

[meliora.soton.ac.uk](https://meliora.soton.ac.uk)

# Barriers to pro-environmental behaviours at Bournemouth University

42-53 minutes

---

Bournemouth University (BU) is a large organisation with approximately 2,000 staff and 17,000 students situated on the south coast of the UK. BU is committed to contribute towards the delivery of the UN Sustainable Development goals (UN General Assembly 2015) and has recently risen to 11<sup>th</sup> place in the People and Planet University League 2017 (People & Planet 2017) giving the distinction of a 1<sup>st</sup> class degree university. BU's sustainability highlights include: (i) retaining Fairtrade status for over 10 years; (ii) achieving EcoCampus Platinum Award with ISO14001 certification for environmental management; (iii) installing water and energy saving measures, such as a biomass boiler, to cut carbon emissions; (iv) implementing a comprehensive mixed and food recycling scheme where no waste goes to landfill; (v) achieving BREEAM 'Excellent' and Energy Performance Certificate (EPC) 'A' ratings for the two new buildings where a number of low carbon technologies, such as Photovoltaics (PV) and ground source heat pumps were installed; (vi) the recent construction of a new bus hub and link road which will alleviate congestion and pollution on the main commuter route used by BU's new fleet of low carbon emission buses (Bournemouth University 2017).

BU strives to engage staff and students in innovative sustainability

activities through its participation in the Green Impact scheme (NUS (a) 2017). This is an environmental accreditation and award scheme delivered by the National Union of Students (NUS) designed to embed pro-environmental behaviours into life on campus. There are two main programmes, one for students' unions and one for universities and colleges. The universities programme involves staff working in teams within their departments to complete a workbook of actions covering several main aspects of sustainability which include communication, travel, health and wellbeing, waste and recycling, energy, water and procurement. The more actions completed, the more points are scored, leading to a Bronze, Silver, Gold or Platinum award. Since the universities Green Impact programme was introduced at BU in 2015, four teams have gained accreditations with three at Silver and one at Bronze. Only one team included academics.

Fabi et al. (2017) summarises research by Kollmuss and Agyeman (2002) that describes a pro-environmental behaviour as a behaviour that consciously seeks to minimise the negative impact of one's actions on the natural and built environment. Ruepert, Keizer & Steg (2017) discusses how the increase in pro-environmental behaviour at work is not only down to organisational structures and efficient use of resources, but also lies in the hands of the employees. As a large institution with a 2,000 employees, having only four teams obtaining a Green Impact award demonstrates that at BU there is scope for further improvement in increasing pro-environmental behaviours. Considering that employees spend around a third of their time at work, there are several occasions where sustainability actions can be put into practice (Blok et al. 2015). Academic staffs in particular have a

unique role in embedding pro-environmental behaviours into life on campus as not only they can change their own behaviours but they are in a position to educate their students and to inspire them to play a vital role into achieving the UN Sustainable Development Goals (SDGs).

The aim of this study was to investigate the barriers to pro-environmental behaviours within BU, by comparing different faculties and departments with regards to their participation to the Green Impact programme in conjunction with comparing inter-university challenges to Green Impact participation.

More specifically, the study aimed to answer the following three questions:

- How do pro-environmental behaviours vary between faculties?
- What are the main perceived barriers to further involvement and engagement with environmental initiatives at BU?
- What are the main opportunities to promote further engagement with environmental initiatives?

This literature search was conducted through the BU library database "mySearch" and Google Scholar. Search terms that were used included "pro-environmental behaviours, and sustainability". Other literature was highlighted branching off from the selected relevant research. Peer reviewed articles were given priority with other publications used where deemed particularly relevant. As pro-environmental behaviours are a relatively new area of research, the most recent journal articles selected were given precedence.

Sustainability as a science is a component to be included within a

wide range of disciplines (Filho 2000). As quoted by Heeren et al. (2016) "Sustainability is an approach to managing the environment that spans multiple disciplines and paradigms". Pro-environmental behaviours towards sustainability cover a large range of topics, including developing economically/socially without detriment to the environment, being socially just, ethically responsible, morally fair, and economically sound whereby environmental goals are on par with economic ones (Filho 2000; Moore 2005).

One of the biggest issues facing sustainability in higher education is transforming it from an abstract idea to real world implementation (Velazquez, Munguia & Sanchez 2005). Much of the literature is from the specialism of psychology and behaviour which aims to identify sociological triggers behind discrepancies between reason and action. Psychological studies of pro-environmental behaviours include environmental attachment, attitudes and behavioural intentions. Some studies aim to predict how people will behave towards the environment due to differing social factors which can be explained by the theories of reasoned action and planned behaviour (Fang et al. 2016; Coelho et al. 2017; Pavalache-Ilie 2017).

Given the high number of papers returned by the search engine, the most relevant papers to pro-environmental behaviours at BU were selected covering topics such as social influences and workplace behaviours. Topics like tourism and consumerism in pro-environmental behaviours, among other sectors were not included (Blok et al. 2015; Fabi et al. 2017; Paillé et al. 2016; Lo, Peters & Kok 2012; Pothitou, Hanna & Chalvatzis 2016).

