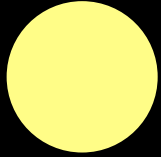


Innovation across the design curriculum: Embedding sustainable design

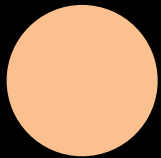


*Presented by,
Drummond Masterton &
Simon Andrews*

**BA (Hons)
Sustainable Product Design
Falmouth University**



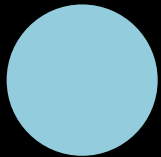
Materials



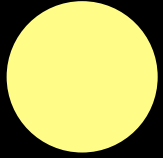
Human Centred Design



Design for non-human species



Working with Industry



Materials

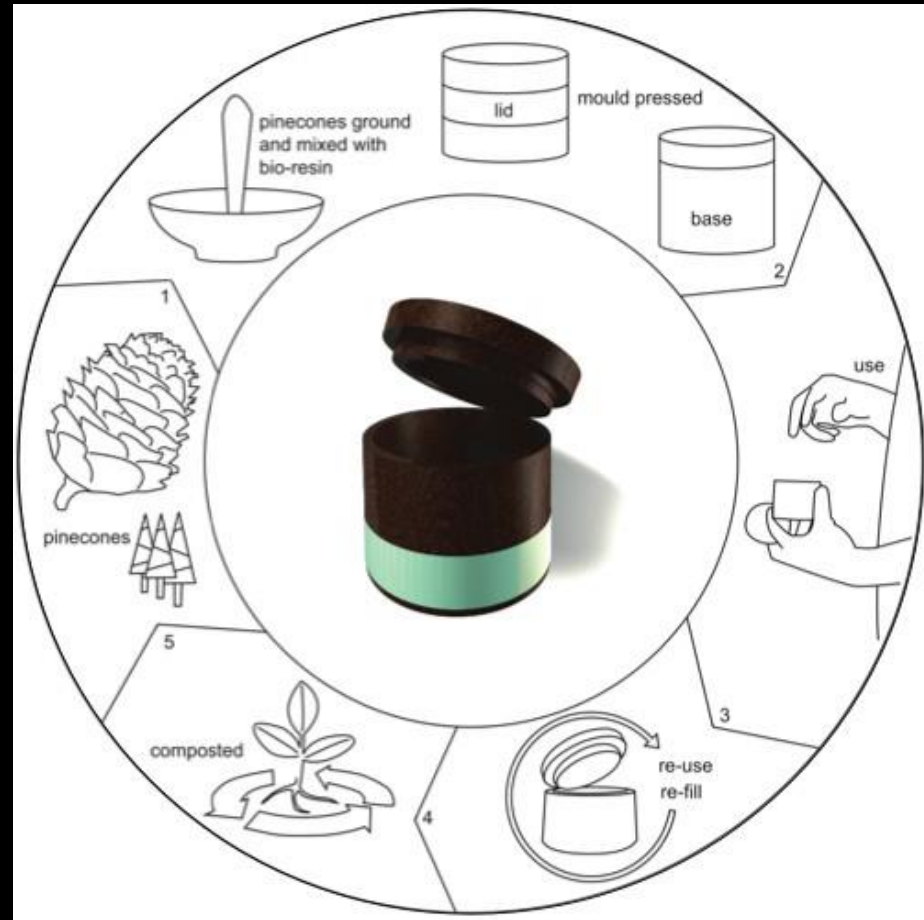
Local sourcing & reclaiming materials

Max Ashford

'Quercus': Upcycled lighting solution

DELIGHT  LIGHT

Biosphere materials, new opportunities



Laurie Hutchinson
**'Conicore': Pinecone Composite
cosmetics container**

eden project

LCA, auditing design concepts



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[Concept overview](#) [System BOM](#) [Results](#)

PowerPill

Description

Solar Powered Device Charger

Impacts per functional unit **0.48** mPts per 5 year of use

Total amount of service delivered during the lifetime of the product 5 x 5 year of use

Impacts of total service delivered 2.4 mPts

Assessment level Estimate

Methodology SM 2013

Greatest impacts

SBOM input	Battery, Lilo, rechargeable, prismatic
Impact category	Ecotoxicity
Life cycle stage	Manufacturing

