' and the means of pursuing it remain far from clear. However, several academics seem to agree that Higher Education Institutions (HEI) can play a key role in the transition towards a 'greener' society. We believe maximum student engagement with environmental policies is the key to achieving effective policy implementation – as backed by academic research. This paper aims to identify and rank the most important determinants for successful student engagement in order to formulate valuable policy recommendations for universities. In order to achieve this, it uses a bottom-up approach and it is supported by a qualitative methodology which allows for triangulation of results

Keywords: Sustainable development, universities, environmental policy, student engagement.

Introduction

The aim of social science research should be "*human welfare, immediate and/or ultimate, which is at the root of all socially accepted activity*" (Dasgupta 1967, p.19). Several authors (Cortese, A.D. 2003, Lemons 1995, Shriberg, M. 2002) have suggested a potential role for universities in the formation of more environmentally oriented societies. Given such implications, research adding to the general pool of knowledge about how to make universities – and therefore societies – 'greener' can contribute to the enhancement of human welfare.

This paper aims to determine effective ways to communicate sustainability policies at universities. The key assumption is that universities with higher levels of student engagement are more successful at implementing environmental policies. This link appears well-established; for example, research on forest management projects at the

community level show the importance of participation or engagement in achieving policy implementation success (Nelson, 2004). Given this underlying assumption, we intend to identify the determinants of student engagement and rank their importance based on our study.

Our research question is: 'What determines the successful implementation of environmental policies across London universities?' Several determinants – namely, participation in policy formation, imposition of fines for non-compliance, intrinsic motivation and a sense of autonomy in relation to government control – were investigated in other studies. This paper will focus on information, education, and incentives as principal explanatory factors behind communication and/or coordination 'failure' in terms of student engagement. The aim of this paper is two-fold: firstly, to argue that information, education, and incentives are the main driving forces of student engagement and secondly, to rank the relative importance of these three variables in generating student involvement in sustainability policies.

Therefore, the hypothesis tested in this paper is that 'higher levels of information, education and incentive are significant determinants towards greater student engagement'. *Information is defined* as the perceived availability of various forms of knowledge regarding environmental sustainability offered through the university (e.g. campus sustainability posters, websites, newsletters, etc.). *Education* focuses on the amount of knowledge students actually gain through the different communication channels utilized to disseminate available information. Finally, *incentives* are any means through which students are encouraged to be actively involved in campus sustainability initiatives (e.g. award schemes, financial rewards, university reputation).

The hypothesis is primarily tested using student responses via questionnaire-based surveys. The population sample studied was from three London universities, namely the University of Greenwich, the London School of Economics, and University College London. Also, further data was derived from interviews with sustainability managers of the universities (LSE, UCL) and the environmental officer of the LSE Student Union, as well as recent expert opinions submitted on-line to a Guardian newspaper panel on the issue of sustainability within Higher Education. This will allow both a bottom-up and top-down analysis of engagement 'inefficiencies'.

This paper is divided into four sections**. Section I** focuses on a literature review consisting of two parts. The first explains why HEIs in particular are our subject of investigation and briefly evaluates similar studies. The second expands on the definitions of sustainability and the three independent variables to be examined, citing literary examples to justify the rationale behind our variable selection. **Section II** describes and explains our methodological approach and the case study selection. **Section III** contains data presentation and analysis, while the conclusive section offers policy recommendations based on our results.

I. Literature Review

i. Why study environmental policy implementation within *universities*?

There is substantial academic evidence to suggest universities play a significant role in improving environmental sustainability within society (Cortese, 2003). While studies on this subject are rich in examples of actual applications of environmental policies at various levels (i.e. local, national, international), they often focus on single regions or

groups. Consequently, they often do not determine factors of success *within specialized sectors*, leaving a gap in cross-institution comparisons. For the purpose of this study, a lack of sufficient cross-university assessments of the success factors for environmental policies has been identified. Dahle and Neumayer (2001) do explore the 'greening' of London universities but their focus is less on student engagement and more on visible structural practices like energy and solid waste management.

Two dissertation papers by Shriberg (2002) and James (2009) similarly emphasise cross-university analysis. The former compares the implementation of progressive measures of environmental sustainability in three universities in central-north US. The latter study surveys U.S universities that have signed the Talloires Declaration on Sustainability, focusing on environmental efforts at two public Midwestern universities. The approach of this study differs in the independent variables observed in relation to student engagement. Its uniqueness lies in its particular applicability to universities, which contains implications for the university sector as a whole, and its effect on wider society. Another key difference is that the main focus is the role and opinions of students as the agents at the receiving end of environmental policies.

ii. *Why* study information, education and incentives?