## **Barriers to being more pro-environmentally aware**

Bellou, Petreniti & Skanavis (2017) found that lack of knowledge, interest and environmental policies were perceived to be the most significant barriers to implement a sustainability strategy at the University of the Aegean in Greece. However, more psychological studies, such as that Kollmuss and Agyeman (2002) summarize that only a small amount of pro-environmental behaviours can be directly attributed to environmental knowledge or awareness. Lack of knowledge is not necessarily directly able to predict environmental behaviours, and Heeren et al. (2016) concludes that to address sustainable behavioural habits it would be better to focus on behavioural barriers than education about sustainability. However, it is acknowledged that a list of recommendations must be set within a scene of competition and tight budgets (Moore 2005). But how can the sustainability agenda becomes a priority in the face of funding cuts and a profits driven agenda? Fry and Slocum (2008) argue that there is a need for a constantly evolving leadership model that will deal with the stresses on the environment without sacrificing profits. Pro-environmental behaviours are sometimes argued to be in conflict with management ideals because of immediate cost benefit analyses against long term benefits (Ruepert, Keizer & Steg 2017).

Summarised below are Filho's (2000) main conclusions around the misconceptions and barriers to sustainability at university level:

- Importance of sustainability to the interviewee
- Sustainability is too abstract
- Sustainability is too broad
- We have no personnel to look after it

- The resources needed do not justify it (whether talking about economic savings or environmental)
- The theme has no scientific basis.

Furthermore, Table 1 below illustrates some further barriers that are relevant to BU highlighted by research from Velazquez, Munguia & Sanchez (2005).

Table 1: Barriers identified by Velazquez, Mungia & Sanchez (2005) that are relevant to BU.

**Organisational structure of the university**

(decentralised management, compartmentalised science)

**Lack of funding**

(therefore not a priority)

**Lack of rigorous regulation**

(for example on pollution)

**Lack of interdisciplinary research**

**Lack of data access**

(e.g. departmental meter readings for goal setting)

**Lack of time**

(implementers often academics with no time, or students who do not have requirements to be a leader)

**Lack of sustainability training**

**Lack of opportune communication and information**

**Lack of policies to promote sustainability on campus**

(back to  
decentralised  
communication)

### **Profits mentality**

(educational institutions like for-profit business and any changes are through a cost-benefit analysis)

**Resistance to change** (changing methods)

**Lack of standard definition of concepts**

## **Methods of communicating the sustainability agenda and pro-environmental behaviours**

Sustainability education, or education for sustainable development (ESD) is based around embedding sustainability education with the curriculum (Holmberg et al. 2008; Barth and Rieckmann 2012; Zsóka et al. 2013). Sustainable education is important for students as they will take it to the wider world, but staff may be more important because of the lower turnover of staff than student means that education for the staff can make an impact on higher education for longer, and be consequently passed on to students each year.

In terms of education, Moore (2005) describes seven methods for creating sustainability education; infuse sustainability in all decisions, promote and practice collaboration, promote and practice transdisciplinary, focus of social and personal sustainability, integration of planning/decision making/evaluation, integration of research/teaching, create space for pedagogical transformation.

Mtutu and Thondhlana (2016) describe the case study of Rhodes

University (South Africa), a university with similar staff numbers to BU, which took sustainability from an abstracted idea to actual implementation in the sector of energy use and recycling. The case study focused on positive reinforcement practices including energy, water and stationery reduction, recycling paper and other products and efficient use of office equipment. Success was measured by a questionnaire divided in three sections; demographics, self-reported energy use, and behaviour towards recycling. The questionnaire respondents were presented with a list of energy conservation strategies and asked to report how often they participated in these (Mtutu and Thondhlana 2016). However, the study presents some shortcomings. There may be issues of self-reporting differing from actual actions and a potential for a yes-saying bias as this may be seen as socially desirable (social desirability bias).

## **Pro-environmental behaviours in the workplace and universities**

Research into pro-environmental behaviours is of particular significance to universities looking to green further (Blok et al. 2015) and who have signed the SDG Accord (EAUC 2018). So how can previous research around pro-environmental behaviours be translated into the workplace, and more specifically to a university institution with so much knowledge and expertise to offer? An interesting question is raised by Ruepert, Keizer & Steg (2017): "to what extent are people focussed on benefitting the environment and therefore translate to pro-environmental behaviours?" Ruepert, Keizer & Steg (2017) found a link between how strongly staff's



biospheric values are, and their pro–environmental behaviours. It was also seen to have a positive influence when staff believed their organisation had achievable environmental protection ambitions (Ruepert, Keizer & Steg 2017).

Paillé et al. (2016) study pro–environmental behaviours at work and how co–worker exchanges can play a role. This may have a link to how researchers and professional staff at BU mix and exchange, and vary between different groups, such as faculties. Further Gifford and Nilsson's (2014) point that there may be differences in pro–environmental behaviours between rural and urban areas. This study is relevant to BU as the university is situated in an urban area, but surrounded by rural land. Another study in 2014 that is particularly relevant to BU is by Blok et al. (2015) which investigated pro–environmental behaviours in the university workplace. Blok et al. (2015) uses self–reported questionnaires such as behavioural traits "for example 'Never always' when asked statements such as "I always buy bio food if it is on offer in canteen, when I purchase goods I pay attention to sustainability" etc. Blok et al. (2015) identify factors that could be used to predict pro–environmental behaviours in the workplace. These are grouped as internal (values, norms, awareness) or external factors (situational, leadership). The research is undertaken in a green university in the Netherlands and factors such as leadership support and exemplary pro–environmental behaviours from managerial positions are showed to be crucial with significant impact on employee's environmental behaviours.

