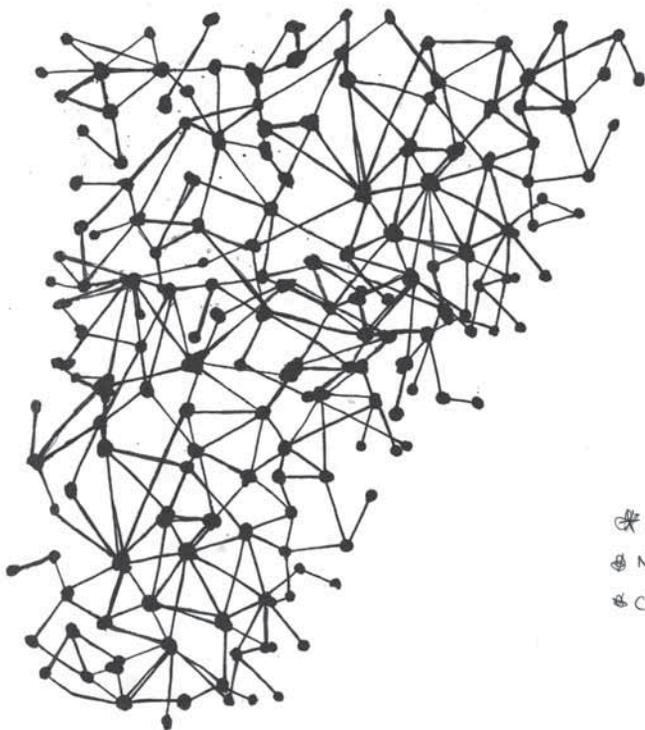


DRS 2016

**50th Anniversary Conference,
Brighton, UK**

27–30 June 2016

**Design + Research + Society
Future-Focused Thinking**



Network

Nodes

connection

2016

**50th Anniversary Conference,
Brighton, UK**

27–30 June 2016

Design + Research + Society
Future-Focused Thinking



Welcome to DRS2016: Future-Focused Thinking

In this conference guide you will find all the information you need to navigate your way around DRS2016, from the small things to the big things. We have programmed a conference rich in variety, with many formats for participation and different ways of engaging. This guide is intended to make your conference experience as easy and enjoyable as possible.

You might think of DRS2016 in many ways as a 'conference of conferences', showing the wide thematic extent of design research and the rich communities that have built up around research areas. From the beginning we have tried to think more thematically, and in doing so have built on the formats for debate and conversation that were pioneered at DRS2014 in Umea. The paper session remains a core component of the conference and we have introduced theme sessions to allow session chairs more opportunity to experiment with how papers are presented and discussed. Our reasoning for developing and trying out these new formats is that, if any conference should be experimenting with new formats, it should be a design research conference.

One of the early questions we asked as an organising committee was 'why does anyone need to go to a conference in 2016?' Can't we do it all online and save our airfares and keep the mud off our carbon footprint? We've tried to think of the conference more as a connecting mechanism – hence our graphics – bringing people together as part of research programmes that are continuous projects, not isolated entities: the conference is a place where discussion matters. To that end we've tried to integrate the online aspect of presentation and discussion more meaningfully within the conference context. For example you can find all the papers, conversations, and workshops on the conference website, with associated discussion forums so please join in with the conversations you see.

The element that makes DRS2016 special is that it marks the 50th Anniversary of the formation of the Design Research Society. The first meeting was held at Imperial College, London, in 1966 following the original Conference on Design Methods in 1962. The interdisciplinary way in which ever more complex problems were defined and addressed then remains at the core of design research today. We have curated an exhibition about the history of design research for you to explore during the conference. We have also put together an evening of presentations and talks that look back at the history of design research and the Design Research Society.

What is evident is that, perhaps more than other academic areas, conferences have always been central to moving the design research field forwards, and DRS2014, in the tradition of other DRS conferences did that exceptionally well. Indeed as a Society we feel that the conference should become much more closely aligned with the aims of its members, so we are attempting to more closely associate the biannual conference with the workings of the DRS, in particular representing the fully international membership that the society now has.

DRS2016 has been a huge collective effort, many people have been involved in its conception, the selecting and managing of conference themes, the writing and reviewing the papers, and in generally helping to put the conference together. You can find a full list of the organising committee on the conference website and we would like to thank everyone who has been involved. An academic conference is made by the people that come and participate so, in advance of the conference, we would like to thank you too, in making the conference a success.

Welcome to Brighton!

Peter Lloyd
General Chair

Tracy Bhamra
Jonathan Chapman
Co-Chairs

Peter Childs
Stephen Boyd Davis

Local Organisation

Lucy Cooke

Conference Coordinator

Denice Penrose

Conference Administrator

Clare Hodgson

Delegate and Events Manager

Gavin Ambrose

Design Director

Jim Wilson

3D Design Coordinator

Steve Malinder**J Milo Taylor**

Sound Design

Tom Ainsworth

Workshop and Student Volunteer Coordinator

Beth Salter

Graphic Designer

Kirsten Enticknap

Graphic Design Assistant

Lesley Whitworth

50th Anniversary Exhibition Curator

Donna Close

Conference Dinner and Events Coordinator

Jerry Loft

Finance Officer

Essential Information

Conference Venues (Orientation)

The Conference is split between two main venues, a 5 minute walk from one another. Conference content taking place at the Brighton Dome is illustrated in this book with a **pink** colour, while content taking place at the Grand Parade building is illustrated with a **purple** colour.

Plenary and parallel sessions will be held in the Brighton Dome complex, while workshops and parallel sessions will be held in the Grand Parade building of the University of Brighton.

The Brighton Dome Complex

Church Street, Brighton BN1 1EU

Locations include:

- The Dome Concert Hall (where plenary sessions will take place)
- The Founders Room
- The Studio Theatre (entrance is external on New Road)
- The Old Courthouse (entrance is external on the opposite side of the road)

The Grand Parade Building

College of Arts and Humanities, University of Brighton BN2 0JY

Locations include:

- The Sallis Benny Theatre
- Grand Parade G4
- Grand Parade M2
- Grand Parade Studio101
- Grand Parade Studio102

Contact Details

The main points of contact during the conference are the registration desks both in the Brighton Dome and at Grand Parade (University of Brighton).

The emergency conference contact is **Denice Penrose: +44 (0) 7551 274 965**

Essential Information & Social Activities

Taxis

There is a taxi rank directly outside the Brighton Dome Complex where you can pick up a taxi from the conference.

Streamline Taxi: +44 (0) 1273 202020

Social Media

Official hashtag: #drs2016 Twitter: @drs2016uk

Website: www.drs2016.org

Facebook: Join our closed Facebook group to make connections and find out about more informal events <https://www.facebook.com/groups/1714699078815304/>

Wifi

You will find details of how to connect to wifi networks for the various conference venues in your registration pack. Eduroam is available at University venues.

Security

Brighton is a busy seaside place with bars and clubs open late. Keep your personal items safe and conduct yourself as you would in any urban centre.

Lunches

All lunches will be served by the Secret Restaurant in the Corn Exchange at the Brighton Dome complex. Lunches will be served buffet style but boxes will be available if you'd like to take a stroll and sit in the gardens round the corner from the conference venue or even take quick walk to sit on the beach.

50th Anniversary Event

Following the Design Research Society Annual General Meeting on Tuesday 28th June there will be an evening of presentations and talks, followed by a drinks reception with canapés and opening of the 50th anniversary exhibition. Prior booking is required for this event, so bring your ticket with you.

Social Activities

Conference Dinner

The conference dinner takes place at the Grand Hotel on Brighton seafront. We have two dining rooms due to larger than expected numbers of delegates and seating is unrestricted. Casual dress is appropriate. Before, during, and after the dinner there will be sound, visual, and interactive work. Entrance to the dinner is with your delegate pass.

Closing Reception

The closing reception following the final plenary session takes place at OhSo Social situated just to the right of Brighton Pier at beach level. Drinks will be available at the bar for conference delegates.

Graphics Exhibition

During the conference we are producing an exhibition of screen-printed posters using a portable design lab. The posters will be a reflection of key phrases, thoughts and tweets made during the conference and that collectively put together a graphic picture of the conference. Delegates are encouraged to come along and actively participate in poster production. The Graphics and Illustration (GI) Lab and resulting exhibition will be located near the main cafe area in the Grand Parade building.

50th Anniversary Exhibition

An exhibition celebrating 50 years of Design Research and titled 'Design Research and its Participants' is available to view in the Grand Parade Gallery throughout the conference. The exhibition has been curated by the Design Archives at Brighton University and draws on material such as photography; posters; albums; correspondence and other forms of visual and text-based documents, to capture something of the ferment and frustration of early DRS activity and its relationship to other significant design organisations. The exhibition is sponsored by IBM Design.

Pubs

British pubs are known throughout the world and there are many excellent pubs within walking distance of the conference venues. We have marked some on the map you will get at registration but feel free to explore and find a pub that suits you. Post in the Facebook group if you'd like to get a pub conversation going.

DRS 2016 Formats

Keynote Debates

Debates replace the traditional Keynote Address in helping to recover collective decision-making with respect to the discipline of design, prototyping what it might be like for a large conference on design to try explicitly to design the future of design research. Debates are structured around resolutions that invited representatives will put forward. The Conference Chairs have curated three topics for these invited resolutions: (Speculative) Futures in Design Research, (Sustainable) Design Research for Change, Design Research in (the Tech) Industry. Each Debate will involve 3 participants, speaking for and against 3 distinct propositions.

Paper Sessions

All papers submitted to the conference have been peer-reviewed by a college of nearly 300 reviewers and selected by the programme committee on the basis of research originality and quality. We received 515 submissions of which 240 were accepted for presentation at the conference. All papers presented at the conference are published online and in the proceedings. Paper sessions generally feature five 15 minute presentations in a thematic area.

Theme Sessions

The majority of papers submitted to the conference were done so under one of 24 thematic areas and Theme Sessions give theme chairs an opportunity to focus on select papers in sessions which are more discursive than paper sessions and that together give a sense of the theme area. Some theme sessions use discussants to more critically look at papers, others give more time to papers that have been particularly well reviewed, while others follow a more traditional paper presentation format. Expect something a little different in each Theme Session. All Theme Sessions take place in the late morning slot of the conference.

Essential Information

Conversations

Conversations engage a limited number of attendees in open exchange in arriving at new understandings about a particular topic. Conversations provide an environment where a constructive dialogue can take place about issues of importance in Design Research, particularly to promote exchanges about topics not easily captured by the scholarly paper. Conversations foster open exchange, by talking, but also by means of play, prototyping, critique of each others' work produced on-the-spot, or even activism. Each Conversation is facilitated by catalysts who will produce a concluding document from their Conversation discussion. Dissemination results will be featured on the DRS2016 site following the conference.

Workshops

Workshops are half and full day sessions which provide an opportunity to learn in a practical and engaged way about the latest tools, methods and techniques of Design Research. They aim to bring together design researchers and design practitioners in academia, in the public sector, and in business and industry. Workshops will take place over the four days of the conference, though most take place on Monday 27th June.

PhD by Design

Replacing the traditional doctoral colloquium PhD by Design (on Monday 27th June) is a varied and engaging day of presentations, discussions, and workshops put together by a team of doctoral researchers. PhD by Design brings together designers undertaking practice-based doctoral research as well as supervisors to explore the many aspects of knowledge production within and across academic institutions. PhD by Design also have a space on the Mezzanine floor of the Dome Complex throughout the conference, so please go and visit them and debate the future of design research.