The Brundtland Commission describes sustainability as: "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (WCED, 1987). Debates regarding the means of achieving 'sustainable development' arise with differences in opinion. Some differentiate between 'weak' and 'strong' sustainability depending on the forms of natural capital they consider crucial for future generations (see Atkinson *et al*, 2007).

Most studies agree with the preliminary proposition that information disclosure and availability have a positive impact on environmentally friendly behaviour. However, Bougherara et al. (2007) argue that limiting information may be helpful in certain cases due to inefficiencies resulting from information overload. This study adds two more variables (i.e. education and incentives) to account for the inadequacy of information on its own, which ensures that students process information in a more proactive way. By acquiring knowledge on environmental sustainability, students may further engage in relevant policies. However, at times, additional incentive may be needed to support education. This is supported by Ferrer-Balas (2008: 312) who claim that for universities '*the main barrier to be overcome is the lack of an incentive structure for promoting changes at the individual level.*'

While many scholars agree on the underlying importance of psychological approaches, they often focus on different factors necessary for engagement in policy implementation. Lavergne et al. (2010) claim pro-environmental behavior can be better promoted through autonomous motivation, which is positively associated with perceived government autonomy-support, rather than amotivation, which is positively associated with perceived government control. Eden (1996) focuses more on the importance of public involvement in policy-making processes in augmenting participation rates in policy implementation. Eden (1996) claims "participation in implementation logically presupposes participation in formulation", showing a different approach to analysing motivating factors for policy engagement.

Unlike the two previous papers focusing on intrinsic motivation, Nthunya (2002) shows coercive measures are necessary in enforcing environmental policies through a

study at the state level, placing more emphasis on extrinsic factors. Negative reinforcement such as fines, however, need not be the most effective solution at universities – especially in an educational environment of character-building, where ensuring voluntary student participation may be a better strategy. For this reason, this paper looks into the three factors that stimulate both intrinsic and extrinsic motivation without using methods of negative reinforcement.

II. Methodology

i. *Why* Greenwich, LSE and UCL?

The core of the methodology presented is an in-depth case study. Its purpose is to provide a thorough insight into specific features that prevail in the selected universities and a basis for comparative analysis founded on empirical facts to generate evidence for the conclusion.

This study will examine the different degrees of student engagement in environmental policies by taking the People and Planet's Green League as a comprehensive indicator for HEI's success in implementing environmental policies. The choice of these three universities is not solely due to practical purposes (all located within London), but also in order to reflect the broad spectrum of 'success' in the Green League tables (Greenwich ranked 5th, LSE 22nd and UCL 83rd).

ii. Data Collection

In order to make optimal use of the case study method, four fundamental steps will be followed in organizing and conducting the research:

1) Defining the research questions and the hypothesis; selecting the case study that is of most use in answering the questions;

2) Determining data collection and analysis techniques;

3) Field work;

4) Evaluating and analysing the data.

The first step has already been completed (i.e. - the three case studies were chosen to ensure the representation of contrasting performances).

Step 2 and 3 relate to data collection, which is based on three methods to ensure reliability: (1) document analysis; (2) interview data – questionnaires and semi-structured interviews; and (3) direct observation (Johnson, 2005: 185-304).

Questionnaires

The originality of our data collection is based on a questionnaire designed to assess the weights of information, education and incentives. The questionnaire allows a distinction between information, education and incentives. Questions 1 (a, b), 2 and 3 aim to investigate the perceived availability of various information channels by students and their general awareness of their university's environmental policies. Questions 4, 5 and 6 attempt to evaluate the level and usefulness of the education students gain from the information available to them in different forms. Finally questions 7, 8 and 9 deal with the different forms of 'positive' incentives that could encourage more student engagement in 'green' policies. (See Appendix I)

Student responses from questionnaire-based surveys will provide the greatest proportion of the study's data. Initially, the aim was 100 responses from each university; however, the study was restricted by the fact that the majority of students were no longer

on campus in summer term. This resulted in: **93** responses from the LSE, **51** from Greenwich and **50** from UCL. Such imbalances were taken into account during data compilation through different weight assignments, but this limitation may be mitigated in similar future studies. As always, a study with more universities could produce more comprehensive results as well.

Semi-Structured Interviews

Interviews with authoritative figures involved in environmental policy implementation at the universities (UCL, LSE) and student environmental officers (LSE) are further employed for data collection (See Appendix II). Given the heavy focus on the student's perspective and the 'bottom-up' approach, it is important to examine how policy-makers perceive the communicability and effectiveness of their 'top-down' approach. Identifying gaps between the two approaches may help link the findings on information, education and incentives.