## **Part one – BU questionnaire**

A questionnaire style survey was designed to obtain a quantified

dataset to compare across faculties. This analysed two aspects: habits of pro-environmental behaviours by staff and the most important barriers to further participation and engagement. The main areas that the Green Impact scheme aims to address are: travel, energy, water, waste & recycling, procurement, communication and health & wellbeing (Figure 1). Therefore it was decided to use these areas as the foundations for the questionnaire.

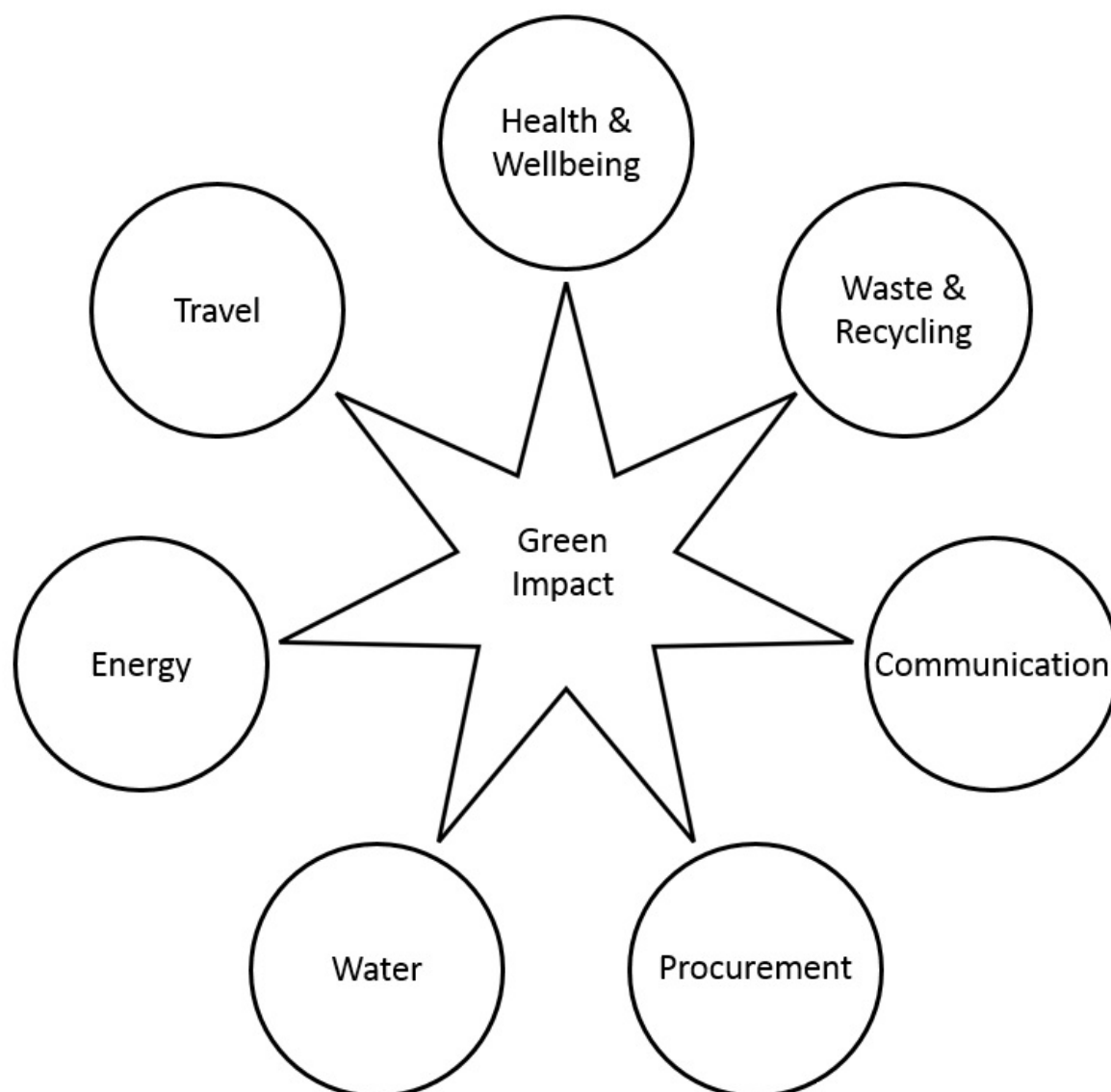


Figure 1: Main focus areas of the Green Impact scheme used as basis for the questionnaire.

The questionnaire questions are shown in Table 2. Staff were invited to fill the questionnaire by posting a blog on the university centre for excellence in learning webpage, and by using internal emailing lists and contacts of the authors of this paper. The questionnaire was structured in three sections; (i) demographics to ensure a representative sample, (ii) a self-reported measure of habits, (iii) barriers to engagement.

