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Using 'Crowd' to research against recycling behaviour

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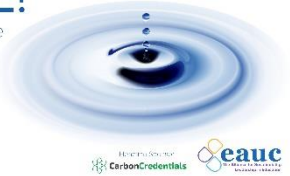
School of Architecture Design and Built Environment
Nottingham Trent University

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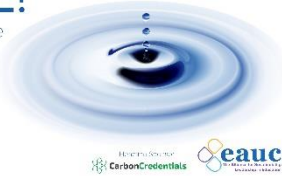
#NTUCrowdResearch

Origin of 'Crowd Research'

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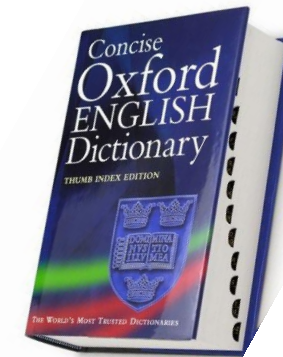
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“Crowdsourcing” is leveraging the power of the many to accomplish challenges that were once the responsibility of a specialised few.

- Jeff Howe (Crowd Sourcing, why the power of the crowd is driving the future of business)

KICKSTARTER



WIKIPEDIA
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Crowd Research?

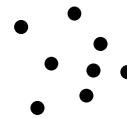
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Research Idea



Data Collection



280 *J. Design Research, Vol. 14, No. 3, 2016*

Design for sustainable behaviour: a case study of using human-power as an everyday energy source

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Abstract: There is an increased focus on research identifying design strategies to influence user behaviour towards more sustainable action, known as design for sustainable behaviour (DFSb). Recent literature in this field has introduced a number of design processes, and developed a model that emerged through consensus. However, not enough case studies are accompanied by those proposed strategies; therefore it is difficult to evaluate their effectiveness. This paper presents findings from a case study of inducing a sustainable behaviour – using human-power to drive everyday energy using products (EuP). It presents the result of applying the strategy to an artefact and evaluation was carried through conducting a product-in-use study. The analysis provides an explanation of how each of the participants copes with the use of a new artefact and account for different types of motivations that have affected their behaviour.

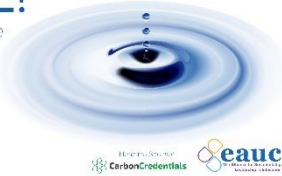
Publish

Crowd Research?

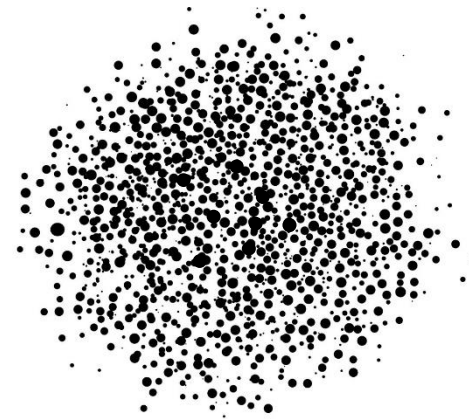
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Research Idea



Data Collection



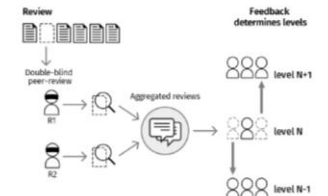
Crowdsourced data collection

Crowd Guilds: Worker-led Reputation and Feedback on Crowdsourcing Platforms

Mark E. Whiting, Dilrukshi Gamage, Snehal Kumar (Neil) S. Gaikwad, Aaron Gilbee, Shirish Goyal, Alipta Ballav, Dinesh Majeti, Nalin Chhibber, Angela Richmond-Fuller, Freddie Vargus, Tejas Seshadri Sarma, Varshini Chandrakanthan, Teogenes Moura, Mohamed Hashim Salih, Gabriel Bayomi Tinoco Kalejaiye, Adam Ginzberg, Catherine A. Mullings, Yoni Dayan, Kristy Milland, Henrique Orefice, Jeff Regino, Sayna Parsi, Kunz Mainali, Vibhor Sehgal, Sekandar Matin, Akshansh Sinha, Rajan Vaish, Michael S. Bernstein
Stanford Crowd Research Collective
daemo@cs.stanford.edu