Online panel

Additionally, an online panel set up by the Guardian (June 2011), which examines Higher Education's green credentials and recommendations for universities, is used to extract information (See Appendix III). It consists of representatives from the Environmental Association for Universities and Colleges, People & Planet (the 'Green League'), sustainability officers from three universities (including Greenwich), student unions' representatives and organizations promoting sustainability (e.g. EcoCampus). Over 150 responses were posted on issues such as the importance of the Green League Table in relation to the sustainability agenda in Higher Education. Their observations provide

information on the missing links between policy, implementation, and student engagement.

III. Data presentation and Analysis

Two main overarching patterns emerged. First, results from the questionnaire responses (to question 1a) support the hypothesis regarding the importance of information, education, and incentives in encouraging student engagement. As shown in figure 1, responses indicated students perceived education, information, and incentives (in the listed order) as the most efficient means of generating participation in all three universities.

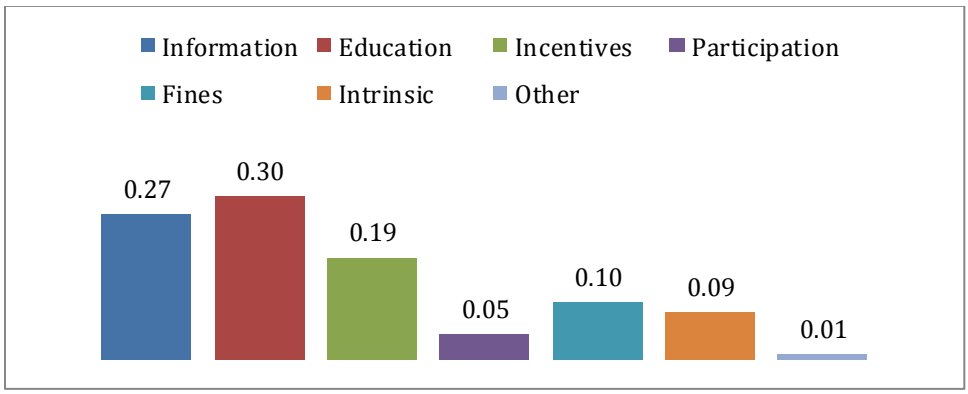

Figure 1. Efficiency of Participation Generation Methods

Secondly, student responses to question 3 (figure 2) showed fairly normal distributions for all three universities. This suggests students have the same *potential* for engagement; the difference in the *actual* amount of engagement arises from the differences in their environments (i.e. universities). Hence it is possible to conclude that varying levels of student engagement are caused by different factors at each university.

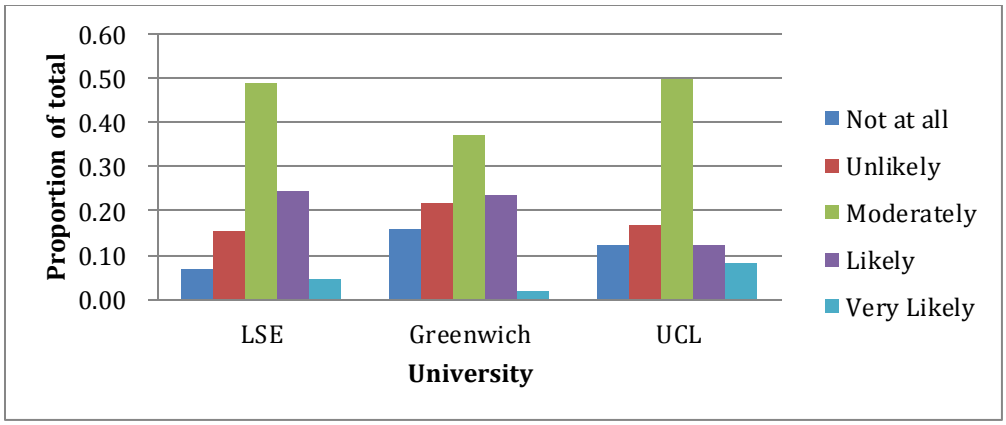

Figure 2. Likeliness of Student Engagement (Given Information)

The three analytical dimensions included in both the questionnaire and interview guide will be discussed in turn in the next paragraphs (See Appendix IV for full details).