Participants were asked to score their behavioural habits according to the frequency of seven activities from 'always', 'usually', 'sometimes' to 'never'. A total score was calculated, with 'always' scoring 1 and 'never' scoring 4. The lowest score possible was therefore 14 (always do all positive behaviours). Scores were compared using an ANOVA analysis due to the categorical nature of the data. The main barriers to pro-environmental behaviours were collected as ordinal data, asking the participant which of the eight factors they believe was the most important barrier to them. 1st was the most important, and 8th was the least, which was also compared by faculty.

Table 2: Questionnaire employed in this study.

### Questionnaire

- 1 **What is your age?**  
(16–24, 25–34, 35–44, 45–54, 55+, prefer not to say)
- 2 **What is your gender?**  
(Male, Female, Other, Prefer not to say)
- 3 **Which faculty do you belong to?**  
(Health & Social Sciences, Management, Media & Communication, Science & Technology,

*Professional Services, Other)*

**Which Department do you belong to?**

*(Archaeology, Anthropology & Forensic Science, Computing & Informatics, Creative Technology, Design & Engineering, Life & Environmental Sciences, Psychology, Nursing & Clinical Sciences, Human Sciences & Public Health, Social Sciences & Social Work, Bournemouth University Business School, Events & Leisure, Sport and Physical Activity, Tourism & Hospitality, Corporate Marketing & Communications, Media Production, Journalism, English & Communication, National Centre for Computer Animation, Law, Professional Services, Other)*

4

**How often do you do the following?**

*Restart computer when finished work  
Switch off all lights when leaving a room  
Travel sustainably to work (walk, bike, train, bus)  
Use a reusable water bottle  
Report it to the sustainability team if you see a dripping tap*

5

*Print pages 2 sided  
Correctly sort your office waste for recycling  
When ordering food (e.g. for meetings) ask for three of the following; locally produced, seasonal, Fairtrade, organic, fish, MSC certified, free-range eggs/meat, vegetarian  
Consider the environmental implications when making supplies orders*

*Participate in green events around campus (e.g. Green Week, Fairtrade campaign)*

*Include sustainability themes in teaching and professional work*

*Use the BU Walking User Group or SportBU staff only classes*

*Take regular breaks during work*

6 **Have you heard of the NUS Green Impact Scheme?**

*(Yes/No)*

7 **If 'yes', and not already participating would you like to get involved? (Yes/No)**

8 **Please rank by importance the main barriers to you participating in more environmental or sustainability initiatives at work (1<sup>st</sup> as most important)**

*(1–8)*

8 *Lack of time, lack of funding, I'm not sure how to get involved or what options there are, it isn't a priority, lack of organisational support, confused around what 'sustainability' means, lack of incentives, communication problems*

9 **Are there any other barriers to participating in environmental or sustainability initiatives you have that are not mentioned above? If yes, please specify.**

10 **Do you have any suggestions of ways to green**

**your faculty or department which you would like to be taken forward or need help to strategically set up yourself? If yes, please specify.**

## **Part two – Interview with staff at the University of Sheffield**

Part two was a semi-structured interview with the Sustainability Projects Assistant (D. Pilichou) at the University of Sheffield who has been championing the Green Impact scheme over several years. The purpose of the interview was to explore solutions to better engage staff at BU. An interview was chosen to be able to gain an in depth exploration into a university that has successfully engaged staff, with 53 teams enrolled in Green Impact at its height, representing around 70% of the departments (D. Pilichou, personal comm., April 2017).

The advantages to using an interview style method is being able to explore ideas and share knowledge about engagement in great depth, but the drawbacks of this method are that it is difficult to gain the views of several people.

## **Part one – BU questionnaire**

The total number of respondents was 56 for all faculties. The faculties tested were; science & technology (21), professional services (18), management (3), media & communications (6), health & social sciences (1), other (7).

The most respondents came from ages 25–34, and 35–44 (Figure 2), and there was a higher response from females than males (Figure 3).