We gratefully acknowledge the contribution of the following sponsors for DRS2016:

IBM Design
Microsoft Research
Philips Design
AVT Connect

Publishers with displays at the conference include:

The MIT Press
Bloomsbury Publishing
Intellect Books
Gower/Routledge

DRS2016 Sponsors:



Microsoft Research

**DRS2016 Organised
in Association with:**

**Imperial College
London**



Royal College of Art

PHDBYDESIGN

Monday 27 June

Grand Parade

09:00–14:00

M2

**Workshop: Design-Led
Entrepreneurship**

Organiser:
Michel de Blois

G4

**Workshop: Visualizing Design
Ecologies: Collecting, Visualizing
& Interpreting Data for Design
Research**

Organisers: Daniel Cardoso-Llach
& Yanni Loukissas
9:00–18:00

Coffee

10:30–11:00

Lunch

13:00–14:00



Wastehouse

Workshop: Rethinking Smart

Organiser: Nicolas Nova

Studio 150

Workshop: Using Analogous Research to Build Empathy and Unlock Problems

Organiser: Kate Burn

Find more information online at www.drs2016.org/workshops

Monday 27 June

Grand Parade

09:00–14:00

Studio 350

**Workshop: Design and Storytelling:
On Weaving Fragments**

Organiser: Elisa Bertolotti

Coffee

10:30–11:00

Lunch

13:00–14:00

Studio 101

**Workshop: Socio-Cultural Fiction
Prototyping in Design Thinking**

Organiser: Jan Schwarz

**Workshop: Design Ecologies:
Products, Places and Communities
– Developing Strategies for
Revitalizing Traditional Practices**

Organiser: Martyn Evans



Studio 102

Workshop: Food Design for Sustainability

Organiser: Stephen Clune

Studio 105

Workshop: Capturing and Shaping Meaningful Sensory Experiences in the Urban Environment

Organiser: Jenny Darzentas

9:00–18:00

Find more information online at www.drs2016.org/workshops

Monday 27 June

Grand Parade

14:00–18:00

M2

Workshop: Positive Design

Organisers: Pieter Desmet & Anna Pohlmeier

Tea

15:30–16:00

**Drinks Reception:
Brighton Museum**

18:00–20:00

G4

**Workshop: Visualizing Design
Ecologies: Collecting, Visualizing
& Interpreting Data for Design
Research**

Organisers: Daniel Cardoso-Llach
& Yanni Loukissas
9:00–18:00



Wastehouse

**Workshop: Storytelling as a Method
for Problem Framing in Design**

Organiser: Dalsu Kocyltrim

Studio 150

Workshop: Stop Motion Typography

Organiser: Baris Atiker

Find more information online at www.drs2016.org/workshops

Monday 27 June

Grand Parade

14:00–18:00

Studio 350

Workshop: Mobility as Empowerment: Co-design with Communities as Social Service Innovation

Organiser: Priscilla Chueng-Nainby

Tea

15:30–16:00

Studio 101

Workshop: Empathy 'Things' / Games

Organisers: Lorraine Gamman & Adam Thorpe



Studio 102

Workshop: Bodies-in-action as a medium of design

Organiser: Kakee Scott

Studio 105

Workshop: Capturing and Shaping Meaningful Sensory Experiences in the Urban Environment

Organiser: Jenny Darzentas
9:00–18:00

Edward Street

Workshop: Multiple Measures: Design in the Interdisciplinary Mix

Organiser: Kate Tregloan

Tuesday 28 June

The Dome & The Old Courthouse

09:00–14:00

Dome – Concert Hall

Dome – Studio Theatre

9:00

Opening Ceremony

Peter Lloyd, Tracy Bhamra, Debra Humphris

9:30

Keynote Debate: (Speculative) Futures in Design Research

Chair: Cameron Tonkinwise

Debaters: Richard Coyne, Ramia Mazé,
Veronica Ranner

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10:00

10:30

Coffee

10:30–11:15

11:00

11:30

Theme Session: Design for Health, Wellbeing & Happiness

Chair: Rebecca Cain

12:00

12:30

Page 63

Theme Session: Design for Behaviour Change

Chair: Jelle Van Dijk

Page 69

13:00

Lunch

12:45–14:00

13:30

14:00



Dome – Founders Room

Old Courthouse

Theme Session: Objects, Practices, Experiences & Networks

Chairs: Tom Fisher /
Lorraine Gamman

Page 75

Theme Session: Histories for Future-Focused Thinking

Chairs: Maya Oppenheimer /
Harriet Atkinson

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Tuesday 28 June

Grand Parade

09:00–14:00

Sallis Benney Theatre

M2

9:00

9:30

10:00

10:30

Coffee

10:30–11:15

11:00

11:30

Theme Session: Design Epistemology

Chairs: Philip Plowright /
Derek Jones

12:00

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12:30

Theme Session: Aesthetics, Cosmopolitics & Design

Chair: Alex Wilkie

Page 89

13:00

Lunch

12:45–14:00

13:30

14:00

A network diagram with black nodes and lines on a purple background, spanning the top of the page.

G4

Studio 101

**Theme Session: Experiential
Knowledge**

Chair: James Self

Page 95

**Theme Session: Design &
Translation**

Chairs: Elena Caratti /
Giovanni Baule

Page 101

Tuesday 28 June

Grand Parade

09:00–14:00

Studio 350

9:00

9:30

10:00

10:30

Coffee

10:30–11:15

11:00

11:30

Workshop: Designing Research for Computational Design

Organiser: Philippa Mothersill

12:00

12:30

13:00

Lunch

12:45–14:00

13:30

14:00

DRD

Tuesday 28 June

The Dome & The Old Courthouse

14:00–17:30

Dome – Concert Hall

Dome – Studio Theatre

14:00

Paper Session: Design for Health, Wellbeing & Happiness

Chair: Rebecca Cain

Paper Session: Design for Behaviour Change

Chair: Geke Ludden

14:30

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Page 114

15:00

15:30

Tea

15:30–16:00

16:00

Paper Session: Design Process

Chair: Nathan Crilly

Paper Session: Design Futures

Chair: Damon Taylor

16:30

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17:00

17:30

19:00

50th Anniversary Event

19:00–22:00 (ticketed)

20:00

21:00

Dome – Founders Room

(Room A) Conversation: Resonances: Listening as Tool for Trans-cultural Storytelling Catalysts: Valsecchi / Chueng-Nainby / Pollastri / Tassi

(Room B) Conversation: Non-local Situations: Speculating About Future Response-abilities of Postindustrial Design Research Catalysts: Wiltse / Karlsson / Ståhl / Lindström / Pawar

Old Courthouse

Paper Session: Histories for Future-Focused Thinking

Chairs: Maya Oppenheimer / Harriet Atkinson

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(Room A) Conversation: This Time it's Personal Catalysts: Klippan / Bijl-Brouwer / Munro / Willcocks

(Room B) Conversation: Plans and Speculated Actions Catalysts: Ranner / Lockton / Steenson / Kerridge / Galik

Paper Session: Histories for Future-Focused Thinking

Chairs: Maya Oppenheimer / Harriet Atkinson

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Tuesday 28 June

Grand Parade

14:00–17:30

Sallis Benney Theatre

M2

14:00

**Paper Session: Design
Epistemology**

Chairs: Philip Plowright /
Derek Jones

14:30

15:00

Page 126

15:30

Tea

15:30–16:00

16:00

**Paper Session: 50 Years of Design
Research**

Chair: Stephen Boyd Davis

16:30

17:00

Page 162

17:30

**Paper Session: Aesthetics,
Cosmopolitics & Design**

Chair: Alex Wilkie

Page 130

**Paper Session: Mixed – Aesthetics,
Cosmopolitics & Design / Design-
ing and Creative Philosophies**

Chair: Alex Wilkie

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18:00

DRS Annual General Meeting

(open to all DRS members)

18:30

19:00

50th Anniversary Talks / 50th Anniversary Exhibition
Drinks & Canapé Reception (Ticketed) 19:00–22:00



G4

Conversation: What Do Designers Have to Offer When Facing Societal Challenges?

Catalysts: Mascha van der Voort / Jacob Buur / Thomas Binder / Per Linde / Robert-Jan den Haan

Studio 101

Paper Session: Design & Translation

Chairs: Elena Caratti / Giovanni Baule

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Conversation: Design & Dissent

Catalysts: Danielle Arets / Bas Raijmakers / Vera Winthagen

Paper Session: Design, Education & Learning

Chair: Mike Tovey

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Tuesday 28 June

Grand Parade

14:00–17:30

Studio 350

**Workshop: Being Relational:
Entering the World of Sensory &
Embodied Communication Design**

Organiser: Kate McLean

Studio 150

**Workshop: From Care(ful)
Research to Care(ful) Design**

Organiser: Margo Annemans

Tea

15:30–16:00

50th Anniversary Drinks Reception

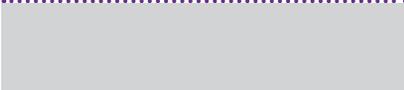
(ticketed) 20:30 onwards



Studio 102

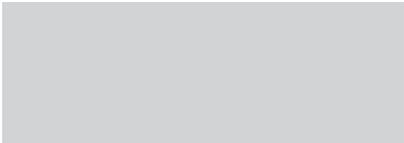
**Conversation: Uses of
Argumentation Theory and
Dialogic Methods in the Design
Research Process**

Catalysts: Luke Feast, Stella Boess,
Karel van de Waarde



**Conversation: Democratic Design
Experiments: From Open Design to
Open Society**

Catalysts: Yanki Lee, Albert Tsang,
Ann Light, Thomas Binder



Wednesday 29 June

The Dome & The Old Courthouse

09:00–14:00

Dome – Concert Hall

Dome – Studio Theatre

9:00

**Keynote Debate: (Sustainable)
Design Research for Change**

Chair: Guy Julier

Debaters: Connie Bakker, Jonathan
Chapman, Yolande Strengers

9:30

Page 184

10:00

10:30

Coffee

10:30–11:15

11:00

11:30

**Theme Session: Design
Education & Learning**

Chair: Mike Tovey

12:00

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12:30

**Theme Session:
Sustainable Design**

Chair: Rhoda Trimmingham

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13:00

Lunch

12:45–14:00

13:30

14:00



Dome – Founders Room

Old Courthouse

Theme Session: The Politics of Commoning & Design

Chairs: Bianca Elzenbaumer / Kim Trogal / Valeria Graziano

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Theme Session: Reframing the Paradox: Evidence-based Design & Design for the Public Sector

Chairs: Luke Feast / Sabine Junginger / Peter Jones

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Wednesday 29 June

Grand Parade

09:00–14:00

Sallis Benney Theatre

M2

9:00

9:30

10:00

10:30

Coffee

10:30–11:15

11:00

11:30

Theme Session: Design Thinking

Chair: Colin Gray

12:00

12:30

Page 205

**Theme Session: Tangible,
Embedded & Networked
Technologies**

Chairs: Sarah Kettley / Anne
Cranny-Francis

Page 211

13:00

Lunch

12:45–14:00

13:30

14:00



G4

Studio 101

**Theme Session: Embodied
Making & Learning**

Chairs: Marte Søbø Gulliksen /
Camilla Groth

Page 217

**Theme Session: Food &
Eating Design**

Chair: Rick Schifferstein

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Wednesday 29 June

Grand Parade

09:00–14:00

Studio 350

9:00

9:30

10:00

10:30

Coffee

10:30–11:15

11:00

11:30

Workshop: Exploring the Design Process of Data Physicalization

Organiser: Yvonne Jansen

12:00

11:15–17:30

12:30

13:00

Lunch

12:45–14:00

13:30

14:00



Wednesday 29 June

The Dome & The Old Courthouse

14:00–17:30

Dome – Concert Hall

Paper Session: Design Education & Learning

Chair: Derek Jones

Page 230

Tea

15:30–16:00

Paper Session: Design Education & Learning

Chair: Mike Tovey

Page 268

Dome – Studio Theatre

Paper Session: Sustainable Design

Chair: Rhoda Trimmingham

Page 236

Paper Session: Sustainable Design

Chair: Caroline Escobar-Tello

Page 274

Conference Dinner

Location: The Grand Hotel

19:00 onwards

Dome – Founders Room

(Room A) Conversation: Automating Experience: Does the 'Automated Home' Diminish or Deepen User Experience