ABSTRACT

Crowd workers are distributed and decentralized. While decentralization is designed to utilize independent judgment to promote high-quality results, it paradoxically undercuts behaviors and institutions that are critical to high-quality work. Reputation is one central example: crowdsourcing systems depend on reputation scores from decentralized workers and requesters, but these scores are notoriously inflated and uninformative. In this paper, we draw inspiration from historical worker guilds (e.g., in the silk trade) to design and implement *crowd guilds*: centralized groups of crowd workers who collectively certify each other's quality through double-blind peer assessment. A two-week field experiment compared crowd guilds to a traditional decentralized crowd work model. Crowd guilds produced reputation signals more strongly correlated



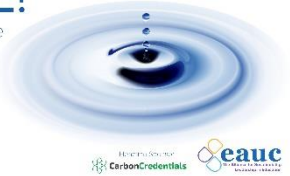
Publish

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Potato Salad

by Zack Danger Brown

[Home](#) [Updates 19](#) [Backers 6,911](#) [Comments 1,080](#)

[Columbus, OH](#) [Food](#)


Funded! This project was successfully funded 2 days ago.



6,911
backers

\$55,492
pledged of \$10 goal

0
seconds to go



Project by
Zack Danger Brown
Columbus, OH

K First created · **6 backed**

f **Zack Brown** 689 friends

Our aim of 'Crowd Research'

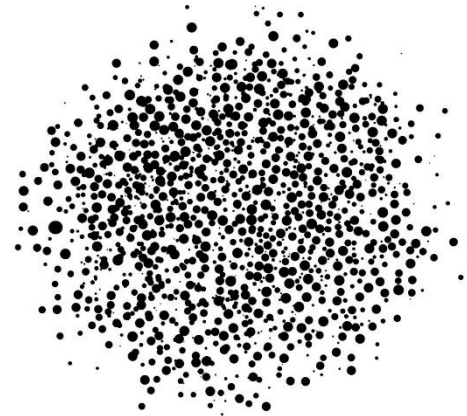
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Crowdsourced data collection