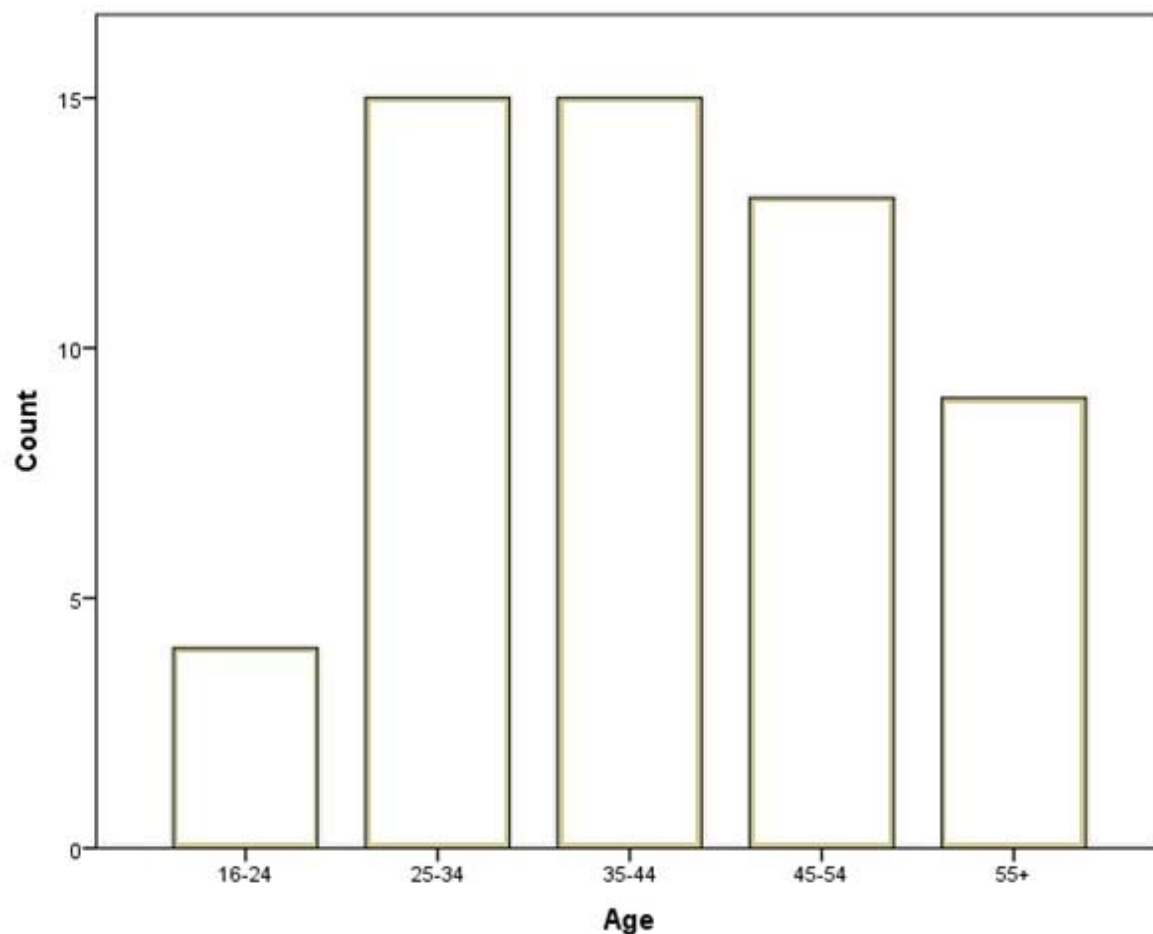


Figure 2: Respondent ages in this study questionnaire.

Figure 3: Respondent gender split in this study questionnaire.

Pro-environmental behaviours scores were analysed through an ANOVA test using the IBM SPSS Statistics 19 software. The total behaviour score was derived from Question 5 with a perfect score of 14 (Always do all of the sustainable behaviours), and the worst score of 56 (Never do any of the sustainable behaviours), with  $df = 5$  and an 'f' value of 1.719. The null hypothesis was "There is no significant difference in score of pro-environmental behaviours between the different faculties". The significance value was 0.147, which is more than the significance level of 0.05; therefore the null hypothesis was accepted at the 95% confidence level and it was concluded that there was no significant difference between the faculties in the dataset (Figure 4).

Figure 4: Boxplot of pro-environmental behaviour scores amongst different faculties at BU (science & technology, professional services, management, media & communications, health & social sciences and other faculties).

Table 3 below shows the results of the most important barriers to staff pro-environmental behaviours (1<sup>st</sup> as most important barrier). Summarized are the most, second and third most important factors with the numbers showing how many times it was chosen.

Table 3: Main self-perceived barriers to pro-environmental behaviour by staff at BU, highlighted in bold are the first to third most highly reported barriers, time, funding and organizational issues respectively.

Faculty	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
Time	<b>28</b>	8	4
Funding	2	<b>12</b>	3
Not sure options /how	3	9	8
Not a priority	6	5	5
Organizational issues	7	4	<b>10</b>
Confused about sustainability	0	3	6
Lack of incentives	1	3	9
Communication issues	5	7	7

## Part two – Interview with staff at the University Sheffield



The University of Sheffield was used for this study as an example of a university who has successfully engaged staff with the Green Impact programme. The university had 250 people engaged with the Green Impact programme during the academic year (2016–2017), its height since the programme was introduced in 2009. The university has also successfully adapted the Green Impact programme for teams that have already achieved a gold award, encouraging them to take on independent projects. Examples include: producing a sustainability video for new university staff inductions, and campaigning the local council to stop removing trees for urban development. The main findings from the semi-structured interviews are as follows.

### **Green Impact successes at the University of Sheffield**

The Green Impact awards ceremony was highlighted as one of the strengths of the programme at Sheffield. Being held in the most prestigious building in the university, the ceremony has given the programme a significant status and the ceremony is supported by the executive team of the university. The Vice Chancellor attends the awards ceremony, which demonstrates top-down support for the Green Impact programme. Furthermore, the event is held at lunchtime, as this was deemed most suitable for Green Impact staff. Utilising lunchtimes has been a positive step towards engaging people at Sheffield, as this timing does not extend beyond regular working hours. By having meetings and the awards during lunch hour, coupled with advertising free food has seemed to attract more staff interest in the Green Impact.