Catalysts: Chapman / Haines-Gadd / Mason / Aliakseyeu

(Room B) Conversation: Connecting Diversities: Migration, Social Innovation & Design Catalysts: Cipolla / Gamman / Manzini / Thorpe / Tassinari

Old Courthouse

Paper Session: Reframing the Paradox: Evidence-based Design & Design for the Public Sector

Chairs: Luke Feast / Sabine Junginger / Peter Jones

Page 244

(Room A) Conversation: Futurescaping the Museum, with a focus on V&A East

Catalysts: Dziekan / Ajmar / Oates / Triggs

(Room B) Conversation: Design as Symbolic Violence. Design for Social Justice

Catalysts: Boehnert / Elzenbaumer

Paper Session: Design Innovation Management

Chair: Rachel Cooper

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Wednesday 29 June

Grand Parade

14:00–17:30

Sallis Benney Theatre

M2

14:00

Paper Session: Design Thinking

Chair: Kees Dorst

14:30

15:00

Page 250

15:30

Tea

15:30–16:00

16:00

Paper Session: Design Process

Chair: Peter Childs

16:30

17:00

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17:30

Paper Session: Tangible, Embedded & Networked Technologies

Chairs: Sarah Kettley / Anne Cranny-Francis

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Paper Session: 50 Years of Design Research

Chair: Conall Ó Catháin

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19:00

Conference Dinner

Location: The Grand Hotel

19:00 onwards

19:30



G4

Conversation: The Future of Design Education

Catalysts: Sapna Singh / Elizabeth Sanders / Terry Irwin / Pieter Jan Stappers / Nicole Lotz / Erik Bohemia

Studio 101

Paper Session: Design Education & Learning

Chair: Liv Merete Nielson

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Conversation: Virtual & Blended Design Studios

Catalysts: Nicole Lotz / Erik Bohemia / Sam Dunne / Georgy Holden / Joi Roberts

Paper Session: Mixed - Tangible Embedded & Networked Technologies Design Research at IBM

Chair: Paul Hekkert

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Wednesday 29 June

Grand Parade

14:00–17:30

Studio 350

Workshop: Exploring an Design Process of Data Physicalization

Organiser: Yvonne Jansen
11:15–17:30

Studio 150

Workshop: Today's and tomorrow's design researcher – reinventing the intersection

Organiser: Andrea Augsten

Tea

15:30–16:00

Conference Dinner

Location: The Grand Hotel

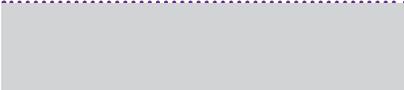
19:00 onwards



Studio 102

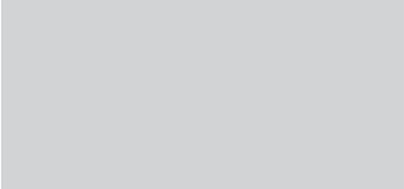
**Conversation: Managing Mess:
Exploring how to Design & Conduct
Research into Design Practice**

Catalysts: Arlene Oak / Claire
Nicholas / Janet McDonnell / Nathan
Crilly



**Conversation: Towards a Unified
Theory of Design**

Catalysts: Jörg Henseler / Jelle Van
Dijk / Ann Light / Geke Ludden /
Caroline Hummels / Mikael Wiberg



Thursday 30 June

The Dome & The Old Courthouse

09:00–14:00

Dome – Concert Hall

Dome – Studio Theatre

9:00

Keynote Debate: Design Research in (the Tech) Industry

9:30

Chair: Lucy Kimbell

Debaters: Kees Dorst, Helene Steiner, Jabe Bloom

10:00

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10:30

Coffee

10:30–11:15

11:00

11:30

Theme Session: Design Innovation Management

Chair: Erik Bohemia

12:00

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12:30

Theme Session: Inclusive Design

Chair: Hua Dong

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13:00

Lunch

12:45–14:00

13:30

14:00



Dome – Founders Room

Old Courthouse

**Theme Session: Design for
Design: The Influence & Legacy
of John Heskett**

Chairs: Sylyia Liu / Tore Kristensen

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**Theme Session: Design
Innovation for Society**

Chairs: Mieke van der Bijl-Brouwer /
Nynke Tromp

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Thursday 30 June

Grand Parade

09:00–14:00

Sallis Benney Theatre

M2

9:00

9:30

10:00

10:30

Coffee

10:30–11:15

11:00

11:30

**Theme Session: Aesthetic
Pleasure in Design**

Chairs: Michaël Berghman /
Paul Hekkert

12:00

12:30

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**Theme Session: Design-ing
& Creative Philosophies**

Chair: Bettie Marenko

Page 339

13:00

Lunch

12:45–14:00

13:30

14:00

A network diagram with black nodes and lines on a purple background, spanning the top of the page.

G4

Studio 101

**Conversation: Beyond Impact:
Understanding & Communicating
the Value of Collaborative Design
Research**

Catalysts: Bowen / Speed / Whitham
/ Moreton / Dima

**Theme Session: Effective
Information Design**

Chairs: Sue Walker / Alison Black

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Thursday 30 June

Grand Parade

09:00–14:00

Studio 350

Studio 150

9:00

9:30

10:00

10:30

Coffee

10:30–11:15

11:00

11:30

**Workshop: 'The Neological
Institute' Performance aka
How Language can inspire
and Empower Design**

Organiser: Nik Baerten
(11:15–3:30)

12:00

12:30

13:00

Lunch

12:45–14:00

13:30

14:00



Thursday 30 June

The Dome & The Old Courthouse

14:00–17:30

Dome – Concert Hall

Paper Session: Design Innovation Management

Chair: Alex Williams

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Dome – Studio Theatre

Paper Session: Inclusive Design

Chair: Christopher Lim

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Tea

15:30–16:00

Concluding Session: Reflections & Directions

Chair: Peter Lloyd

Participants: Ezio Manzini / Alison Thomson / Chris Hammond / Anna Valtonen / Adam de Eyto

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Closing Drinks on the Beach

Location: OhSo

from 17:30



Dome – Founders Room

(Room A) Conversation: Blockchain, Smart Contracts & the Design of Everyday Transactions Catalysts: Larissa Pschetz / Chris Speed / Deborah Maxwell

(Room B) Conversation: Making, Mending & Growing in Feminist Speculative Fabulations: Design's Unfaithful Daughters Catalysts: Laura Forlano / Åsa Ståhl / Ramia Maze / Li Jönsson / Kristina Lindström

Old Courthouse

Paper Session: Design Innovation for Society

Chairs: Mieke van der Bijl-Brouwer / Nynke Tromp

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Thursday 30 June

Grand Parade

14:00–17:30

Sallis Benney Theatre

M2

14:00

14:30

15:00

15:30

16:00

16:30

17:00

17:30

18:00

18:30

19:00

19:30

**Paper Session: Aesthetic
Pleasure in Design**

Chair: Michaël Berghman

Page 374

**Paper Session: Design Education
& Learning**

Chair: Liv Merete Nielson

Page 380

Tea

15:30–16:00

Closing Drinks on the Beach

Location: OhSo

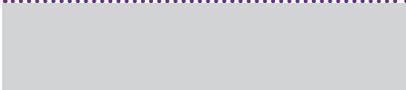
from 17:30



G4

**Conversation: New Technologies –
New Design Research?**

Catalysts: Katja Thoring / Erik
Bohemia / Roland Mueller /
Alexander Müller-Rakow / Petra
Badke-Schaub



Abstracts

Tuesday 28 June





(Speculative) Futures in Design Research

Design realizes preferred futures and the process of getting to the nature of ‘preferred’ involves balancing: the radical and the feasible, the long-term and the short-term, the particularities of some and what suits most. Despite Futures being an established discipline and practice, few Design Schools seem to explicitly teach its principles and techniques.

Some of this reticence is perhaps a reaction to the deterministic futuring of modernist designing. Strong visions of futures were imposed on society in procrustean ways and current societies must deal with their consequent unsustainability. As a result there is the risk of design tending toward the timid. Bold visions are supplanted by what must be evidence-based, or collaboratively consensual, or iteratively emergent.

What remains of design visioning are ‘speculations.’ When it comes to the future, the designer’s only responsibility appears to be to provoke thought, not argue for what should be preferred. Our first debate considers the role of Design Research in Futuring and Futuring in Design Research.



Cameron Tonkinwise (Chair) is the Director of Design Studies and Doctoral Studies at Carnegie Mellon University’s School of Design. He was previously Associate Dean Sustainability at Parsons The New School of Design. Cameron’s background is in philosophy and he continues to explore what designers can learn from philosophies of making, material culture studies and sociologies of technology. His research focuses on Sustainable Design and Service Design, and in particular on ways of reducing societal materials intensity by decoupling use and ownership – in other words, systems of shared use.



Richard Coyne researches and teaches in the area of digital technologies and design. He's an architect and has served as head of the Department of Architecture and head of a multidisciplinary School of Arts, Culture and Environment at the University of Edinburgh. He is currently Dean of Postgraduate Research in the College of Humanities and Social Science. His research and writing draws on a broad interdisciplinary framework for examining the relationship between technology, design, space, and contemporary cultural theories. He supervises many students investigating sound, virtual environments, impacts of social media, video gaming, interaction design and the philosophy of technology, and many of his own reflections appear on a blog site he's hosted since 2010, richardcoyne.com.



Ramia Mazé specializes in participatory and critical practices of design. She is Professor of New Frontiers in Design at Aalto University in Finland. Trained as a designer and architect, she has worked in design consultancies and corporate research, and her PhD is in interaction design. In the areas of sustainable development, design activism, smart materials, and interactive spaces, she has published and exhibited widely through interdisciplinary and international research projects. Recent projects include 'Utopia Now Here' situated at the 2014 Istanbul Design Biennial, 'Designing Social Innovation' survey of projects in the US and Europe, and 'DESIGN ACT Socially- and politically-engaged design today' (Berlin: Sternberg Press / Iaspis, 2010).



Veronica Ranner is a designer, artist, and researcher interested in emerging biotechnologies and bio-fabrication, systems design, and new roles for designers. Currently, she is pursuing a PhD at the Royal College of Art, examining the burgeoning domain of the bio-digital — the space where computational thinking meets biological matter. Veronica holds a degree in Industrial Design from Pforzheim University (MA), a Masters in Design Interactions (RCA), and has worked cross-disciplinarily with a variety of science institutions and biomedical companies. She teaches and lectures internationally at the intersection of biotechnology and design and her work is frequently exhibited most recently at the Nationalmuseum in Stockholm.



Design for Health, Wellbeing & Happiness

SIGWELL is the Design Research Society's Special Interest Group which focuses on Design for Health, Wellbeing and Happiness. The SIGWELL community has an interest in advancing knowledge, and the development and application of design research in the broadest sense to improve the personal and societal health, wellbeing and happiness of people.

The remit of SIGWELL is wide-ranging; including the design of products, technologies, environments, services and experiences for health and wellbeing; developing understanding of how design impacts upon health, wellbeing and happiness (and other emotional states); and the development of new tools, methods and approaches for designing for health, wellbeing and happiness.