i. Information

Aggregate analysis of information channels showed most information was received through word of mouth, followed by posters. The highest response rate for word of mouth as an information source may suggest students are more attentive to the relatively proactive means of receiving information through social interactions. However, results were not unanimous. Greenwich students had more access to information through word of mouth while LSE students relied more on posters (figure 3). 45% of Greenwich students acquired information through word of mouth, which was their most common information source. On the other hand, 40% of LSE students relied on posters as opposed to the 30% that relied on word of mouth. Meanwhile, UCL students had similar rates for word of mouth and posters, but relied more on other sources such as the presence of recycling bins on campus. In any case, newsletters and websites – sources that tend to contain the most *amount* of information – ranked relatively low in general. Such

responses suggest that the efficiency of information channels does not necessarily depend on the *amount* of information they provide, but rather on the degree of interaction and efficiency in terms of communication. Hence more information may be acquired through more interactive or less overwhelming sources such as word of mouth or social media. In fact, the sustainability projects officer at the University of Greenwich highlighted in the panel how social media such as Twitter and their sustainability blog are helping them communicate with students.

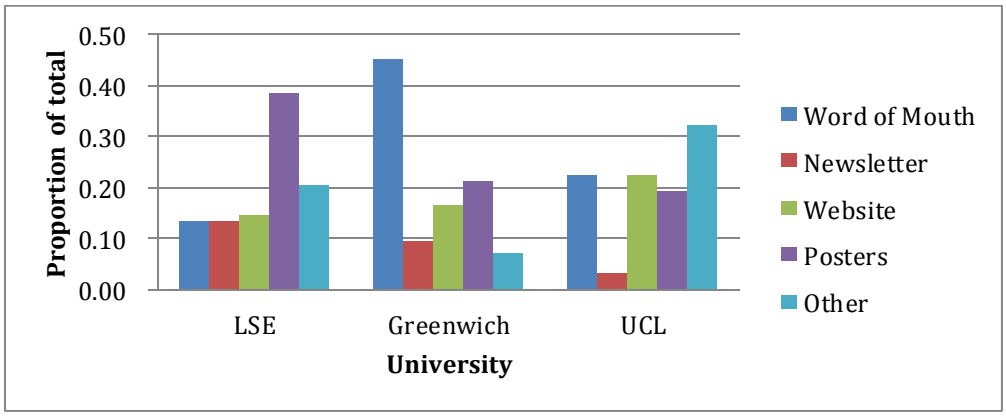

Figure 3. Sources of Information

ii. Education

Responses to education – defined as the amount of knowledge acquired (not provided) – varied across universities (figures 4 and 5) and therefore have varying implications. In Greenwich (the highest ranked university), responses for 'very' were relatively high, indicating students felt more knowledgeable about 'environmental sustainability.' They also had a relatively high rate of "very" response for the question regarding practical knowledge (e.g. how to recycle). LSE students also had more responses of 'very' and 'moderately' for general knowledge improvement compared to UCL students. However,

perhaps more alarming is the fact that a considerable proportion of responses reported 'none' for degree of knowledge gained, which may suggest current means of education are inefficient in informing the student body.