Another positive aspect seen at Sheffield is how the Green Impact is advertised. Professional newsletters are sent through email

correspondence, which make staff pay more attention to Green Impact updates. The teams taking part in the award have also been engaging extra teams via a mentoring scheme. Part of completing the highest standard of the Green Impact programme is mentoring another team, action that has been successful in promoting the programme to others.

For teams wishing to extend beyond the gold award, there is an independent excellence award, where staff showcase their talent by taking on an independent project. This is an important step for Sheffield as the recent drop in numbers of teams can be explained by the lack of staff motivation after completing the highest level of award. Examples of independent projects include: creating the Sheffield Green Impact website and a mentoring toolkit to help newer teams.

Another success at Sheffield for the Green Impact is having a shared internal emailing list about the Green Impact. This email list is for teams to troubleshoot questions on completing tasks in the award, between teams and also other departments. An advantage of this is that teams who have participated in the award for longer can share advice and knowledge with newer teams, or merely this can act as a platform to exchange ideas. Another benefit to this is that by having a community to troubleshoot questions with, it has relieved the pressure on the university sustainability team to respond to all queries related to the Green Impact award. Furthermore, there is more of a Green Impact 'community' as opposed to satellite departments completing the award on their own. Staffs who are only interested in the award may also be added to the email list, even if not yet part of a team, with the hope that they will participate in the future.

## • **Barriers to further engagement**

One of the main problems with continued engagement at Sheffield has been people starting the Green Impact scheme but not completing all of the activities to get an award. Some staff have reported that their workload has been difficult to balance alongside completing the tasks and this may explain some of the initial interest in the award but not completion. There has also been more engagement with non-academic than academic staff. Currently there is only one team with an academic team leader. The university sustainability team would like to incorporate more academic staff as many have expertise in sustainability that could be shared and explored.

Some smaller issues were raised. This includes a cycle hire scheme between campuses and in the town implemented by the University of Sheffield, which has been difficult to engage people with as the area is very hilly. Also, organisational issues were raised related to the difficulties of allocating money for sustainability between 100 departments.

Engaging students in the university Green Impact programme has been positive, but it has proven more successful to have students acting as auditors to staff teams than as assistants. Students are generally not able to contact staff and complete actions in the same way as members of staff are able to.

## **How do pro-environmental behaviours vary between faculties?**

The results of the survey showed that there was no significant difference in the pro-environmental behaviours between faculties at

BU. This was surprising; a lower score in those faculties where staff are participating to the Green Impact programme, compared to those faculties where staff are not, was expected. However, the current study presents two main issues that should be borne in mind when interpreting the results obtained: (i) the small number of questionnaire responses (56); (ii) the self-reported nature of the questionnaire and a 'yes-tendency' to answer positively toward questions about daily habits, especially those related to pro-environmental behaviours (Mtutu and Thondhlana 2016). There were only three responses from the faculty of management and one from health and social sciences, so our dataset does not match with that of the wider staff composition at BU. In addition, we were only able to offer a small prize draw to participants going towards supporting a Verified Carbon Standard (2017) project, and it is possible that only staff already engaging with sustainability would have been willing to spend the time filling the questionnaire.

Responses from the questionnaire highlight that some staff were unsure on what the university guidance was in regards to some of the pro-environmental behaviours asked in question 5. For example, the questionnaire followed BU policy of not turning off computers at night, but restarting them so that updates can be installed and this was not clear to the respondents. Furthermore, there were larger institutional barriers raised related for example to ordering food for meetings. It was reported that it is simply not possible to request some specific things (see question 5). A solution to this would be, when making decisions such as food ordering, to consider the companies that interact with BU. Interaction with outside companies can have positive outcomes.

## **What are the main perceived barriers to further**

## **involvement and engagement with environmental initiatives at BU?**

The results showed that time, funding and lack of organisational support are the biggest barriers that hinder staff participation in environmental and sustainable initiatives at BU today. This is consistent with findings from the literature review (Velazquez, Munguia & Sanchez 2005).

### **Time**

Firstly, it is important to consider time, as it is reported as the primary barrier to further involvement at BU. The interview with the sustainability projects assistant at the University of Sheffield also showed that time is a reported challenge. There are high demands on both academic and non-academic staff to meet deadlines for their work, as well as participate in sustainability initiatives, such as, the Green Impact. It is suggested that by having a mix of both non-academic and academic staff, teams may be able to better share the workload. In turn, this may reduce the dropout rate after the initial interest, and encourage more teams to participate. This will also enable the combination of professional practice and sustainability research expertise to complement each other. Another solution could be incorporating participation to the Green Impact into staff workload.

### **Funding**

To facilitate the use of green initiatives adequate funding need to be in place. The University of Sheffield has found that even though funding may be available, organisational procedures may slow

down the process. For funding at BU, it would be particularly interesting to ask respondents what they need funded for and why this is the second biggest barrier to further participation. Inadequate funding for sustainability projects can undermine achievements of goals, or halt projects altogether (Velazquez, Munguia & Sanchez 2005), highlighting the importance of receiving the right amount of funding, on time. In 2016/2017 NUS Green Impact launched a call for funding, where micro grants up to £200 were made available (NUS (b) 2017). NUS hopes to bring the micro grant scheme back, so this is a positive step. However, the scheme is still closed for 2017/2018. BU funding should also be made available to promote staff behavioural changes. Indeed if more funding had been available for this project, it is likely that our questionnaire would have attracted a wider pool of staff.