The SIGWELL themed sessions at DRS2016 are an important opportunity to showcase the latest thinking and research from the international design community on design for health, wellbeing and happiness. We see emerging trends in designing care and spaces for older people, designing for behavior change to tackle unhealthy eating behavior in children, and the design of new technologies in a medical context. The paradigm of moving care out of the hospital and into the home, and the role for design in this is also addressed.

Significantly, the body of work on subjective wellbeing – design for happiness, is increasing, and we see several examples of this – from the design of tools for designers, to designing happy experiences in the home, and even car interiors. Methods and approaches for design research in the area of health well-being and happiness featured in the SIGWELL sessions, are highly user-centric, participatory and sometimes critical and speculative. The distilling of this design knowledge into frameworks and tools for designers is a popular output of the research.

Tues 28th June
11:15-12:45

**Brighton Dome
Concert Hall**

Chair: Rebecca Cain
University of Warwick

In the Moment: Designing for Late Stage Dementia

Tues 28th June
11:15-12:45

**Brighton Dome
Concert Hall**

**Jac Fennell
Cathy Treadaway**

Cardiff Metropolitan
University, GBR

David Prytherch
Birmingham City
University, GBR

Gail Kenning
University of
Technology
Sydney, AUS

This paper presents international multidisciplinary design research to support the wellbeing of people living with dementia. The LAUGH project aims to develop playful artefacts that will contribute to non-pharmacological personalised approaches to caring for people living with late stage dementia in residential care.

This paper presents the context for this research and explains the initial stages of the work currently in progress. An inclusive participatory methodology is described in which key experts including: health professionals, technologists, materials scientists and carers of people living with dementia are informing the development of design concepts. A positive design approach in which designing for pleasure, personal significance and virtue underpin the work. The initial stages of the research have identified the significance of: playfulness, sensory stimulation, hand use and emotional memory.

This paper contends that designs should aim to promote 'in the moment' living in order to support subjective wellbeing of people living with late stage dementia.

Supporting Healthy Behaviour: A Stages of Change Perspective on Changing Snacking Habits of Children

Many children today face an environment that presents them with an overabundance of high calorie foods. Combined with more sedentary lifestyles, this has led to increasing numbers of overweight children in many parts of the world. To counter this trend, we need new strategies that can positively alter health behaviours of children. In this paper, we demonstrate how taking a stages of change perspective can support designers in creating products and services that could serve as alternatives to more traditional health interventions such as promotional campaigns.

Using the case of changing snacking habits of children, two ranges of product concepts were developed using the design for healthy behaviour framework. The two concept ranges were evaluated by parents of young children. From this study we tentatively conclude that using the design for healthy behaviour framework can lead to more innovative, supporting and effective health interventions.

Tues 28th June

11:15-12:45

**Brighton Dome
Concert Hall**

**Geke Ludden
Laura de Ruijter**
University of
Twente, NLD

Designs with Benefits: Hearth Fire Nights and Bittersweet Chores

Tues 28th June
11:15-12:45

**Brighton Dome
Concert Hall**

Stella Boess

Anna Pohlmeier

Delft University
of Technology, NLD

This paper presents 'designs with benefits' by capitalising on the joint benefits of sustainability and wellbeing. Designs with benefits are proposed through four 'in-between' themes for design goals as a new direction in supporting sustainability through design.

We conducted post-hoc case study research on student projects from two studios: a studio working on sustainability, and a studio working on wellbeing. We searched for aspects in the sustainable studio's work that would promote wellbeing, and, conversely, for aspects in the wellbeing studio's work that would promote sustainability.

Looking at three student projects we selected from each studio resulted in four themes we propose as in-betweens to open the door towards crossover approaches. They are: open reflection, pathway activities, resource and material preservation as side effect, and broader insights. Examples of design work illustrating the themes are given and implications for sustainable design discussed.

Design for Ageing-in-place: Evidence from Australia

A growing number of the Australian population choose to maintain their independence as they age, referred herein as ageing-in-place. In our study, we seek to clarify a number of factors, derived from the literature in the field, that contribute to well-being of that population in residential villages. Field observation and in-depth interviews were conducted with eleven participants living in three different residential villages in Victoria, Australia.

Four factors, namely identity, competence, relatedness and autonomy were found relevant to the well-being of the participants in everyday life. Each factor was then further described in terms of the qualities of the built and social elements of the context. A framework was subsequently proposed for designers to consider when designing future experiences in these types of private housing.

Tues 28th June

11:15-12:45

**Brighton Dome
Concert Hall**

**Naseem Ahmadpour
Alen Keirnan**

Swinburne University
of Technology, AUS



Design for Behaviour Change

Designing for behaviour change is seen as a potent way to tackle some of the biggest problems in the world around us. Already, approaches derived from the concept have enabled us to recycle, heat more efficiently, increase our exercise patterns, and remind us to take our medication, along with many more examples besides.

The 'Design for Behaviour Change' SIG is taking a broad focus on the understanding, theories, mechanisms and applications of design for behaviour change in the widest sense and across the various domains of design, such as health, safety, sustainability and social issues. Covering such divergent fields and problems, there is a challenge to create a coherent understanding of practices and approaches relating to design for behaviour change.

The 'Design for Behaviour Change' SIG at the DRS2016 conference brings together 8 papers in two sessions. The papers of the first session are addressing the theoretical understanding of design for behaviour change through novel frameworks, categorisations and methods for design for behaviour change and the artefacts designed to facilitate such changes. The discussions of this session further consider the role of design for behaviour change in the wider context, including the circular economy. The second session changes the focus onto the complexities of and interdisciplinary design process and the role of the user within the design process, including diversity and risk perceptions.

In this way, the strand explores the theoretical and practical challenges of design for behaviour change progressing from generic understandings to specific applications, from systems thinking to user experience. Characteristic for all submissions is their aim for practical application to make a change in the world.

Tues 28th June

11:15-12:45

**Brighton Dome
Studio Theatre**

**Chair: Kristina
Niederer**

University of
Wolverhampton, GBR

An Alternative Approach to Influencing Behaviour: Adapting Darnton's Nine Principles Framework for Scaling up Individual Upcycling

Tues 28th June
11:15-12:45

Brighton Dome
Studio Theatre

Kyungeun Sung

Tim Cooper

Sarah Kettley

Nottingham Trent
University, GBR

Behaviour change or influencing behaviour has recently been recognised as a new role of design by design academics and practitioners. Some approaches have been explored in past research, yet most focused on behaviour intervention generation as a form of product design or communication design. In the meantime, increasing interest in design as a way of thinking and as an effective tool for policy and service innovation in the public sector calls for wide-ranging approaches for design and policy interventions.

This paper therefore suggests an alternative approach as a response to such calls. Darnton's Nine Principles framework is critically reviewed as an overarching framework, and adapting this framework, the early stages of behaviour intervention are proposed. The application of the alternative approach to influencing behaviour is demonstrated by giving an example of scaling up individual upcycling. The paper concludes by discussing the value and usefulness of the suggested approach.

Theme Session: Design for Behaviour Change

What a Designer can Change: A Proposal for a Categorisation of Artefact-related Aspects

This paper proposes a categorisation of artefact-related aspects that in different ways set people's preconditions for acting with technology. The categorisation can serve as a starting point for discussing which aspects are relevant to consider from a Design for Sustainable Behaviour perspective. The categorisation sorts these aspects into different layers: from the over-arching layer of enabled activity, through artefact type(s), operative functions, interactive functions, and finally communicative functions.

Using examples from research studies, and a selection of theory and methods, we argue for an increased focus on all artefact-related aspects. Moreover, it is essential to move between layers to ensure a consistent design that in every layer provides preconditions for sustainable behaviour. The paper also discusses benefits of redesigning the artefacts people use in their everyday activities, instead of designing artefacts that stimulate new types of conservation activities.

Tues 28th June

11:15-12:45

**Brighton Dome
Studio Theatre**

**Anneli Selvefors
Helena Strömberg
Sara Renström**

Chalmers University
of Technology, SWE

Find this paper online at www.drs2016.org/344

The Potential of Design for Behaviour Change to Foster the Transition to a Circular Economy

Tues 28th June
11:15-12:45

Brighton Dome
Studio Theatre

Laura Piscicelli
Geke Ludden

University of
Twente, NLD

The negative environmental, social and economic effects of overconsumption and a throwaway culture have exposed the limits of traditional linear 'take-make-dispose' production and consumption patterns. Recently, the shift to a 'circular economy' has attracted growing interest as a possible pathway towards more sustainable ways of producing and consuming.

Circular business models (e.g. product-service systems, hiring and leasing schemes, collaborative consumption, incentivised return and reuse) aim to keep resources in use for longer, extract maximum value from them whilst in use, and recover and regenerate products or components when they reach their end of life. However, these innovative propositions often encounter important corporate, regulatory and cultural barriers to their introduction.

This paper discusses how Design for Behaviour Change (DfBC) – with a focus on Design for Sustainable Behaviour and Practice-oriented design – could contribute to address the latter and foster the transition to a circular economy.

Theme Session: Design for Behaviour Change

Developing a Theory-driven Method to Design for Behaviour Change: Two Case Studies

Behaviour change design has much to gain with the integration of insights from the behavioural sciences in the design process. However, this integration needs to be done without hampering the creative process. In two rich design cases aimed at health and safety behaviour change, we describe our efforts to develop a method for theory driven design based on the Double Diamond.

Our method attempts to integrate insights from the Persuasive by Design-model (PbD) for behaviour change into the entire design process. Our case studies demonstrate that our method indeed augments the integration of theory and evidence in our designs, but only if the Double Diamond process model is complemented with an evaluation phase, and insights from the PbD-model are derived using rich, well-developed tools.

Tues 28th June

11:15-12:45

**Brighton Dome
Studio Theatre**

**Anita Van Essen
Sander Hermesen**

Utrecht University of
Applied Sciences, NLD

Reint Jan Renes

Utrecht University of
Applied Sciences /
Wageningen University,
NLD

Find this paper online at www.drs2016.org/071



Object, Practices, Experience and Networks

The OPEN Special Interest Group of DRS intends to facilitate productive engagement between Design the humanities and social sciences – in either direction. Design often looks outwards for theoretical ‘frames’ for thinking through processes and their relationship to abstractions like ‘society’ or ‘the environment’. Design and its processes and products are themselves of interest from Design History to Human Computer Interaction.

These papers show Design’s inheritance from the modernist avant garde is intact. It can ‘make strange’ the everyday, turning objects into *things* that seem to be one thing but are another. In one, research process turns into inter-species work. Another proposes not just a better app but an implicit critique of the new ‘sharing economy’. Others propose not simply clothing design for a target market but an co-design engagement with stereotypes about older women and not design for the old but a new ontology for technology.

So Maxwell, Edwards, Pillatt and Downing offer us an account of an innovative research process, which is also much more – this is inter-species work that challenges the human/ non-human dichotomy by focusing on the labour of bees, and one of their products, honey. Michael Mages applies Language-Action theory to the software for UBER drivers, noting that the concerns of the drivers puts them in an unconventional relationship to the development of the software. Two papers engage with aging, in very different ways. Townsend, Sadkowska and Sissons combine Interpretive Phenomenological Analysis, with the craft of pattern cutting in a co-design process that re-defines the basis on which older women ‘fashion’ themselves through clothes. This shifting of the ontology of fashion is paralleled by the work that Giaccardi, Kuijter and Neven describe about technology for older people, changing from a focus on objects that are ‘fool-proof’, to one on *things* as a resource with which older people can engage on their own terms. Finally, Chan takes a broad view of the ethics of design in relation to technology, sustainability and responsibility.

Things are OPEN.