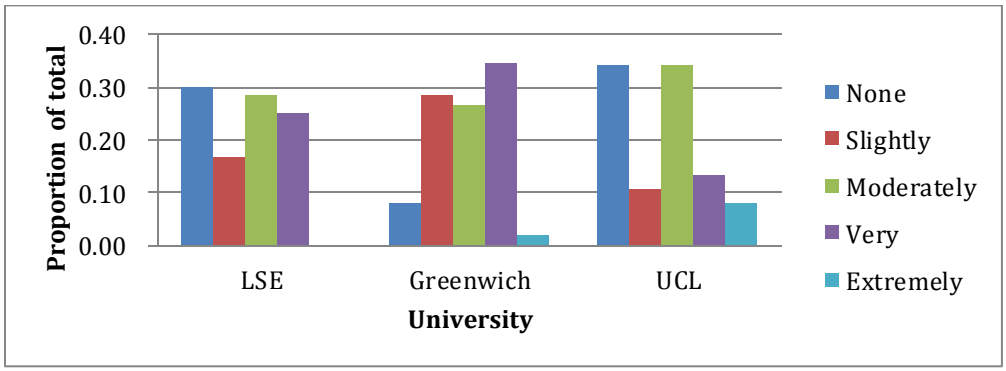

Figure 4. Improvement of General Knowledge through Events

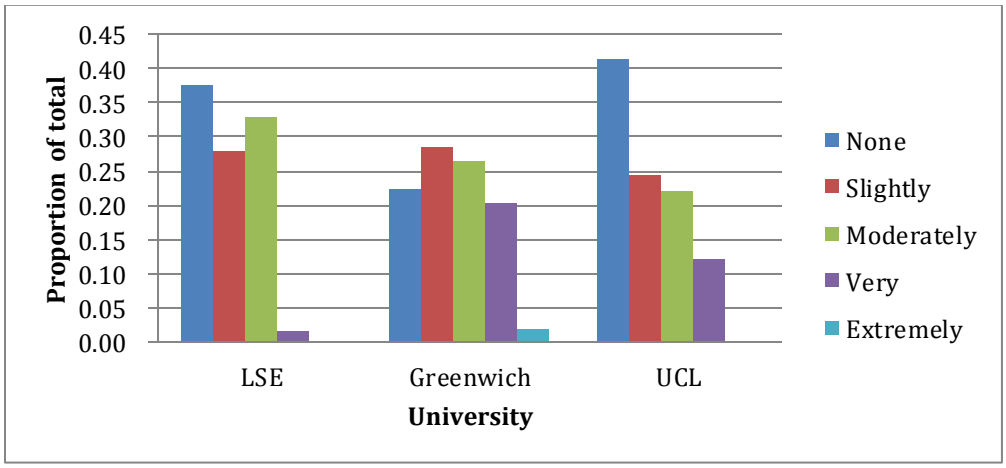

Figure 5. Improvement in Practical Knowledge through Events

Responses regarding the influence of knowledge on behaviour (figure 6) suggest student engagement can largely be improved by addressing this problem; for all three universities, more students indicated they are 'very' or at least 'moderately' likely to

change their behaviour with more relevant knowledge. A possible remedy for this can be seen in practise at the LSE. They introduced a new interdisciplinary course in 2010 which is compulsory for its first-year students and incorporates in its curriculum a module on Climate Change. In an interview conducted with the Head of Environmental Sustainability at the LSE, she believed this could be a positive first-step to engage as many students as possible with environmental issues.

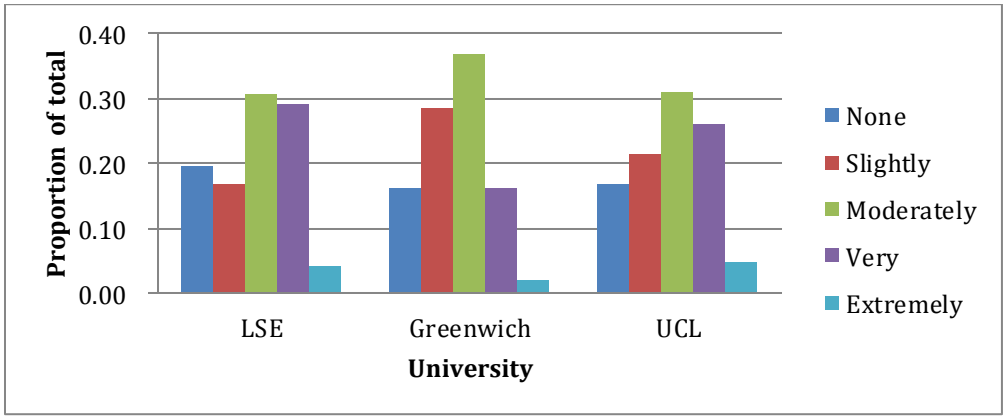

Figure 6. Influence of Knowledge on Behaviour

iii. Incentives

Incentives effect student engagement, but differences arise in the degrees of success. Our student surveys suggest students are motivated by incentives; for all three incentive questions, more than 50% of the aggregated population responded they would be influenced by such incentives. Responses further suggest students are more influenced when the relevance of potential gains from engagement are more evident. Responses to our three questions for incentives show that students are more likely to respond to obvious short-term gains such as café discounts (figure 7) and free pizza (figure 9).