This concept: [Edit overview](#) [Copy](#)

Declare as: [Final](#)

Created: January 12, 2015

Total impacts by impact category

Impact category	%
Ecological damage	
Acidification	0.87
Ecotoxicity	80.95
Eutrophication	0.32
Global warming	8.43
Ozone depletion	0.35
Resource depletion	
Fossil fuel depletion	2.57
Human health damage	
Carcinogenics	4.77
Non carcinogenics	2.04
Respiratory effects	0.73
Smog	0.57

Sustainable Minds software workshop

Product Longevity and attachment



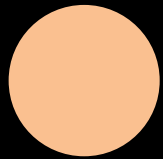
Robert Dooley
**'100': Hundred year Radio,
CNC milled prototype**

Designer Maker, business startups



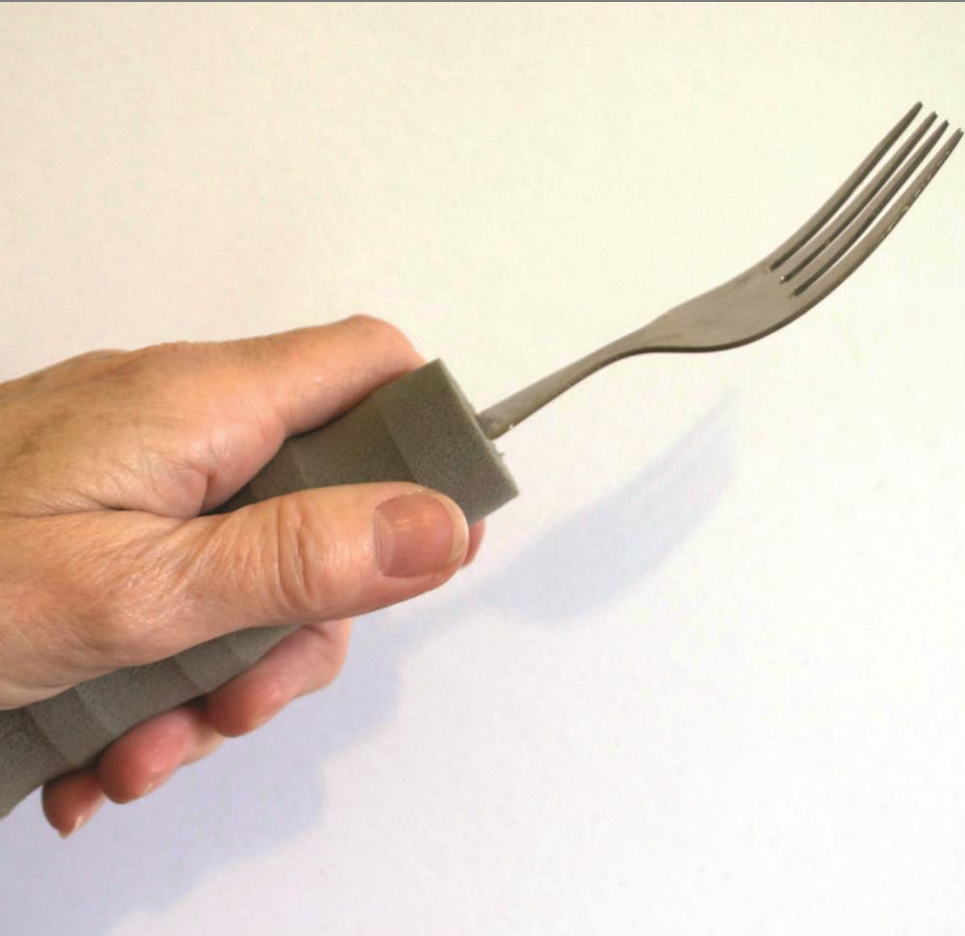
Tom Raffield
Steam bent and local timber products





Human Centred Design

Designing for all



Dexterity issues are most frequently caused by arthritis. “This condition effects approximately 400.000 million people in the UK” arthritis care

Not aesthetically pleasing

“If this cutlery would enter my house I would throw it away. It would go straight in the bin.”

Lucy (suffers from arthritis)

Feel and material

“I find this material uncomfortable to hold.”