Tues 28th June
11:15-12:45

**Brighton Dome
Founders Room**

Chair: Tom Fisher
Nottingham Trent
University, GBR

**Chair: Lorraine
Gamman**
University of the
Arts London, GBR

From Afterthought to Precondition: re-engaging Design Ethics from Technology, Sustainability, and Responsibility

Tues 28th June
11:15-12:45

Brighton Dome
Founders Room

Jeffery Chan

National University
of Singapore, SGP

Despite recognizing that ethics is integral to design, and despite awareness that design brings about risks and undesirable side and after-effects, design ethics remains critically under-developed. What is design ethics? How should one broach an area as vast as design ethics?

In this article, I examine three discourses that have been commonly used to engage—and to provoke—moral reasoning, awareness, and action in design. They are namely, technology, sustainability, and responsibility. Within the defined area of each discourse, I examine a limited set of debates and issues that are relevant to design ethics today.

Through this critical analysis, I raise new questions and issues for design ethics. Subsequently, I suggest how a theoretically robust design ethics ought to engage with the concepts and categories of applied ethics on the one hand, and on the other, to condition this engagement with the domain-specific interests, concerns and experiences of design.

Stories in a Beespoon: Exploring Future Folklore through Design

This paper explores the role and potential for design as *process*, *artefact* and *experience* to help frame and address societal problems. We consider this through examining a *future folklore* dialogical object, designed to stimulate conversation and question assumptions. Beekeeping is a particularly rich context with which to adopt this methodological approach, given the significance of global threats to insect pollination aligned with beekeeping's extensive cultural heritage.

By drawing on past narratives and contemporary knowledge and practices, the Beespoon, a small copper spoon representing the amount of honey a single bee can make, was codesigned as an experience that actively engaged people with concepts of work, value and pollination. Our design process oscillated across past, present and future stories – the Beespoon as *future folklore* artefact and experience reflects this complexity, operating across time and value systems to provide new ways to think about how we perceive and understand bees.

Tues 28th June

11:15-12:45

Brighton Dome
Founders Room

Deborah Maxwell

University of
York, GBR

Liz Edwards

Lancaster
University, GBR

Toby Pillatt

University of
Sheffield, GBR

Niamh Downing

Falmouth
University, GBR

Design for Resourceful Ageing: Intervening in the Ethics of Gerontechnology

Tues 28th June
11:15-12:45

**Brighton Dome
Founders Room**

**Elisa Giaccardi
Lenneke Kuijer**
TU Delft, NLD

Louis Neven
Avans University
of Applied Sciences,
NLD

This paper discusses an innovative approach to the design of technologies for older people. The approach contains a critique of 'gerontechnology' as taking decisions out of the hands of older people and materializing what it means to live healthily and well into 'foolproof' designs that easily become inappropriate in the variety of situations in which older people end up using them.

The proposed design approach focuses on re-delegating such ethical decisions to the point at which technology is used. It does so by considering technologies as *resources* that can complement the ageing competences of older people and adapt in a variety of ways.

To gain design knowledge of the way existing technologies as well as prototypes function as resources across webs of practices, and the dimensions of 'openness' along which they may adapt within such practices, the approach enlists networks of everyday things as co-ethnographers.

Uber and Language/Action Theory

Mediated communication is the way that distributed and proximate work teams communicate, and is structured nearly completely through software. Users request and make commitments, collaborate on and complete projects, and develop new software systems through software-based conversations. Yet, software designers and developers approach designing conversation software as a series of generic submissions, rather than as an iterative and reflexive process of specific and varied types of speech-acts.

This paper examines two pieces of software: The Coordinator and the Uber Partner (driver) app, and a summary of the dialog surrounding the release of the Coordinator as an implementation of Language/Action Theory.

Tues 28th June

11:15-12:45

**Brighton Dome
Founders Room**

Michael Mages

Carnegie Mellon
University, USA

Emotional Fit: Developing a New Fashion Design Methodology for Mature Women

Tues 28th June
11:15-12:45

Brighton Dome
Founders Room

Katherine Townsend
Ania Sadkowska
Juliana Sissons
Nottingham Trent
University, GBR

This paper reports on a user-centered methodological approach towards fashion design for mature women (55+). Referred to as the 'baby boomers' the women in this study are the product of the cultural revolution of the 1960s, who consequently have a strong sense of their own 'agency', as conveyed through their clothing and style, but now find themselves stepping into the unknown territory of a limited market.

The majority of fashion brands and stores are aimed at younger consumers, and with some exceptions, it is only high and niche designer labels who are offering stylish garments that complement the changing bodies of an older generation women with strong aesthetic values. In response to this situation three researchers have developed an original research methodology which synthesizes fashion and textile design practices with Interpretative Phenomenological Analysis (IPA), resulting in an holistic, co-design and user-centred approach that responds to the emotional and physical needs of an ageing female demographic.

Find this paper online at www.drs2016.org/422

Design Research: History, Theory, Practice – Histories for Future-Focused Thinking

Writing soon after the 1962 Conference on Design Methods at Imperial College – the event that led to the founding of the Design Research Society in 1966 – J.C. Jones and D.G. Thornley described the Conference's purpose as twofold.

Firstly, the event determined the parameters of a collective agenda and, secondly, it enabled discussions that would catalyse future developments in design methods work (Slann, 1963). On the occasion of the Design Research Society (DRS)'s fiftieth anniversary, this conference strand continues this dialogue with a specific agenda: to assess histories of future-focused thinking and to consider the histories, theories and practices shared between design researchers.

What emerges from evaluations of the Design Methods Movement and of Design Research is the continuous search for a common language and common methods and an interest in problem solving, by bringing scientific methods to bear on design. If we understand the history of Design Research in generational terms, this panel suggests a new era: a generation of rigorous interdisciplinary collaboration. This stretches to include practice methods, research, writing and diverse collaborations across academic colleagues from various disciplinary enclaves. Victor Margolin echoed this vanguard at the DRS2010 conference, noting that design research today 'pursues its interests based on its own criteria for best practice and meaningful results' (Margolin, 2010, p.1). We interpret this as pursuing meaningful discourse on shared- and dual-inspirational, creative work in design developments.

As part of this collaboration we ask: what can design historians contribute to the understanding of design research as a process comprised of history, theory and especially practice? And what can design research contribute to design history's interest in critical, reflexive and inclusive investigations into past design contexts and developments, in order to ensure sound, future-focused thinking?

Tues 28th June
11:15-12:45

Old Courthouse

**Chair: Maya
Oppenheimer**

Royal College of Art,
GBR

**Chair: Harriet
Atkinson**

University of
Brighton, GBR

The Structure of Design Processes: Ideal and Reality in Bruce Archer's 1968 Doctoral Rthesis

Tues 28th June
11:15-12:45

Old Courthouse

Stephen Boyd Davis
Royal College of Art,
GBR

Simone Gristwood
Middlesex University,
GBR

The paper centres on a single document, the 1968 doctoral thesis of L Bruce Archer. It traces the author's earlier publications and the sources that informed and inspired his thinking, as a way of understanding the trajectory of his ideas and the motivations for his work at the Royal College of Art from 1962.

Analysis of the thesis suggests that Archer's ambition for a rigorous 'science of design' inspired by algorithmic approaches was increasingly threatened with disruption by his experience of large, complex design projects. His attempts to deal with this problem are shown to involve a particular interpretation of cybernetics.

The paper ends with Archer's own retrospective view and a brief account of his dramatically changed opinions. Archer is located as both a theorist and someone intensely interested in the commercial world of industrial design.

Find this paper online at www.drs2016.org/240

Closing the Circle

This paper describes a personal journey beginning at the Department of Design Research (DDR), Royal College of Art in 1967 under the leadership of Bruce Archer and culminating in the newly formed Design Innovation Research Centre (DIRC) at the University of Technology Sydney under the guidance of Kees Dorst in 2015.

The paper compares the processes and outcomes of the two centres in shaping design research with a particular focus on design in the public sector. The paper concludes with some reflections on the influence the different approaches have had on the way designers design.

Tues 28th June

11:15-12:45

Old Courthouse

Douglas Tomkin

University of
Technology Sydney,
AUS

Theme Session: Histories for Future-Focused Thinking

Re-integrating Design Education: Lessons from History

Tues 28th June
11:15-12:45

Old Courthouse

Peter Hall

University of the Arts
London, GBR

Throughout its short history, formal design education has struggled to find a balance between imparting technical skills and fostering bigger picture, critical and conceptual thinking; and also between notions of passive and active learning.

As educators become ever cognizant of a future marked by environmental crisis and accompanying complex problems of population flux, civil unrest, pollution and waste, achieving a balance between 'know how' and meta-level thinking has become more pressing.

The premise of this paper is that a 21st Century design education can further this goal by confronting the productivist entanglements of its past. It will argue that the lessons of its turbulent relationship with industry provide the seeds for an approach to learning that is better integrated with industry and society than conventional hypothetical studio assignments allow.

Find this paper online at www.drs2016.org/287

Design Epistemology

The last 50 years has seen moves towards establishing a sound epistemic basis for design as a knowledge discipline. Despite this, there is still a lack of clarity and penetration of such epistemic studies into pedagogy and practice, as well as little consensus of a foundational structure to the territory of specialized knowledge and knowledge acquisition. This raises the issue that there remains several epistemological 'big challenges' across the entire spectrum of design disciplines – or as a generalized design knowledge (Cross, 2013).

This theme will explore the current state of design epistemology and pose a range of questions that remain generally unanswered, or incompletely answered. Such questions have to consider the historical underpinnings of design as discipline, leading to the social and political drivers and contexts within which it operates today. At the same time, these questions have to consider the grounded and heuristic nature of design; a fundamentally situated practice whose artifacts still remain under-researched across the discipline.

In general terms, a design epistemology as a truly distinct and rigorous knowledge praxis has yet to emerge. At this 50th Design Research Society conference, the Design Epistemology Theme seeks to encourage new discussions across the community to rigorously consider the scope, methods and veracity of design practice, education and research.

Tues 28th June

11:15-12:45

Grand Parade

Sallis Benney

Chair: Derek Jones
The Open University,
GBR

Chair: Philip Plowright
Lawrence
Technological
University, USA

Mapping Design Knowledge: 36 years of Design Studies

Tues 28th June
11:15-12:45

Grand Parade
Sallis Benney

Kathryn Burns
Jack Ingram

Birmingham City
University, GBR

Louise Annable

Formerly of
Birmingham City
University, GBR

This paper examines the nature of design research, knowledge and theory, as revealed through an overview of the areas of interest that make up published writing on design, specifically that published in *Design Studies*, since its first publication in 1979. The research proposes a taxonomy of design knowledge addressing the objects, processes and practices of design and consumption. This is used as the basis to trace the history and development of design ideas and design writing over the following 36 years through classifying the issues that are central to the published papers published in *Design Studies*, and quantifying the changes of emphasis in design topics over that period.

The paper offers proposals for the areas within which design theory resides, suggests that until a mature design epistemology evolves the concept of epistemics is a more appropriate term and reflects on the relationship between design research, knowledge, theory and practice.

Find this paper online at www.drs2016.org/061

I know this one, but the answer is complex...

There is a seductive logic in Abelson's 1979 paper Differences between belief and knowledge systems. This seduction comes in the form of an implicit promise that the formulation of a working epistemological address to the problems raised in the paper will give us a toolset that will blow away the fog of belief from the human landscape. This paper proposes that the very dynamism that makes the human landscape a swamp of wicked problems makes Abelson's conjecture – however true they may be on a meta scale – an unproductive addition to the designers toolbox. It proposes that middle-range theories offer productive addresses to the complex systems and wicked problems that define our world.