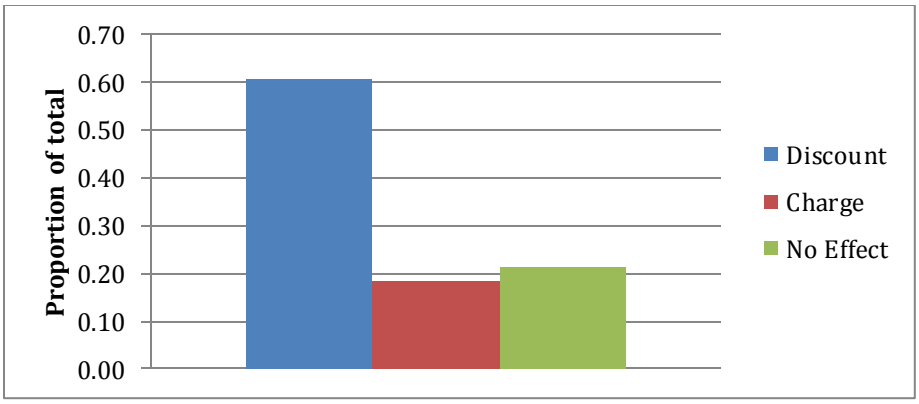

Figure 7. Responses to Incentives for Bringing Coffee Cup

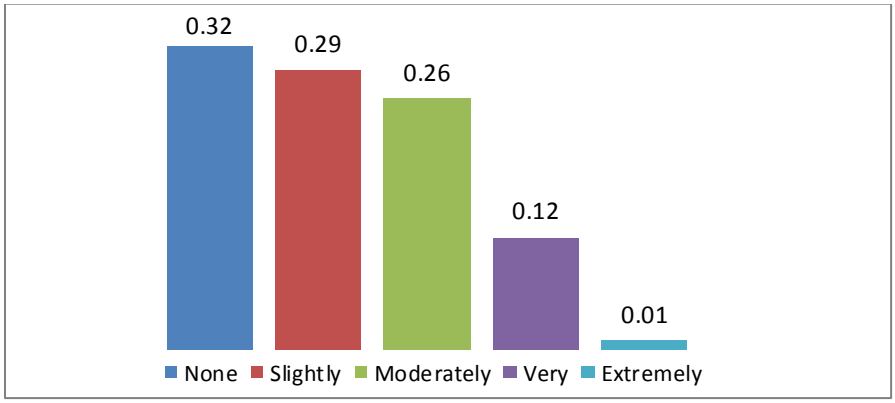

Figure 8. Incentives for Higher Green League Ranking

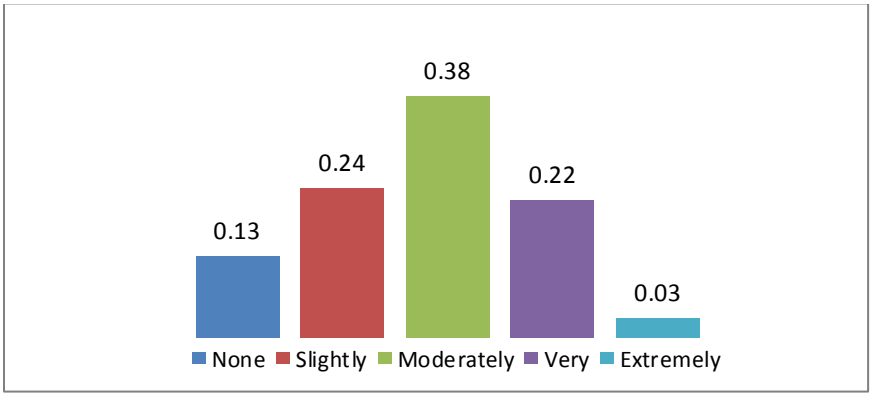

Figure 9. Incentives for Student Award Schemes

In contrast, students may be less responsive to long-term gains from, for example, performing better in the Green League – as shown by the response rates 'slightly' or 'no[ne]' motivation from Greenwich, LSE, and UCL (51%, 60%, and 72% respectively; figure 8). In addition, the results from the coffee cup question indicate students are motivated by a 25p discount (65% response rate) more often than by an additional 25p charge (18% response rate) assuming equal final prices. This result conflicts with earlier literature suggestions on the efficiency of coercion methods. The results may point to the fact that positive (e.g. discounts) rather than negative (e.g. extra charges) incentives may prove more effective, especially in a university environment where students may be more sensitive to forms of encouragement and coercion. Harriet Kingaby (from Futerra Sustainability Communications) emphasized in the online panel that universities should make '*getting involved a pleasure*' and '*create interesting events that are about participation rather than information lead*'

A common observation emerging from the online panel, which was also highlighted in the LSE SU's Environmental and Ethics officer interview, was the problem of coordination. When asked about the primary constraints for achieving a high level of environmental sustainability the respondent stressed the size of LSE as an institution. This may suggest the need for concentrating administrative

Concluding remarks

Higher education institutions are currently shaping the policy-makers, businessmen and civic society of the future. If they fail to inform, educate and incentivize the current generation of students on the importance of sustainability, they will be seriously

undermining the environment as a part of the socio-political agenda in the coming decades. This is where the social contribution of this paper lies.

It emerges quite clearly from the data, that *information*, *education* and *incentives* (as defined in the introduction) are very important to get students more engaged with the sustainability policy of their universities. What are also needed are ways to ensure that, that information is successfully embedded in the mind-set of those who receive it.