Data Collection



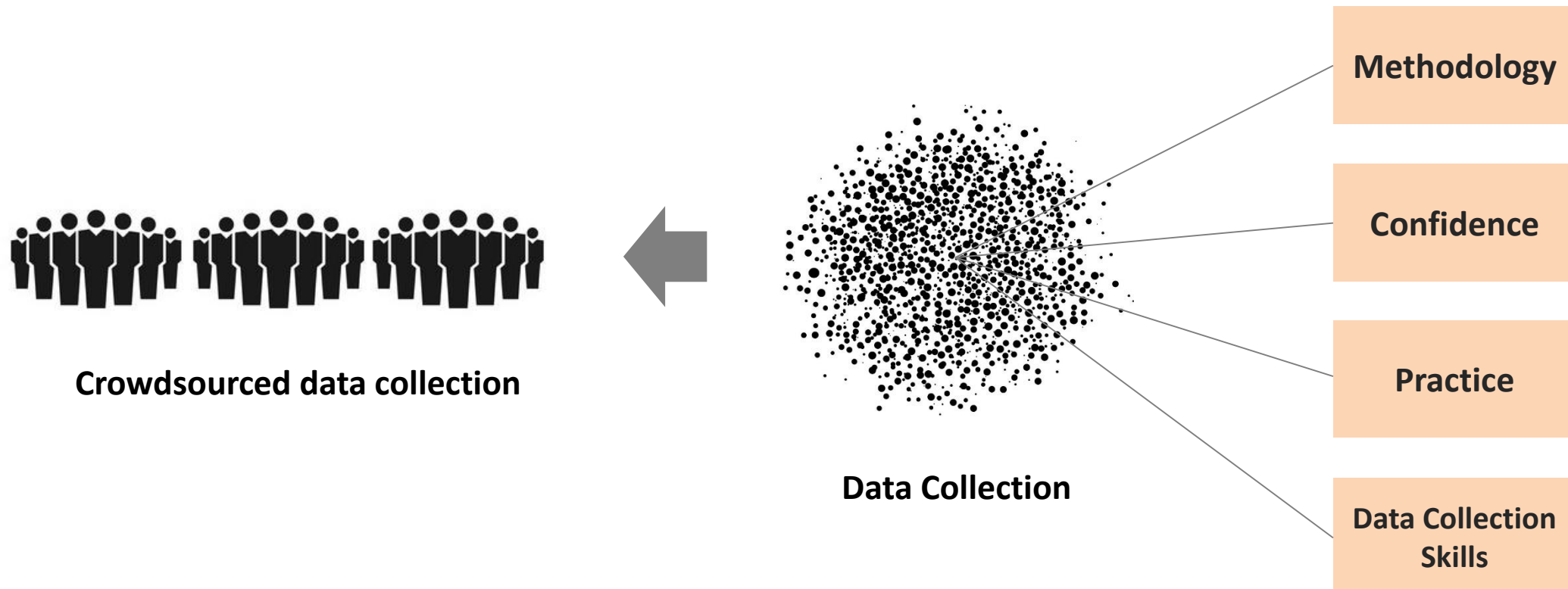
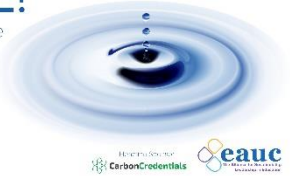
1 Day

Another aim of 'Crowd Research'

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Recycling Behaviour on Campus

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A Topic that can:

- **form a consensus by crowd**
- **allow access to a data collection**

Who were the Crowd?

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42 Students

8 Staffs

2 Specialist

NOTTINGHAM
TRENT UNIVERSITY

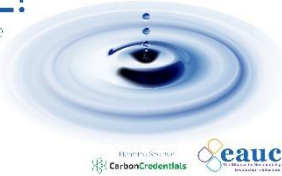
enva

How did we run the Crowd Research?

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8 Predefined Research Questions:

What are the most common items that people recycled wrongly or get confused with?

How can we change people to correctly recycle?

Do students and staff know generally what should go in each bins? If not why?

Food contaminated items (e.g. sandwich box, pizza box), are they recyclable?

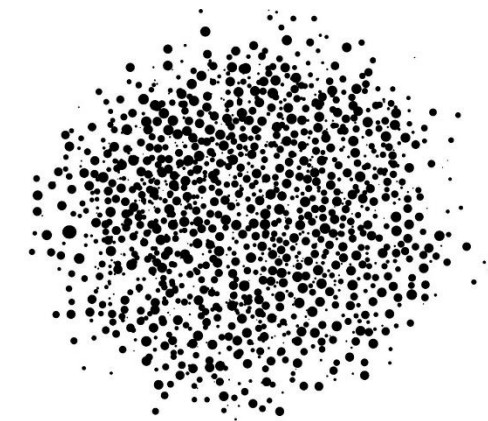
What are public's general perception about incineration?

Incineration vs Recycling vs landfill. What are the barriers to increase recycling.

Does recycling bin working effectively? If yes, why? If no why?

How can we avoid hand towels being placed in the recycling bins?

What are the barriers to correct recycling?