Tues 28th June
11:15-12:45

Grand Parade
Sallis Benney

Simon Downs
Loughborough
Universtiy, GBR

Source Domains of Architectural Knowledge: Mappings, Categories, Validity and Relevance

Tues 28th June
11:15-12:45

Grand Parade
Sallis Benney

Philip Plowright

Lawrence
Technological
University USA /
Universidad de
Castilla-La Mancha,
ESP

The linking of knowledge domains is an important indicator to how knowledge operates and can address priorities, values and scope held by the user. In this paper, source domains used in the discussion of architectural content are of interest. One of the strongest tools to examine knowledge sources is Conceptual Metaphor Theory (CMT) and metaphor analysis. The paper uses a corpus of contemporary architectural theory and criticism texts to analyse the source domains used in architectural cognition through the Cognitive Linguistic and Discourse Analysis application of CMT. The analysis highlights the contemporary presence of traditional source domains but also addresses the dominant involvement of human projections such as personification, implied motion and agency into non-human situations as a critical process in the creation of meaning.

Aesthetics, Cosmopolitics and Design

The scope of this theme is to explore the burgeoning interest in interdisciplinary engagements between the domains of design research and science and technology studies (STS). On the one hand, design has, for some time, been a topic for scholars interested in the role of science and technology in 'society' where the discipline's practices and technoscientific 'objects' have been studied as a newly recognized source of knowledge production, expertise and politics. On the other hand, design scholars and practitioners have exhibited a sustained interest in STS in order to inform and theorize their own practices and analysis, notably the conceptualisation of technology-user relations by way of actor-network theory, the historical analysis of design, the symmetrical acknowledgement and inclusion of human and non-human actors in participatory research and the engagement of publics in democratic processes.

Against this complex and variegated backdrop, design and STS scholars have also been engaging in interdisciplinary collaborations that productively combine aspects of practice-led research and process thought. Here, for example, designed devices (e.g. web-based visualization tools, cultural probes, computational appliances, software roBots) are designed, deployed and studied in-situ as part of inventive and so called speculative methods that acknowledge the active role of such techniques in shaping and manifesting the researched.

As such, this theme explores engagements between design research and STS as topic, critical resource as well as interdisciplinary efforts where the crafting and experience of aesthetics is foregrounded as both a practical and theoretical concern and part of the reformulation of politics as cosmopolitics i.e. the modification of the social through designs and design research interventions.

Tues 28th June

11:15-12:45

Grand Parade

M2

Chair:

Alex Wilkie

Goldsmiths,

University of London,

GBR

The Prototype as a Cosmopolitical Place: Ethnographic Design Practice and Research at the National Zoo in Santiago, Chile

Tues 28th June
11:15-12:45

Grand Parade
M2

Pablo Hermansen
Martín Tironi
José Neira

Pontificia Universidad
Católica de Chile, CHL

This article presents an empirical reflection about the design of prototypes and the individualization of some animals at the National Zoo in Santiago, Chile. Using the material produced by design students, we describe how the process of prototyping contributes to singularize those animals, therefore becoming a cosmopolitical device. The environmental enrichment for chimpanzees case will demonstrate how prototyping displays a truly ontological vocation, establishing open processes of dialogue and experimentation. Its provisional, malleable and fragile nature turns the prototype into a *locus* for inquiry and exploration; its cosmopolitical qualities derived from its many forms of ontological diplomacy: instead of stabilizing properties, it constantly re-specifies its conditions for verification. Finally, we attempt to develop the thesis of the prototype as a cosmopolitical device and its implications on design research as well as a way to intervene the world.

Theme Session: Aesthetics, Cosmopolitics and Design

Aesthetics, Cosmopolitics and Design Futures in Computational Fashion

This paper engages the productive encounters between science and technology studies (STS) and design – and, in particular, aesthetics, cosmopolitics and design futures – through an account of participation in a computational fashion project. Computational fashion is an important and rich site of research for a number of pressing STS concerns related to hybridity, materiality, knowledge-building and publics because of the ways in which issues of labor and gender are situated. Through collaboration and participation in the process of conceptualizing and using digital tools to design a 3D printed garment, it is possible to work out relationships between the digital and the material that are difficult to describe in STS theory. As such, the process of making as well as the final 3D printed garment and its exhibition become sites where the social is configured and reconfigured.

Tues 28th June

11:15-12:45

**Grand Parade
M2**

Laura Forlano

Illinois Institute of
Technology, USA

Find this paper online at www.drs2016.org/373

Framing Values in Design

Tues 28th June
11:15-12:45

Grand Parade
M2

Marta Gasparin
William Green
University Of
Leicester, GBR

In this paper, we outline a framework that explains how creating value in a design product takes place in practice, as a result of a negotiation and translation process. Through an ethnographic study, we analyse how the values of an iconic Scandinavian design product emerged and were managed during the product life cycle, translating the values when new actors or new markets were enrolled. More specifically, the paper uses the notion of features in order to capture and express the value process. It suggests that the work of the spokesperson of associating and disassociating features is the key dimensions that determines the emergence of value. It also argues that value as product is not static rather dynamic that is changed by the process of associating and disassociating new features.

Theme Session: Aesthetics, Cosmopolitics and Design

Designing Debate: The Entanglement of Speculative Design and Upstream Engagement

This paper offers a critical reflection of a design practice in which a speculative approach to design became entangled with upstream engagement with biotechnology research. Given that both practices claim to enable a public discussion about emergent technology, what is the nature of their mixing, and how should an analytical account of such a design practice be made? I focus on the project Material Beliefs as a case, and argue that the move on upstream engagement by speculative design is an imbroglio that goes beyond mixing the formal features of practice, and requires a discussion concerning the actions of the designer in relation to a broader set of accountabilities. Ultimately, I contend that this mixing provides an opportunity to foster a reflexive and empirical account of speculative practice, inciting analysis of the organisations and settings that support a speculative approach, and providing a critique of upstream engagement.

Tues 28th June

11:15-12:45

Grand Parade

M2

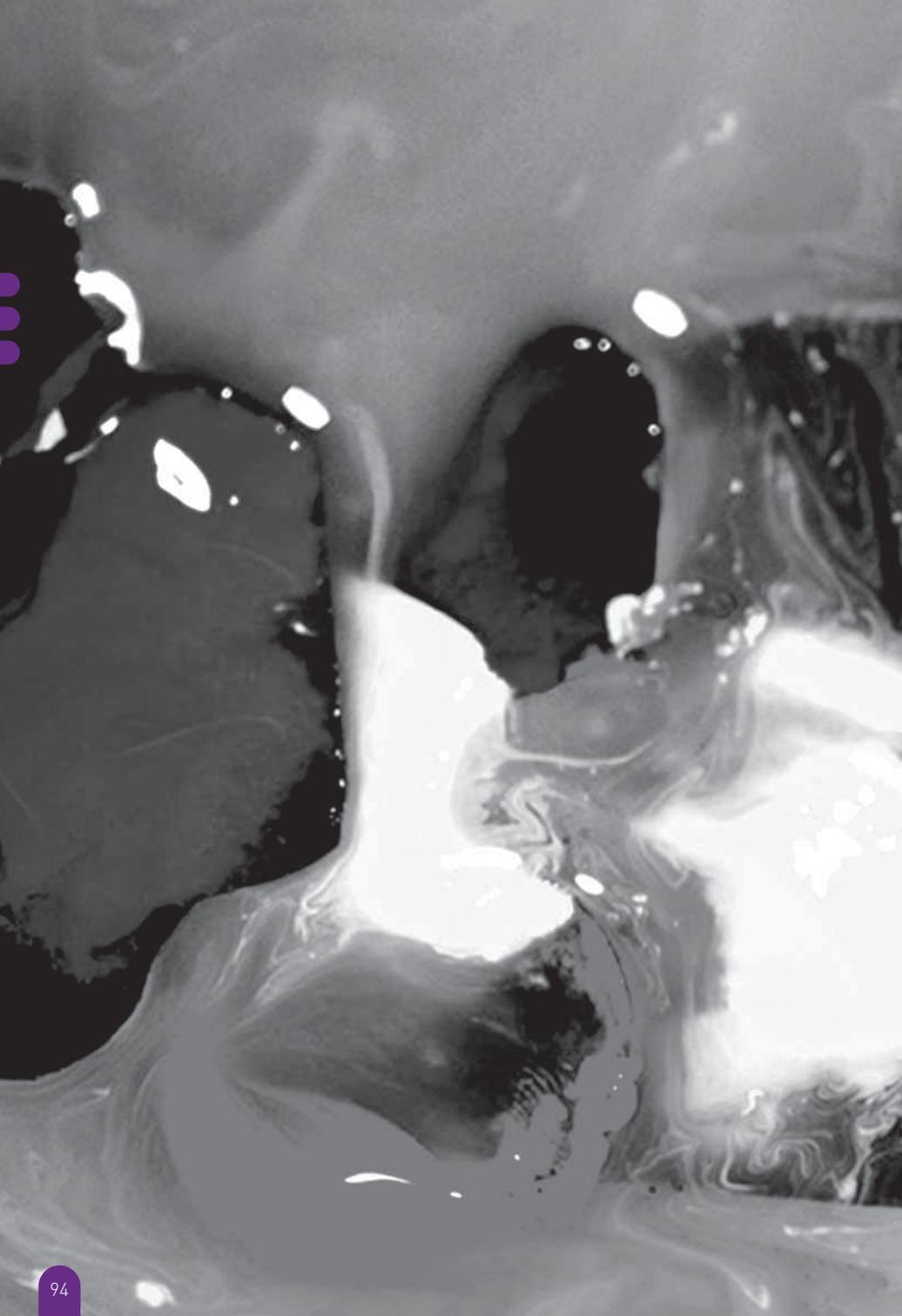
Tobie Kerridge

Goldsmiths,

University of

London, GBR

Find this paper online at www.drs2016.org/022



Experiential Knowledge

Being the first DRS Special Interest Group, the Special Interest Group on Experiential Knowledge (EKSIG) focuses on the understanding and role of knowledge in research and professional practice in design. The key aims of EKSIG are: (1) to investigate and advance the understanding of 'knowledge' and 'contribution to knowledge' in design research, particularly in areas where the act of designing forms part of the research process; (2) to develop principles and criteria of design research for employing different kinds of knowledge and means for communicating such knowledge; and (3) to encourage the implementation of the principles and criteria developed within the current research policy to promote quality, standards and best practices in research.

At the DRS 2016, the EKSIG strand is expected to examine experiential knowledge, thinking and knowing at the core of design practice, with an attempt to illuminate how a design process conducted in a research context begins and ends in the domain of experience, which is in turn changed by design.

Questions of interest are concerned with:

- Methods for the communication and transfer of experiential knowledge within design research;
- The contribution of design practices to the understanding and communication of experiential knowledge in design research;
- Frameworks for guiding the reception and interpretation of professional design practices and/or artefacts within research;
- Issues evolving from criteria of research such as repeatability and transferability for the foregrounding of tacit knowledge in design research.

In response to the call, the EKSIG strand received 15 submissions from eight countries. After a double blind review process, four contributions have been accepted for presentation at the conference. Selected papers present research and case studies that contribute to a systematic approach to studying and integrating experiential knowledge into design practice and research.