Thomas (suffers from arthritis)

Isabel Heubl
‘Intergrale’: Design Probe

Human Centered Design research methods

Focus groups at the Echo Centre in Liskeard



Isabel Heubl

'Intergrale': User testing with clay models

Manufacturing and production

INNOVATION. FUNKTION. ÄSTHETIK.

DAS DESIGN

Die Designerin Isabel Heubl hat Integrale mit großem Einfühlungsvermögen und aufwändigen Studien unter Berücksichtigung der vielfältigsten Aspekte in der Geriatrie entwickelt.

Integrale steht für ästhetisch hochwertiges Design mit integrierter Funktionalität.

DIE ÄSTHETIK

Die elegante, optische Anmutung ist an klassischen Bestecken angelehnt und vermittelt hierdurch Normalität und keinen ausgrenzenden Sonderstatus.

DIE QUALITÄT

Das verwendete Material 18/10 Edelstahl erlaubt eine klassische Optik und führt zu der edlen Haptik von Integrale. Gleichzeitig ist das Besteck durch das hochwertige Material für die Spülmaschine geeignet und zeichnet sich durch seine Langlebigkeit aus.

DIE FUNKTION

Durch die Kugelform des Griffs passt sich die Halteposition des Bestecks an die Bedürfnisse des Nutzers perfekt an.



- 1 Die abgeflachte Oberseite des Messers vereinfacht es, beim Schneiden Druck auszuüben.
- 2 Die leichte Rundung der Klinge erlaubt eine Wiegebewegung beim Schneiden.
- 3 Der schlanke Übergang von Kugel zur Laffe ermöglicht die verschiedensten Haltepositionen.
- 4 Die Handfläche kann die Kugelform geschmeidig umschließen und so in der benötigten Position agieren.
- 5 Durch den erhöhten Griff wird ein einfaches Aufnehmen des Bestecks von flachen Flächen erreicht.
- 6 Die abgeflachte Unterseite der Kugel erleichtert das Ablegen des Bestecks.



Isabel Heubl
'Integrale': Inclusive cutlery design

Empathy Testing



Stage 2 students research workshop



Staff research: Beach Wheelchair

Access to Cornish beaches through inclusive design

A joint product development exercise between Sustainable Design (AIR) and Cornwall Mobility Centre



Simon Andrews, Senior Lecturer



User Testing

- Testing of existing products and prototypes
- Direct observation, film, photography, interview, questionnaire, etc
- User feedback
- Identify opportunities for innovation
- Evaluation of design concepts against the PDS