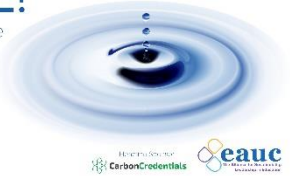
Data Collection

The Scene

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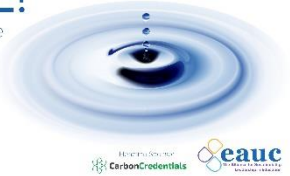


Visualisation of Data

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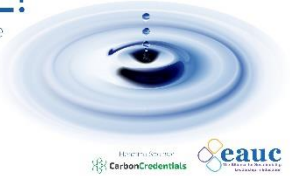


Power of Co-Creation

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Co-Creation:

students work together with tutors in developing content, design, values, and outputs.

students worked within a set brief, but needed to collaborate with each other and tutors to deliver tangible research outputs.

Learning Skills:

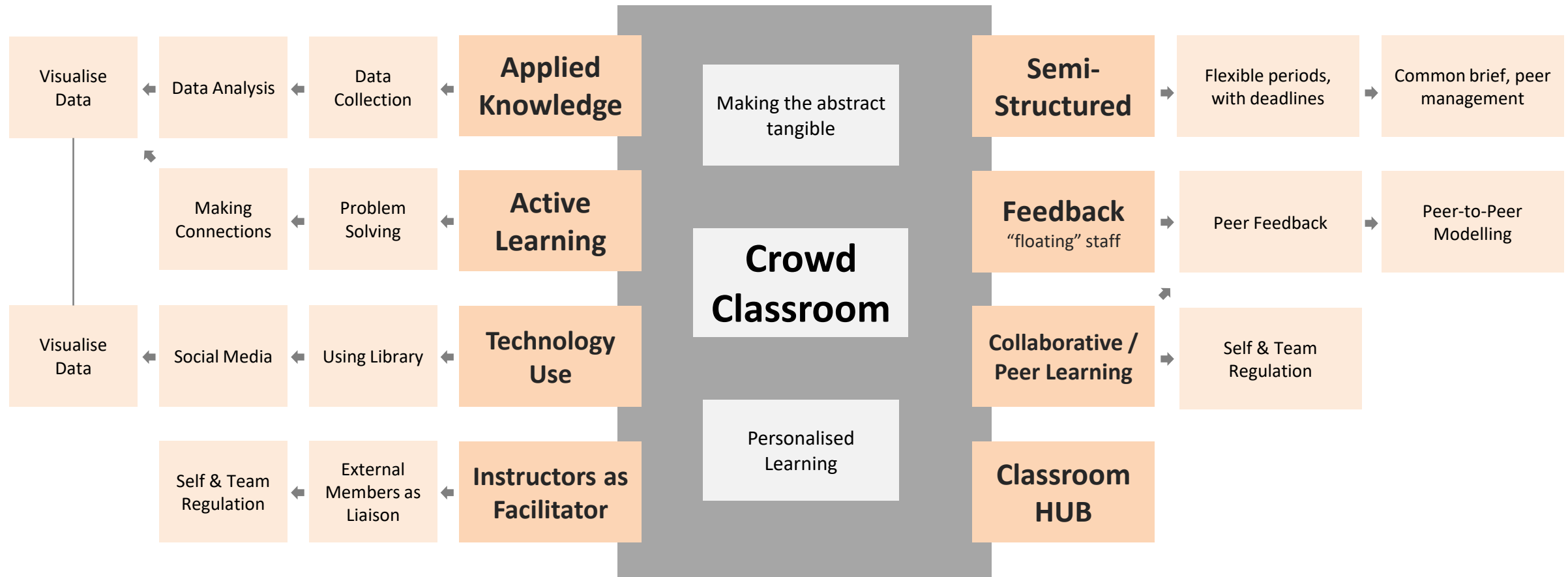
- Collaborative working
- Self-regulation
- Team-work self-regulation
- Time management
- Real time problem solving
- Personalisation of learning experience

Power of Peers: Ensemble Learning

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Variation of Chen *et al* model

Limitations & Pedagogical Concerns

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Unfamiliarity of Crowd research

Can be stressful for students unfamiliar or uncomfortable with group working and/or change to typical teaching methods.