Tues 28th June

11:15-12:45

Grand Parade

G4

Chair:

Nithikul Nimkulrat

Estonian Academy
of Arts, EST

Double-loop Reflective Practice as an Approach to Understanding Knowledge and Experience

Tues 28th June
11:15-12:45

**Grand Parade
G4**

**John Gribbin
Mersha Aftab
Sumin Park
Robert Young**

Northumbria
University, GBR

The main aim of this paper is to consider the way in which reflective practice can assist practitioners in better understanding their individual knowledge and experience. Transitioning from a design novice to a design expert is described as a vague process, in which reflective practice can offer a level of understanding that provides an important insight into professional development within design. Through a comparison of two methods of reflection and analysis of reflective practice data, it is argued that repertory grid interviews have the potential to be a catalyst for double-loop learning within individuals; providing people with a platform to reflect on their beliefs and values in addition to their approach towards problem solving.

This argument is based on the ability of repertory grids to uncover some of the implicit knowledge developed by designers, which is a distinct advantage to alternative methods of reflection and which is necessary to improve professional practice understanding and learning.

Theme Session: Experiential Knowledge

Capturing Architects' Designerly Ways of Knowing about Users: Exploring an Ethnographic Research Approach

Transferring knowledge about diverse users' experiences from research into architectural design practice is not straightforward. Effective knowledge transfer requires taking into account architects' design practice.

This paper explores a research approach to gain insight into architects' designerly ways of knowing about users. It discusses why an ethnographic research approach offers a means to study a culture of practice such as architectural design practice.

A fieldwork account from a pilot study in an architecture firm provides insight into the experiential issues architects deal with. It illustrates how fieldwork techniques can be applied to map the socio-material aspects (e.g., different stakeholders and design materials) that mediate knowledge about users. Exploiting these aspects of architectural design practice is expected to open new ways of thinking about informing architects about users' experiences. For instance, there lies an opportunity in engaging architects' creative representational skills, which challenges architects' and researchers' roles in knowledge transfer.

Tues 28th June

11:15-12:45

Grand Parade

G4

Valerie Van der Linden

Ann Heylighen

KU Leuven, BEL

Hua Dong

Tongji University, CHN

Find this paper online at www.drs2016.org/419

Bonding through Designing: How a Participatory Approach to Videography can Catalyse an Emotive and Reflective Dialogue with Young People

Tues 28th June
11:15-12:45

Grand Parade
G4

Marianne McAra

The Glasgow School
of Art, GBR

Young people at risk of failing through the educational-net post compulsory schooling, or who have done so already, are too often subsumed under negative-based rhetoric such as disengaged, disaffected, and NEET (Not in Education, Employment or Training). This rhetoric suggests that young people are responsible for their, supposedly, demobilised capacity and fails to acknowledge the fundamental adversities highly disadvantaged young people can face, further camouflaging the most vulnerable.

In this paper I reflect on my experience of collaborating with a group of young people, identified by their schoolteachers as vulnerable and at risk of nonparticipation. I reflect on my incremental approach to building and sustaining research bonds, and the catalysing role creativity played. By transporting the technique of Direct Animation into a participatory design context, the participants produced metaphorical videography exploring their ambitions, motivations and anticipations for the future; a conduit through which they explored, translated, and narrated their experiences.

Theme Session: Experiential Knowledge

Designing ‘little worlds’ in Walnut Park: How Architects Adopted an Ethnographic Case Study on Living with Dementia

Understanding future users is recognised to be essential in design,= yet also challenging. Often architects have no direct access to the experiences of others, like people with dementia. Case studies have been suggested as an adequate format to inform designers.

This paper investigates the role of an ethnographic case study about a person living with dementia, as provided to an architectural firm designing a residential care facility. Interviews with the architects and an analysis of design materials reveal how they incorporated the case study in their ongoing design.

Results indicate that the case study offered insight into users’ daily life and facilitated architects’ concept development. Architects’ resulting concept proved valuable to frame design decisions, while its visualisation played a significant role in internal and external communication.

The study contributes to untangling important aspects in informing architects about future users and raises questions regarding researchers’ and designers’ roles in transferring knowledge.

Tues 28th June

11:15-12:45

Grand Parade

G4

Valerie Van der Linden

Iris Van Steenwinkel

Ann Heylighen

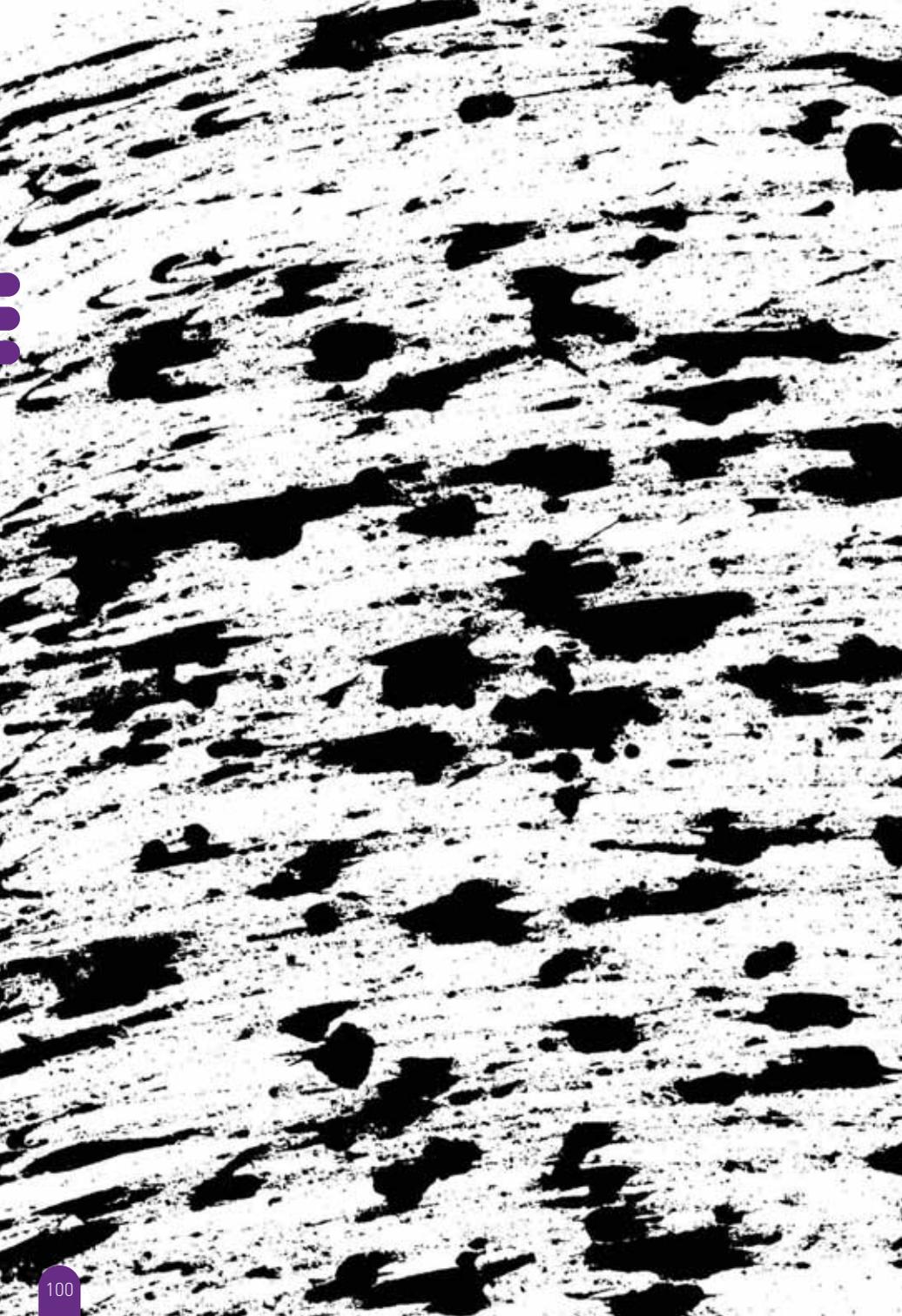
KU Leuven, BEL

Hua Dong

Tongji University,

CHN

Find this paper online at www.drs2016.org/418



Design and Translation

The Italian verb 'tradurre' (to translate in English), derives from the Latin term 'traducere' and it's composed by the verb 'ducere' (to bring) and the prefix 'trans' that means beyond or across. Similarly the English version 'to translate' originates from the Latin 'translatum', past principle of 'transfero', that means to bring beyond, or to carry over. Both definitions are clearly associated to the process of transformation, transposition of something from an initial stage to a final one, but they can be also connected to the concept of 'culture' that, as noted Torop (2002), operates largely through translational activities.

We'd like to demonstrate that the translation, in all its possible declinations, affects the design domain, representing not only the basis for a new design sensitivity, but also a new perspective for design's innovation processes. More broadly the connection between translation and design concerns, from our point of view, the research of different designed communicative modalities in a universe that is increasingly inter-linguistic, multimodal, inter-cultural, multimedia, trans-media, cross-media, and that requires more inclusion, interaction, collaboration and exchange.

Furthermore the continuous shifting of boundaries between disciplines, fields of knowledge and productive models, demands more design skills able to develop themselves as a process of translation between different codes and patterns, and thus it makes necessary to redefine not only the linguistic and interpretative sphere, but above all the critical and analytical thresholds of the designers who produce communicative artefacts.

This track is finalised to share a collection of contributes that are theoretical, methodological, analytical but also phenomenological and operative; the goal is to highlight and enhance systematically the close relationship between design and translation. In essence, we think that the concept of translation can be a distinctive characteristic of design culture: design can be intended in terms of translation and all design process involves translational pathways.

Tues 28th June

11:15-12:45

Grand Parade

Studio 101

Chair: Elena Caratti

Politecnico di

Milano, ITA

Chair: Giovanni

Baule

Politecnico di

Milano, ITA

Towards Translation Design A New Paradigm for Design Research

Tues 28th June
11:15-12:45

Grand Parade
Studio 101

Giovanni Baule
Elena Caratti
Politecnico di
Milano, ITA

In this paper we explore the concept of translation, starting from the assumption that it constitutes an essential reference for design culture. We assume that a designer (and in particular a communication designer) is a 'translator', since he realises a continuous process of mediation, transfer and re-transcription between the systems of departure and arrival. This perspective leads us to suppose that the application of the 'translational paradigm' within the design domain can generate new design sensitivities and new research opportunities into language and into the processes of transferral between different supports and media. We believe that design has specific affinities with the field of translation on several levels and, at a general level, has at least two main shared characteristics, one relating to content and the other to process.

If design is translation, what are the nodes of pertinence and the implications in terms of research?

Theme Session: Design and Translation

Design as Translation Activity: A Semiotic Overview

The paper originates from the following question: can the design activity, intended as an inventive and project-making activity, also be viewed as a form of translation?

To answer such a question we are compelled to overcome a paradox, because design does not involve a transfer from a source text from which it translates. Design generally acts like a translator and interpreter of social needs that previously existed as unstructured, non-textual, open-ended entities, thus exposed to uncertainty and incoherence and striving through design to acquire a proper structure, i.e., a textual form.

From the extensive literature on the subject in semiotics and linguistics, here we will select and outline only the fundamental semiotic models that could help us overcome the paradox, at least from a theoretical viewpoint, and provide a plausible answer to our opening question.

Tues 28th June
11:15-12:45

**Grand Parade
Studio 101**

Salvatore Zingale
Politecnico di
Milano, ITA

Find this paper online at www.drs2016.org/401

Word to Image – Image to Word: The Contribution of Visual Communication to Understanding and Dialog

Tues 28th June
11:15-12:45

Grand Parade
Studio 101

Michael Renner
The Basel School
of Design, CHE

Translation, understood as an interpretation of experience, opens a broad field of inquiry into a variety of disciplines. Hans-Georg Gadamer's description of hermeneutics as a language-based methodology to develop understanding, insight, and agreement within a group, serves as the starting point to analyze the practice of visual communication as a form of interpretation, negotiation, and insight.

