

Cambridge University, Excellence Award

Team: Lucy Cavendish College, 2022-23

Lab Name: The Living Lab

Lab Director: Dr Chris Macdonald (cm2150)

Experiments: Exploring the efficacy of green nudges

Project title: A Living Lab for Green Nudges

E001 – 11th November

Project Focus:

While some experiments may provide results within hypothetical scenarios and conventional lab environments, they might not be practical or effective when stress-tested by the realities of day-to-day life. A living lab seeks to address such concerns. It starts with a real-world setting, where the explored scenarios unfold, and it makes that the 'lab'. Therefore, researchers can experiment in context, track results, and make adjustments as the projects evolve based upon the behaviour of 'real people' in 'real places'. Accordingly, a living lab is a powerful tool for behavioural scientists to expand on prior theories and develop data-driven practical policies and interventions.

I would like to create a living lab at Lucy Cavendish College to experiment with 'green nudges': small interventions that facilitate sustainable choices. This would fit especially well with my field of expertise, behavioural economics. More specifically, my research explores how practical interventions can facilitate more healthy and sustainable behaviour.

In 2020, the UN released their Book of Green Nudges, which included a list of 40 low or no-cost living lab experiments specifically designed for a university campus. I can use this as a guide. The UN's list includes, for instance, green nudges that help students to cycle more.

A living lab focusing on sustainability would also be in strong alignment with the government's goal of developing a world-leading sustainability education sector by 2030. In particular, a living lab would support the DfE's goal to embed more sustainability projects and learning opportunities into education sites across the UK.

A living lab at Lucy would enable us to build on the positive momentum we have from the Platinum Colleges Award. It would also create a valuable platform to help students gain hands-on research experience, as they would be welcome to participate in the various stages of a living lab project: preliminary research, hypothesis forming, experiment design, experiment execution, data capture, data analysis, evaluation, paper submission, conferences, etc.

In short, initiating a living lab for green nudges would empower us to amplify and accelerate positive change.

E002 – 10th December

Project title:

A Living Lab for Green Nudges

Project plan:

To roll out a series of experiments that explore the efficacy of low-cost/no-cost green nudges.

Four objectives/experiments that I wish to execute:

Explore the efficacy of **1.** Carbon emission values on food menus in the server; **2.** Cow milk vs Oat milk comparison infographic in the café; **3.** Discounts for using re-usable 'to-go' cups; **4.** Email promotion of free bike rentals.

Other experiments may explore using drying racks rather than tumble driers, increasing use of water fountain, vegan meal frequency, recycling.

KPIs

Each experiment will include clear KPIs. For instance, to assess the efficacy of displaying carbon emission values in the server, I can track the food items purchased. I can measure, before, during, and after the intervention. A successful intervention will be one that has increased the explored sustainable behaviour.

Key stakeholders

Need to involve the following key stakeholders in the experiment design phase: Head Chef, Erica Long; Catering and Conference Manager, Catherine Kearsey; Domestic Bursar, Christine Houghton; Head Porters, John Morley & Andy Bell; and College President, Madeleine Atkins. I have already written a paper for council and the College's governing body that provided a broad overview of the project and it was approved.

Time frames

Experiments will be ongoing but will start in January. Initial planning and discussions have been taking place during my fortnightly meetings with the College President.

Expected outcomes

After the project, I hope to have a better understanding of what does and doesn't work with regard to green nudges at a Cambridge College. I hope the projects will promote more sustainable and conscious decision-making at my College and I plan to use the data gathered to help other Colleges should they wish to do the same.

E003 – 4th February

Brief summary of progress

We had originally planned to complete four experiments by the end of April. However, we have added some additional experiments as contingency including some online experiments, one of which has already been completed! Progress is going better than expected as not only was the online experiment completed, the research paper has already been submitted for peer-review. Below is a list of six experiments that we would like to conduct and the dates we have available. We will consider the initiative a success if we are able to complete three of them by the end of April.

Experiment A (Plant-based vs Vegan)

Dec 10 to 20, Jan 20 to Feb 1

Experiment B (Disposable vs Reusable)

Feb 6 to 10, Feb 13 to 17, Feb 20 to 24

Experiment C (increase use of water refill stations)

Feb 20 to 24, Feb/Mar 27 to 3, Mar 6 to 10

Experiment D (Milk vs Oat)

Mar 6 to 10, Mar 13 to 17

Experiment E (Beef vs Plant)

Mar 6 and Mar 13

Experiment F (increase use of College bikes)

March 13 to 17

Progress against each project objective

Experiment design, KPIS, dates, and materials have now been finalised for all objectives:

Objective A Explore the efficacy of vegan food labels, **Objective B** Increase use of re-usable 'to-go' cups, **Objective C** Increase use of water re-refill station, **Objective D** Increase use of low-emission drink consumption, **Objective E** Increase use of low-emission food consumption, **Objective F** Increase use of free bike rentals.

Project difficulties

The primary difficulty is time and staff availability as this is not included in our primary roles at the College. To combat that we have planned well in advance and optimised the experiments where possible. Another key difficulty was finding ways to capture the required data in a manner that facilitated academically rigorous testing. We want to capture hard data and not live self-reported or worse still, reporting from memory. So far we seem to be on top of this as we can capture, for instance, logbook data and till data. However, we will only be confident in our methods after additional rounds of pilot testing.

Stakeholder engagement update

Stakeholder engagement is going well. The College President and senior members of staff continue to show their support. I am meeting every two weeks with the College President. I am also meeting as and when required with key stakeholders such as our Domestic Bursar, Admissions Director, and Development Director.

E004 – 28th April

Project report/summaries

It was decided that we would consider the initiative a success if we are able to complete 3 experiments by the end of April. In the end, we were able to complete 6 experiments!: 2 online, and 4 at College (in the newly established Living Lab).

This far exceeded aims and expectations. And, in addition to uncovering valuable insight into the efficacy of six green nudges, we, more importantly, established systems and an experimental culture that will facilitate greater engagement with sustainability in the future. Therefore, there were significant benefits and a genuine legacy to the programme.

I have also arranged to be involved with talks and panels with other Colleges so that we can share lessons learned in a supportive and intercollegiate manner.

The full summaries with metrics and data analysis are supplied via two supporting documents: **1.** A lab report containing the 4 experiments conducted in the Living Lab, **2.** A research paper containing the 2 experiments conducted online.

I have attached images also.

And I have submitted the lab report and research paper for peer review and publication to further facilitate replication. Also, I am very happy to write any articles for the university website to further help disseminate information and inspire greater engagement with sustainability.