Impromptu

Unlike typical flipped learning methodology, students are not required to prepare anything in advance of the workshop – everyone starts at approximately the same level of understanding.

(in)flexibility

Sense of explorative “play” – Crowd Project uses a semi-structured design, with key deadlines, guidance and schedule, with students given freedom over how they use this time. The rudiments of research are explained, but they need to make discoveries of their own.

Group working skills

No assigned group roles, but all students had to be involved in at least one aspect of the project, be that gathering data, visualising data, making connections etc. Everyone had a job to do, with some need more encouragement/guidance than others.

Clear Aim & Objective

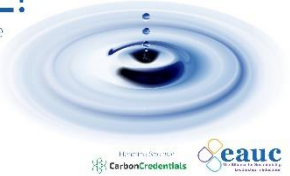
Needed to manage expectations – reasonable chance that parts of the day would not work as planned.

Making Connections (Peers & Research)

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Observations on Learning & Future Impact

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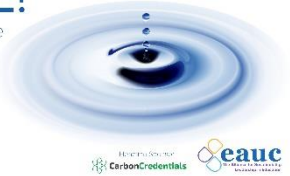
- Experiencing a complete cycle of research
- Potential to be up-scaled
- The “go fetch” active learning approach
- Formative Learning
- Stimuli for finding a dissertation topic

Findings of Crowd Research

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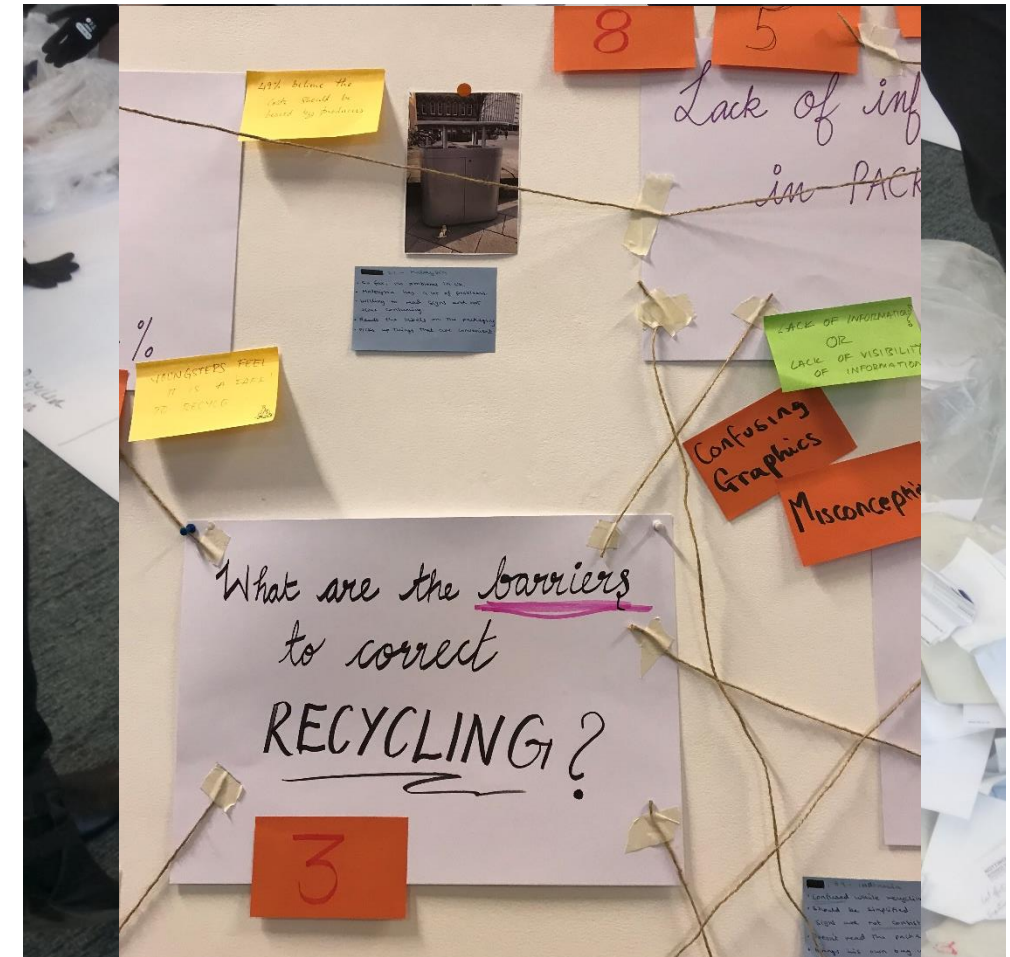
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In Summary:

- Food Contaminated Packaging
- Coffee Cups
- People are confused!!!
- Measuring Incorrect Recycling
- Barriers to Correct Recycling (e.g. attitude, motivation, environment, lack of knowledge and information)
- Etc

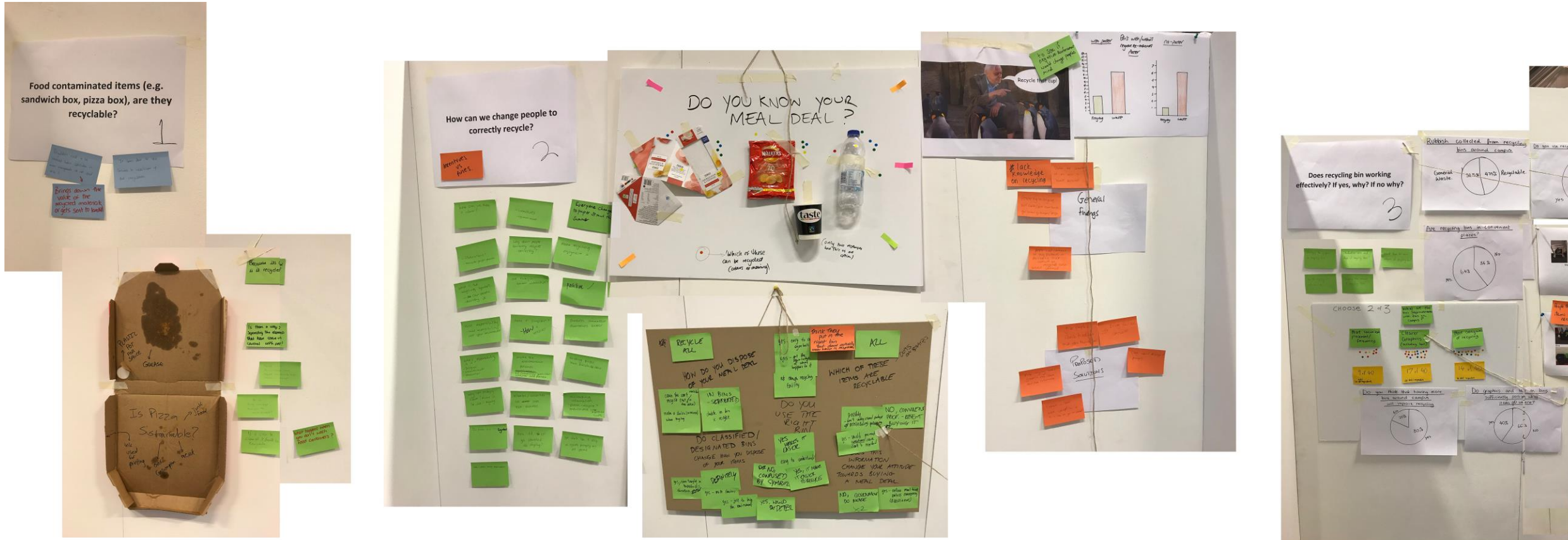
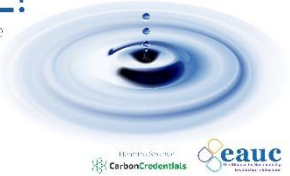