This is why the methodological triangulation of questionnaires, semi-structured interviews and online experts panel was an appropriate tool in increasing our understanding of student engagement. It allowed us to demonstrate the importance students attach to the three variables examined, while also becoming aware of the challenges policy-makers face.

Future research on the association between environmental policy in universities and student engagement should examine explicitly what course of action students themselves believe is most effective. That is, it should firstly establish what is more likely to generate student participation (e.g. social media, dynamic initiatives, fostering a 'green' culture throughout the institution) before assessing the universities' policies as well.

Top-down bureaucratic approaches may seem appealing to policy-makers but the strategic focus ought to be the active engagement of the student body. Students need to understand why environmental sustainability is important and policy-makers why the message is currently not transmitted in an effective way.

Appendix

I. Questionnaire

ENVIRONMENTAL SUSTAINABILITY

QUESTIONNAIRE

Are you aware of the University Green League tables?

Yes	No

What do you think is the most effective way to generate participation in environmental policies?

- ☐ Information (availability)
- ☐ Education (acquiring knowledge)
- ☐ Incentives (small monetary benefit)
- ☐ Participation in policy formation
- ☐ Imposing fines for non-compliance
- ☐ Intrinsic motivation
- ☐ Other_____

1a.How aware are you about *your university's* green policies or activities?

None	Slightly	Moderately	Very	Extremely

1.b Please mention any green policies or activities that you have heard of.

_____

2.How did you hear about these events/activities?

- ☐ Word of mouth
- ☐ College newsletter
- ☐ Website
- ☐ Posters
- ☐ Other _____
- ☐ n/a

3.If you knew about the green policies or activities of your university, how likely are you to take part in them?

Not at all	Unlikely	Moderately	Likely	Very Likely

PERSONAL DETAILS*

1. Gender
   - ☐ Male
   - ☐ Female
   - ☐ Prefer not to disclose

2. Age
   - ☐ Below 18
   - ☐ 18-23
   - ☐ Over 23
   - ☐ Prefer not to disclose

3. Name of University
   - ☐ LSE
   - ☐ Greenwich
   - ☐ UCL
   - ☐ Other_____

4.If you attended any University lectures/ environmental events/seminars, to what extent did they improve your knowledge of environmental sustainability?

None	Slightly	Moderately	Very	Extremely	n/a

5.To what extent did you learn HOW to implement environmental policies as a result of events at your university?

None	Slightly	Moderately	Very	Extremely	n/a

6. To what extent did learning about environmental sustainability influence your behavior?

None	Slightly	Moderately	Very	Extremely	n/a

7. What would motivate you to bring your own cup/ mug/ bottle to a coffee shop?
   - ☐ a 25p discount if you do
   - ☐ a 25p charge if you don't
   - ☐ This does not motivate me

8. How much does your university's position on the Green League Rankings of Campus Sustainability motivate you to comply more with university environmental policies?

None	Slightly	Moderately	Very	Extremely

9. If your university awarded students for environmentally friendly behavior (e.g. free pizza for hall with the highest recycling rate), to what extent would you be more willing to engage in such behavior?

None	Slightly	Moderately	Very	Extremely

4. Degree subject:
   - ☐ Environmental related
   - ☐ Qualitative
   - ☐ Quantitative
   - ☐ Other _____

5. Nationality
   - ☐ UK
   - ☐ EU
   - ☐ Other _____
   - ☐ Prefer not to disclose

6. E-Mail _____
   (if you would like to be contacted about a focus group)

Please note that some/all information provided above will be used in a research project on Environmental Sustainability at the LSE. Questionnaires are anonymous and you are free to refuse to answer any questions or stop answering at any time.
Please direct any comments to Dr Simona Milio at s.milio@lse.ac.uk.
*Optional

II. Interviewees

- Tony Overbury - Project Manager (Integration and Sustainability), *UCL Estates* [Interview conducted Wednesday 29 June 2011]
- Lois Clifton - Environmental and Ethics officer, *LSE Student Union*
- Dr Victoria Hands - Head of Environmental Sustainability, *London School Of Economics* [Interview conducted Wednesday 29 June 2011]

III. Expert Online Panel Members:

- Louise Hazan, Climate change campaigns & Communications manager, *People & Planet*
- Iain Patton , Chief Executive, *Environmental Association for Universities and Colleges*
- John Bailey, Sustainability projects officer**,** *University of Greenwich*
- Robert Abrams, Environment and ethics executive, *Swansea University Students Union*
- Harry Fraser, Project officer, *EcoCampus*
- Patrick Bailey, Pro vice-chancellor for environment & sustainability, *Keele University*
- Harriet Kingaby, Communications consultant, *Futerra Sustainability Communications*
- Rob Bristow, Programme manager, *JISC*
- Dr Alastair Robertson, Head of policy and partnerships, *Higher Education Academy*
- Jonathan Ward, Senior sustainability project co-ordinator, *StudentForce for Sustainability*