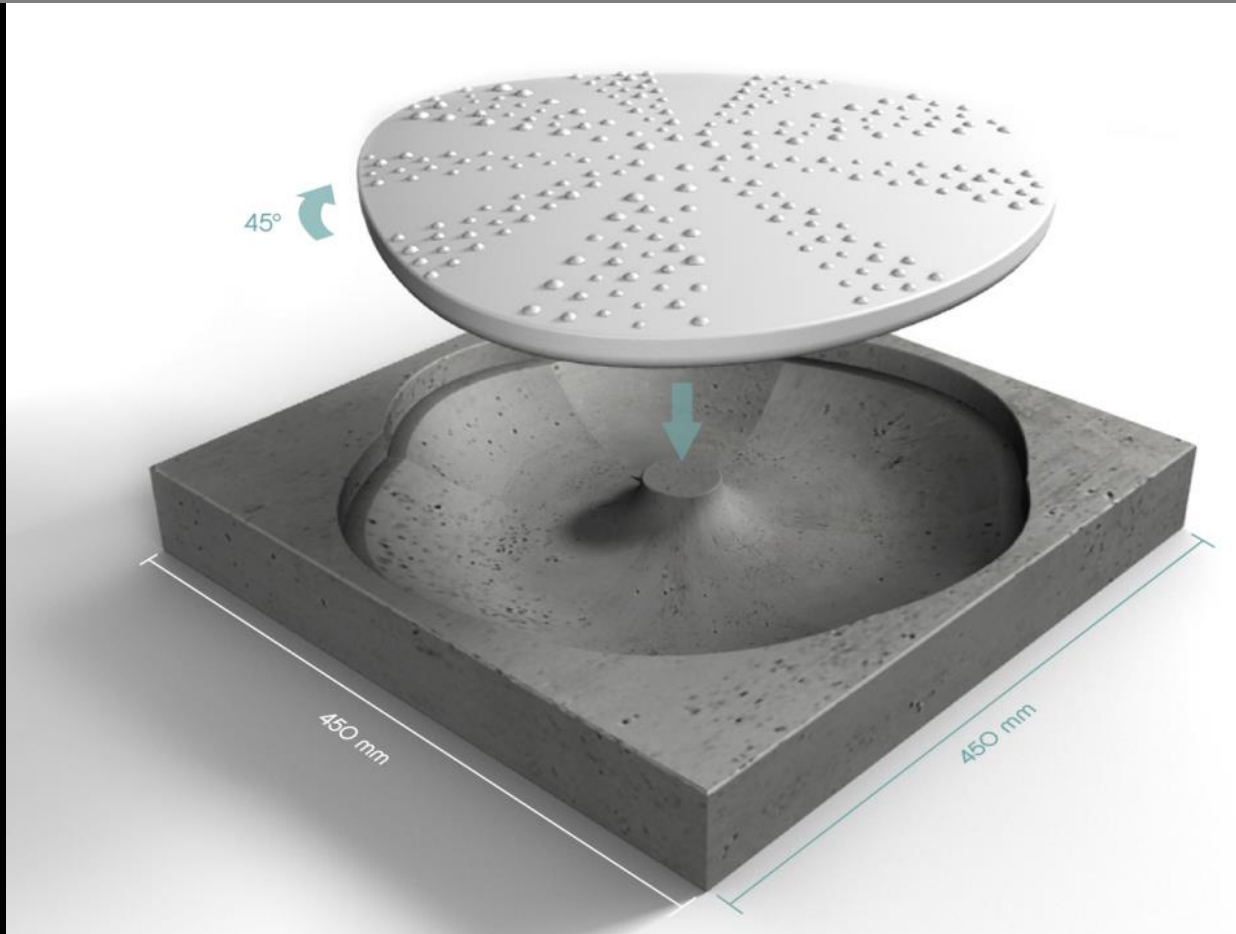


Testing of the Landeez product with CMC staff at Perranporth beach, November 2014



Design for non-human species

Design of Micro-reservations



Daniel Metcalfe, ESF2 Funded PHD student

'Synanthropic ecologies'

Supervisors: Dr. J. Marshall, D. Masterton, Dr. L. Nayler

Industry Partner: Cornish Concrete Products

Design of Micro-reservations



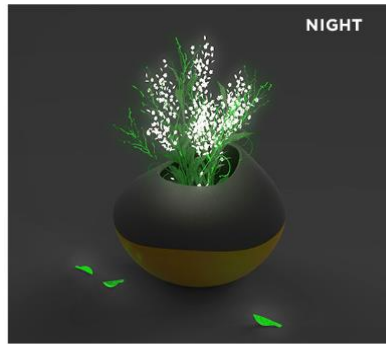
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'Synanthropic ecologies'

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Horizon scan, future technology



James Bristow
Glow in the dark plants (Left)
Grow pods (right)

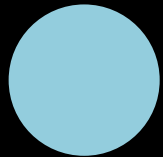
Urban reservations



Aaron Breeze

'Birdbox': Concrete cast, laser scanned wood textures.

Collaborative project, Exeter University Bio-science department



Working with Industry

Working with Industry



*Lake District
Field testing Lowe Alpine products*



Working with Industry

USER CONTEXT

- 50 + female market group
- enjoys short European city breaks
- uses budget airlines

USP

- zero textile waste
- novel method of closure
- compact to fit within luggage restrictions



Sacha Holub
'Zero': Short break travel bag



Sustainable Design Strategy

REDUCE

A minimalistic design approach was used. This simplified the form to its bare essentials, which resulted in a reduced number of raw materials used, processes involved and amount of waste created.



REUSE

To encourage the reuse of the pack, the pack's care label will encourage the pack to be passed on to family or friends. Alternatively, the pack could be sold through an official Lowe Alpine eBay account.