### **Lack of organisational support**

Organisation as an umbrella term holds within it a broad spectrum of barriers. For example the organisation of funding and the organisation of top down management of the university are two separate issues, each with their own individual solutions. To increase clarity of the term 'organisation' respondents of the questionnaire should be further questioned on how this affects their participation and what exactly can be improved.

It has been highlighted by the questionnaire that environmental policies are not always easy to understand and have little clarity. For example, respondents thought that the information to turn computers off, but to also to restart when leaving the office was confusing. Mixed messages about sustainability may affect pro-environmental behaviours, or lack of organisational willingness to

be proactive. Having a clear policy and exchanging knowledge should be a strategy to increase environmentally friendly behaviours (Bellou, Petreniti & Skanavis 2017). The interview with the sustainability projects assistant at the University of Sheffield highlighted that a simple initiative such as a Green Impact emailing list had improved communication throughout separate departments. If organisation support is optimised, the successes of the Green Impact teams can be replicated and be transferred to new teams to facilitate behavioural change.

## **What are the main opportunities to promote further engagement with environmental initiatives?**

Addressing the barriers of time, funding and organisational issues will be crucial to promote further engagement of staff with environmental initiatives such as the Green Impact programme and the wider SDGs agenda. Recommendations might include:

- Incorporating Green Impact participation into staff workloads
- Create a funding stream to which Green Impact participants can apply for
- Enhanced sharing of information via for example a Green Impact mailing list
- Holding all sustainability meetings at lunchtime and providing free food
- Increased top down support from the university executive team at BU and ensuring that the Green Impact is a prestigious award, which further promotes the good recognition it already receives.

This study explored pro-environmental behaviours at BU across

faculties and identified barriers and possible solutions to further staff participation to environmental initiatives like the Green Impact programme. Results from a staff survey demonstrated that there was no significant difference in behaviours between faculties where staff participated to the Green Impact programme and faculties where staff did not. However, results should be used with caution, given that we were only able to offer a small incentive to fill the survey which limited the number respondents, and a possible 'yes-bias' in self-reporting pro-environmental habits. Respondents to the survey highlighted that time, funding and lack of organisational support were the main barriers limiting their participations to environmental initiatives at BU. A semi-structured interview with staff at the University of Sheffield where the Green Impact programme has achieved a much larger uptake, suggested that in addition to directly addressing the barriers reported, possible solutions could include: the sharing of workloads and knowledge between staff and an increase in the prestige of the programme.

Further research should aim to obtain a higher number of respondents representing each department and to conduct more in-depth interviews to pinpoint the exact issues staff are facing and what can be changed with regards to time, funding and organisational issues. Following on from this, it would be interesting to explore what specific organisational issues are preventing engagement. It would also be advantageous to carry out similar research with other universities in the UK and abroad to explore more opportunities to solve these challenges with the aim to increase Green Impact participation and ultimately staff engagement in achieving the Sustainable Development Goals

I would like to thank the sustainability team at BU for being so



helpful and inspiring to make BU a better place, and also D. Pilichou for sharing her experiences at the University of Sheffield.

## Ethics

The research followed the BU Research Ethics Code of Practice: Policy and Procedure (Bournemouth University 2018), for which an online ethics checklist was completed and approved by the supervisor. As there were no ethical concerns raised so it was not necessary for the study to be approved by the Research Ethics Panel.

## Funding

This research was funded by Bournemouth University via the undergraduate Student Research Assistant scheme.

**Barth, M. and Rieckmann, M.** (2012) Academic staff development as a catalyst for curriculum change towards education for sustainable development: An output perspective . *Journal of Cleaner Production*, 26, 28–36.

**Bellou, C, Petreniti, V. Skanavis, C.** (2017) Greening the campus intentions: a study of the University of the Aegean non-academic staff. *International Journal of Sustainability in Higher Education*, 18(4), 520–532.

**Blok, V., Wesselink, R., Studynka, O. and Kemp, R.** (2015) Encouraging sustainability in the workplace: a survey on the pro-environmental behaviour of university employees. *Journal of cleaner production*, 106, pp.55–67.

**Bournemouth University** (2017) *Protecting the environment – sustainability*, 2017. Available at URL

<https://www1.bournemouth.ac.uk/about/sustainability> [Last accessed 25th November 2017].

**Bournemouth University** (2018). Review Process – Undergraduate and Postgraduate Taught. Available at URL <http://blogs.bournemouth.ac.uk/research/review-process-undergraduate-and-postgraduate-taught/> [Last accessed 25<sup>th</sup> January 2018].

**Coelho, F., Pereira, M.C., Cruz, L., Simões, P. and Barata, E.** (2017) Affect and the adoption of pro-environmental behaviour: A structural model. *Journal of Environmental Psychology*, 54, 127–138.