IV. Data Statistics

	LSE	Greenwich	UCL	Total
Number Aware	0.172043	0.2	0.061224	0.144423
Total ticks for "Effective" question				
Number of Information	0.230769	0.244897959	0.320988	0.265552
Number of Education	0.288462	0.275510204	0.333333	0.299102
Number of Incentives	0.198718	0.214285714	0.148148	0.187051
Number of Participation	0.051282	0.051020408	0.037037	0.046446
Number of Fines	0.134615	0.091836735	0.08642	0.104291
Number of Intrinsic	0.089744	0.12244898	0.049383	0.087192
Number of Other	0.00641	0	0.024691	0.010367
Awareness				
None	0.268817	0.32	0.387755	0.325524
Slightly	0.397849	0.16	0.346939	0.301596
Moderately	0.311828	0.42	0.244898	0.325575
Very	0.021505	0.1	0.020408	0.047305
Extremely	0	0	0	0
How did you hear				
Word of Mouth	0.13253	0.452380952	0.225806	0.270239
Newsletter	0.13253	0.095238095	0.032258	0.086675
Website	0.144578	0.166666667	0.225806	0.179017
Posters	0.385542	0.214285714	0.193548	0.264459
Other	0.204819	0.071428571	0.322581	0.199609
Likely to take part				
Not at all	0.066667	0.156862745	0.125	0.116176
Unlikely	0.155556	0.215686275	0.166667	0.179303
Moderately	0.488889	0.37254902	0.5	0.453813
Likely	0.244444	0.235294118	0.125	0.20158
Very Likely	0.044444	0.019607843	0.083333	0.049129
Improve Knowledge				
None	0.3	0.081632653	0.342105	0.241246
Slightly	0.166667	0.285714286	0.105263	0.185881
Moderately	0.283333	0.265306122	0.342105	0.296915
Very	0.25	0.346938776	0.131579	0.242839
Extremely	0	0.020408163	0.078947	0.033119

Learnt HOW				
None	0.377049	0.224489796	0.414634	0.338724
Slightly	0.278689	0.285714286	0.243902	0.269435
Moderately	0.327869	0.265306122	0.219512	0.270896
Very	0.016393	0.204081633	0.121951	0.114142
Extremely	0	0.020408163	0	0.006803
Influence Behaviour				
None	0.194444	0.163265306	0.166667	0.174792
Slightly	0.166667	0.285714286	0.214286	0.222222
Moderately	0.305556	0.367346939	0.309524	0.327475
Very	0.291667	0.163265306	0.261905	0.238946
Extremely	0.041667	0.020408163	0.047619	0.036565
Coffee Cup				
Discount	0.494845	0.641509434	0.68	0.605452
Charge	0.237113	0.132075472	0.18	0.183063
No Effect	0.268041	0.226415094	0.14	0.211485
Green League Rank				
None	0.32967	0.274509804	0.346939	0.31704
Slightly	0.274725	0.235294118	0.367347	0.292455
Moderately	0.230769	0.37254902	0.183673	0.262331
Very	0.153846	0.098039216	0.102041	0.117975
Extremely	0.010989	0.019607843	0	0.010199
Student Award Scheme				
None	0.07	0.215686275	0.1	0.128562
Slightly	0.28	0.274509804	0.16	0.23817
Moderately	0.4	0.274509804	0.48	0.384837
Very	0.22	0.196078431	0.24	0.218693
Extremely	0.03	0.039215686	0.02	0.029739
Personal Data				
Female	0.612903	0.411764706	0.46	0.494889
Male	0.387097	0.588235294	0.54	0.505111
18-23	0.354839	0.529411765	0.56	0.481417
>23	0.645161	0.470588235	0.32	0.478583
Less than 18	0	0	0.12	0.04
Environmental Related	0.021505	0.039215686	0.22	0.093574
Qualitative	0.698925	0.647058824	0.2	0.515328

Quantitative	0.236559	0.294117647	0.18	0.236892
Other	0.043011	0.019607843	0.4	0.154206
UK	0.172043	0.254901961	0.5	0.308982
EU	0.311828	0.196078431	0.28	0.262635
Other	0.473118	0.509803922	0.18	0.387641
Not Disclosed	0.043011	0.039215686	0.04	0.040742

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