RECYCLE

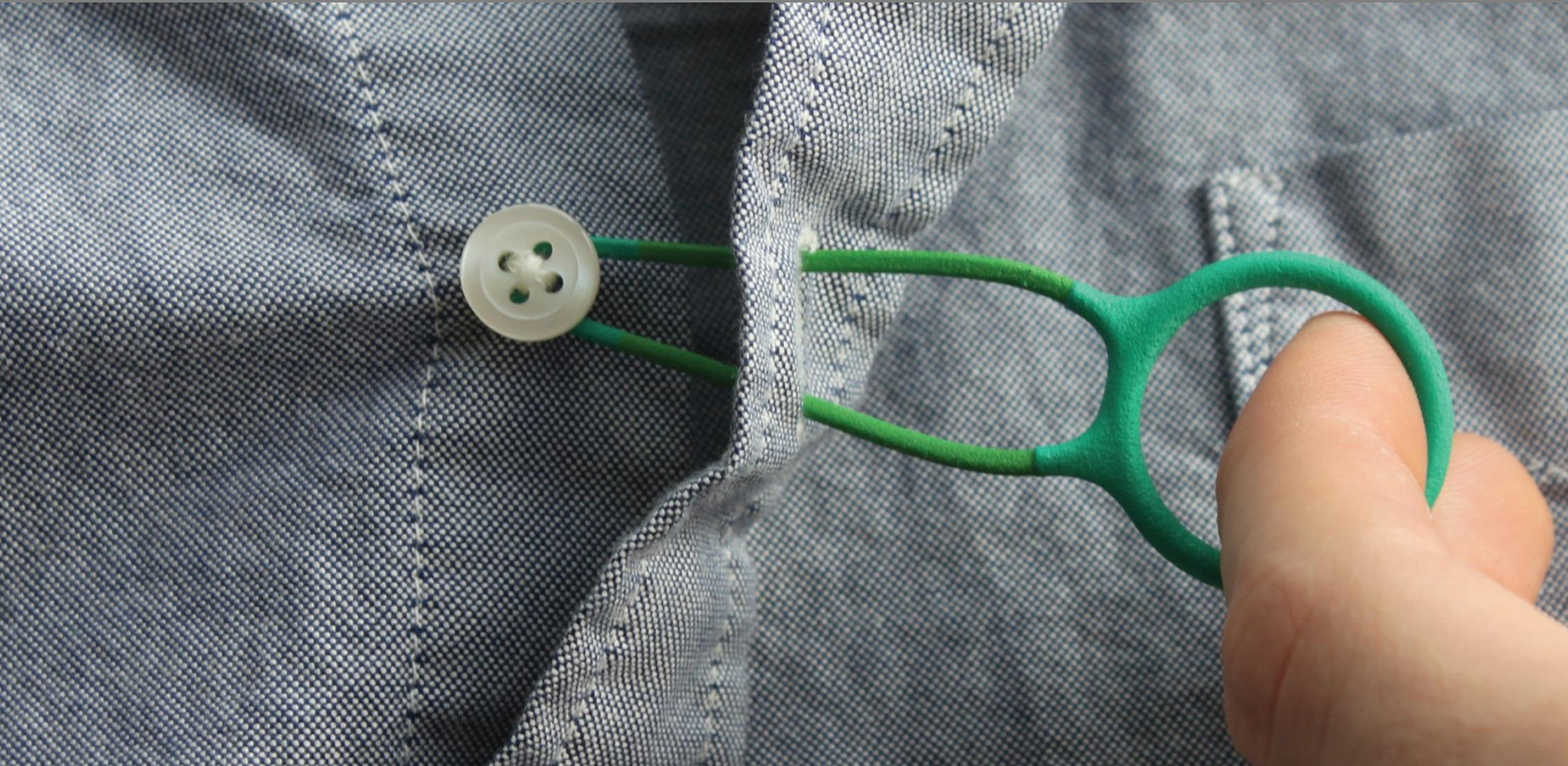
For the end of life, there will be a take-back system to recycle the fibres. To engage the user, the care label will provide details on the sustainable design of the pack, which the user would be supporting through their purchase.



Sacha Holub

'Zero': Short break travel bag

Sustainable Product Design



*Design innovation for real issues,
Falmouth University
drummond@falmouth.ac.uk*