**EAUC** (2018) The SDG Accord. The University and College Sector's Collective Response to the Sustainable Development Goals. Available at URL [www.sdgaccord.org/](http://www.sdgaccord.org/) [Last accessed 16<sup>th</sup> January 2018]

**Fang, S. C., Yu, T. K., Yu, T. Y. and Chang, I. C.** (2016) Psychological distance and pro-environmental behavior: An application of behavior model to emerging contaminants in higher education. *Journal of Baltic Science Education*, 15 (6), 759–775.

**Fabi, V., Di Nicoli, M.V., Spigliantini, G. and Corgnati, S.P.** (2017) Insights on pro-environmental behaviour towards post-carbon society. *Energy Procedia*, 134, pp.462–469.

**Fry, L. W., & Slocum, J. W., Jr.** (2008) Maximizing the triple bottom line through spiritual leadership. *Organizational Dynamics*, 37, 86–96.

**Filho, W.** (2000) Dealing with misconceptions on the concept of sustainability. *International Journal of Sustainability in Higher*

*Education*, 1 (1), 9–19.

**Gifford, R. and Nilsson, A.** (2014) Personal and social factors that influence pro-environmental concern and behaviour: A review.

*International Journal of Psychology*, 49(3), pp.141–157.

**Heeren, A. J., Singh, A. S., Zwickle, A., Koontz, T. M., Slagle, K. M. and McCreery, A. C.** (2016) Is sustainability knowledge half the battle?: An examination of sustainability knowledge, attitudes, norms, and efficacy to understand sustainable behaviours.

*International Journal of Sustainability in Higher Education*, 17 (5), 613–632.

**Holmberg, J., Svanström, M., Peet, D. J., Mulder, K., Ferrer-Balas, D. and Segalàs, J.** (2008) Embedding sustainability in higher education through interaction with lecturers: Case studies from three European technical universities. *European Journal of Engineering Education*, 33 (3), 271–282.

**Kollmuss, A. and Agyeman, J.** (2002) Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental education research*, 8 (3), 239–260.

**Lo, S.-H., Peters, G.-J. Y., & Kok, G.** (2012) A review of determinants of and interventions for pro environmental Corporate Greening, Exchange Process Among Co-workers, and Ethics of Care behaviours in organizations. *Journal of Applied Social Psychology*, 42(12), 2933–2967.

**Moore, J.** (2005) Seven recommendations for creating sustainability education at the university level: A guide for change agents. *International Journal of Sustainability in Higher Education*, 6 (4), 326–339.

**Mtutu, P. and Thondhlana, G.** 2016. Encouraging pro-environmental behaviour: Energy use and recycling at Rhodes University, South Africa. *Habitat International*, 53, 142–150.

**NUS (a)** (2017) *NUS Green Impact*, 2017. Available at URL <https://sustainability.nus.org.uk/green-impact> [Accessed 20th November 2017].

**NUS (b)** (2017) *NUS Green Impact Micro Grants*, 2017. Available at URL <https://sustainability.nus.org.uk/green-impact/programmes/students-unions/gi-10-microgrants> [Last accessed 20th November 2017]

**People & Planet.** (2017) *People and Planet University league*, 14<sup>th</sup> November 2017. Available at URL <https://peopleandplanet.org/university-league> [Last accessed 25th November 2017].

**Paillé, P., Mejía-Morelos, J.H., Marché-Paillé, A., Chen, C.C. and Chen, Y.** (2016) Corporate greening, exchange process among co-workers, and ethics of care: An empirical study on the determinants of pro-environmental behaviours at co-workers level. *Journal of Business Ethics*, 136(3), pp.655–673.

**Pavalache-Ilie, M.** (2017) Theoretical perspectives on pro-environmental behaviours. *Transilvania University of Brasov. Series VII, Social Sciences, Law*, 10(1).

**Pothitou, M., Hanna, R.F. and Chalvatzis, K.J.** (2016) Environmental knowledge, pro-environmental behaviour and energy savings in households: An empirical study. *Applied Energy*, 184, 1217–1229.

**Ruepert, A.M., Keizer, K. and Steg, L.** (2017) The relationship between Corporate Environmental Responsibility, employees'

biospheric values and pro-environmental behaviour at work.

*Journal of Environmental Psychology*, 54, 65–78.

**UN General Assembly.** (2015) *Transforming our world: the 2030 Agenda for Sustainable Development*, 21 October 2015, A/RES/70/1 [Online]. Available: <http://www.refworld.org/docid/57b6e3e44.html> [Accessed 23 November 2017].

**Velazquez, L., Munguia, N. and Sanchez, M.** (2005) Deterring sustainability in higher education institutions: An appraisal of the factors which influence sustainability in higher education institutions . *International Journal of Sustainability in Higher Education*, 6 (4), 383–391.

**Verified Carbon Standard** (2017) VCS Standard for a Sustainable World. Available at URL <http://www.v-c-s.org/> [Last accessed 30th November 2017].

**Zsóka, Á., Szerényi, Z. M., Széchy, A. and Kocsis, T.** (2013) Greening due to environmental education? Environmental knowledge, attitudes, consumer behavior and everyday pro-environmental activities of Hungarian high school and university students. *Journal of Cleaner Production*, 48, 128–138.