Unsustainability of Crowd Research

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Pros and Cons

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- Never underestimate the power of Crowd
- Topic that Crowd is interested in
- Validity of Data
- Motivation
- Measurable outcome

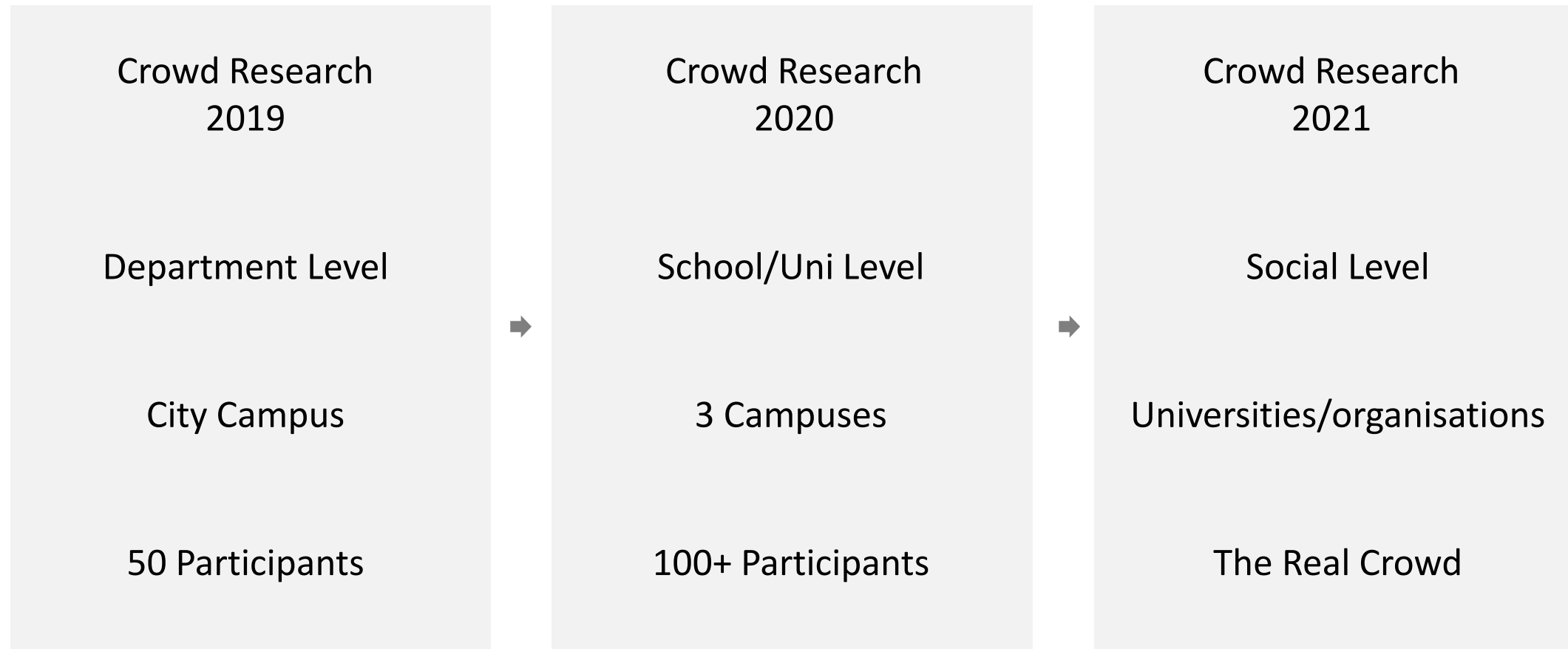


Future of Crowd Research at NTU

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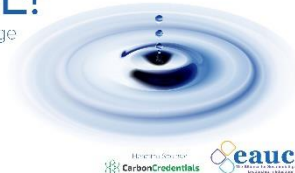
Use Crowd Research against SDG

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The SDG Accord

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End extreme poverty, inequality and climate change
www.sdgaccord.org

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