In a first step, the paper discusses the process of drawing and its relationship to interpretation. The classification of drawing as a gestural activity establishes a link to recent anthropological theories, which see gestures as precursors of the human language. Through an analysis of processes in the field of corporate design, we can strengthen the hypothesis that images follow a logic that is only partially accessible through words. In respect to interpretation, the images of an identity visualization follow a convention held in our collective memory or derived from preconceptions and provide a new aspect of a familiar experience to a beholder. Following this line of thought, the paper suggests that 'practice-led iconic research' is a methodology that uses a systematic generation of images to advance our knowledge of images. Going back to the initial question of a language-oriented hermeneutics, we can conclude that, in the context of iconic research, the combination of experimental image creation and the analysis of these images with the help of words leads to a unique insight. The generation and analysis of visual variations is comparable to a discursive and language-based methodology in hermeneutics which requires that various contrasting aspects be considered.

Find this paper online at www.drs2016.org/441

Perception, Meaning and Transmodal Design

Our perceptual system allows us to experience and make meaning of the world through different modalities. We can move between feeling, seeing and hearing things and still makes sense of our world. Our cognitive activities are transmodal. In interaction design this means that both our design processes and our users' interactions are transmodal. We have gained insights into how transitions between modalities, both in the design context and in the users' interaction context, modulate meaning and experience, by analysing three interactive systems: SimProv, VibEd, and Sightlence. We propose that a transmodal design approach facilitate designers to realize the communicative potential of different modalities, and hence present users with a transmodal perspective on their interaction space that allow for continuous rearrangement and use of modalities.

Tues 28th June

11:15-12:45

Grand Parade

Studio 101

Mathias Nordvall

Mattias Arvola

Linköping University,

SWE

The Ways of Synesthetic Translation: Design Models for Media Accessibility

Tues 28th June
11:15-12:45

Grand Parade
Studio 101

Dina Riccò
Politecnico di
Milano, ITA

Synesthetic translation, historically applied to artistic productions and in the twentieth century applied by scholars to neuroscience to explain the unity of the senses, is addressed, defined and illustrated in this paper with regard to designing access to content. In particular, the paper shows how the concept of accessibility, underlying every interlinguistic translation process, may be promoted by synesthetic translations, i.e. particular types of intersemiotic translation – among various codes (verbal, figurative, sonorous, etc.) – in which the original text (prototext) and the translated text (metatext) use different sensory registers. The goal is to achieve a form of design that grants everyone access to content (design for all). This paper compares synesthetic practices in typhology, i.e. aimed at the blind, with extravisual communication design techniques. The conclusion is that all too often, despite having access to the necessary tools, visual designers tend to neglect the needs of the disabled.

The Narratives and the Supports: Remediating Design Culture in the Translation of Transmedia Artefacts

Media culture has fostered over the last century an incessant proliferation of ideas, models, and artefacts that have defined specific milestones and precise references for designers, researchers, and professionals in several disciplines. Since the mid-'80s, an increasing transdisciplinarity, the ability to experiment more effective techniques, the widespread diffusion of specific tools, and a worldwide network to interconnect emerging knowledge and skills redefined the contents production and consumption.

The growth of social-driven patterns based on bottom-up collaboration, interchangeable format of distribution and consumption, connective intelligence, and sharing economy fostered the rise of participative audiences and the emergence of trans-media narratives (Jenkins et al. 2006).

The paradigm shift of the realism of the forms (Flusser, 1997), the growth of crowdsourced and crowdfunded business models (Surowiecki, 2004), accessibility as a protocol not only for consumption but for development (Steve, 2004; Lessig 2004), the birth of new Software Cultures (Manovich, 2010), are some of the passages towards the definition of hybrid artefacts, collectively built and sometimes opened to narrow but very (re)active audiences. Transmedia artefacts are among the first concrete results of this change of perspective. Over the past 50 years it has been possible to witness the birth of such trans-media experiments and artefacts (The Magus by John Fowles, 1965, and Ong's Hat, 1980). From subsequent projects (like Inanimate Alice, 2005, and The Cosmonaut, 2013), the designer's work becomes a process of hybrid and interconnected teams.

This paper aims at detecting the grassroots and the role of design culture in the definition of transmedia artefacts, showing how designers' skills move towards a translation of the narrative elements not only in terms of adaptation from one support to another, or from one idiom to a new one, but mainly setting up crossed strategies of cultural 'remediation' (Bolter & Grusin, 2000).

Find this paper online at www.drs2016.org/272

Tues 28th June
11:15-12:45
Grand Parade
Studio 101

Matteo Ciastellardi
Politecnico di
Milano, ITA

Derrick De Kerckhove
University of
Toronto, CAN

Co-creating narratives: An Approach to the Design of Interactive Medical Devices, informed by Phenomenology

Tues 28th June
14:00-15:30

Brighton Dome
Concert Hall

Rowan Page

Mark Richardson
Monash University,
AUS

This paper attempts to articulate a philosophical underpinning, an *attitude*, with which to approach the design of interactive medical devices. This exploration is undertaken through drawing upon and connecting ideas from relevant discourses within the; medical, human computer interaction (HCI), and design fields. Through exploring the common discourse of phenomenological research in these three fields, this paper seeks to provide an introduction to a transdisciplinary foundation relevant to researchers working within the intersection of these fields.

In my own design practice, this is explored through the co-creation of an intersubjective feedback cycle between designer and design recipient through a combination of co-design sessions and speculative design probes. Stopping short of suggesting a framework, this paper proposes that adopting a *phenomenological attitude* to research might benefit design researchers working in the medical field, providing a transdisciplinary common ground for working within, and communicating across; design, HCI, and medicine.

Happy moments: A Well-being Driven Design of a Car2Go

User well-being is increasingly addressed in design and design research. Previous work has proposed a design for well-being framework that includes three main ingredients: pleasure, personal significance, and virtue. While useful for analysing the well-being impact of existing designs, it is difficult to use the framework as a resource in well-being focussed design projects.

This paper presents a design case study in which two key challenges have been addressed. The first is to understand how to identify relevant pleasures, personal significances and virtues in the context of design practice. The second is to understand how design concepts can be developed that integrates these three ingredients in a meaningful way.

The design case was to develop a car interior for a car sharing service. The first challenge was addressed with two user studies where it was found that especially conflicts or tensions between ingredients stimulated design creativity. The second challenge was addressed by including the factor of time in the design concept (creating a concept in which experiences unfold over time). The design case is presented and the techniques that were used to address the well-being-specific design challenges are discussed and reflected on.

Tues 28th June
14:00-15:30

Brighton Dome
Concert Hall

Tessa Duste
Pieter Desmet
Elmer van Grondelle
TU Delft, NLD

Exploring Design for Happiness in the Home and Implications for Future Domestic Living

Tues 28th June
14:00-15:30

**Brighton Dome
Concert Hall**

**Emily Corrigan-Doyle
Carolina Escobar-
Tello
Kathy Lo**

Loughborough
University, GBR

This paper attempts to articulate a philosophical underpinning, an attitude, with which to approach the design of interactive medical devices. This exploration is undertaken through drawing upon and connecting ideas from relevant discourses within the; medical, human computer interaction (HCI), and design fields. Through exploring the common discourse of phenomenological research in these three fields, this paper seeks to provide an introduction to a transdisciplinary foundation relevant to researchers working within the intersection of these fields.

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A Design Primer for the Domestication of Health Technologies

As the population ages and places increasing pressures on health services there is widespread acceptance that we have to radically rethink how care is delivered. There is a growing body of research that focuses on telehealth to support self-care and a shift of traditional care from hospital to the home environ.

This paper explores the culture and practice of health interventions that have previously resided within the domain of the hospital and the implications of this shift when they infiltrate the private space of the home. Research undertaken by the authors using a critical artefact methodology highlights collaborative approaches between design and health are critical to both understand these two disparate environments and that careful consideration is required when developing appropriate new landscapes and paradigms for care. This presents opportunity for design both in developing solutions but also within creative research approaches to understand the complexity of the challenges.

Tues 28th June
14:00-15:30

**Brighton Dome
Concert Hall**

**Paul Chamberlain
Claire Craig**
Sheffield Hallam
University, GBR

Using Symbolic Meaning as a means to Design for Happiness: The Development of a Card Set for Designers

Tues 28th June
14:00-15:30

Brighton Dome
Concert Hall

Mafalda Casais
Ruth Mugge
Pieter Desmet
TU Delft, NLD

Using design to improve the lives of people towards a positive flourishing state is the main premise of Positive Design. Our contribution to this growing field focuses on making use of the symbolic meaning that design can have to bolster human happiness. This paper presents the development of a card set for designers aiming to inspire design for happiness. The card set is explored in three sessions with groups of design educators, design students and design professionals respectively to collect diversified recommendations to improve its format and use. The resulting SIM toolkit for designers ('Design with symbolic meaning for user happiness'), composed of a card set and a website, is disclosed and a workshop on how to use it is discussed.

Disentangling Complexity: A Visualisation-led Tool for Healthcare Associated Infection Training

Training in infection prevention and control (IPC) measures is crucial to minimise the incidence of healthcare-associated infections (HAIs), a growing cause of patient illness and death in hospital. This paper describes a participative approach to developing a prototype tablet-based digital training tool using dynamic visualisation-led techniques to raise awareness and understanding of IPC and HAIs for hospital-based staff.

An evidence-based and iterative visualisation prototyping process was used to engage staff and invite contributions from across a number of roles within the NHS, a typically hierarchical sector. Findings suggest the visualisation-led approach was helpful in articulating the behaviours of pathogens and staff and their interactions within the complex setting and service ecology of the NHS and in making IPC training materials clearer and more engaging.

Tues 28th June
14:00-15:30

**Brighton Dome
Concert Hall**

**Alastair Macdonald
David Loudon
Susan Wan**

Glasgow School
of Art, GBR

Colin Macduff
Robert Gordon
University, GBR

Assessment of the Co-creative Design Process

Tues 28th June
14:00-15:30

**Brighton Dome
Studio Theatre**

**Pratik Vyas
Robert Young
Petia Sice
Nick Spencer**

Northumbria
University, GBR

Co-creation in Design is a multi-disciplinary process where co-designers are not only trained professionals from different disciplines, but also members from the community with whom the co-design project is focused, e.g. local government officers and other interested parties such as financiers, local businesses, NGOs working in the area etc. Handling such multi-disciplinary, multi-personality and multi-cultural situations requires personal and professional development through reflective practice to understand one's own experience.

This technique has been traditionally called 'the act of becoming aware' (Schön, 1983) As the importance of co-design is increasing, the interactions generated during the co-design process are being considered important and such interactions need to be considered in the assessment criteria. Experts in psychology, systems thinking, western and eastern medicine and design education were invited to share knowledge during workshops and a consequent review of inter-disciplinary literature resulted in a list of 'inner values', where the anticipation was that, when these inner values exist in a co-design team, they can lead to harmonious working and co-owned decisions during the co-design process (Vyas et.al., 2012) The inner values were then clearly defined using the inter-disciplinary literature and literature from positive psychology was used to convert the conceptual inner values into a practical research framework.

This paper describes the application of the framework for research to generate empirical evidence that justifies the role and utility of the 'inner values' in the co-design process.

Exploring and Communicating User Diversity for Behavioural Change

We emphasize the importance of user diversity for behavioural change. We propose a method, user orientation maps, for exploring the user diversity for behavioural change and communicating this diversity to designers. In order to assess its applicability to different behavioural change contexts, we conducted two case studies. The first study explored the diversity in users' orientations towards adapting an environmentally friendly driving style. The second study explored user diversity towards adapting the usage of a smart urinal system which allows patients learn their risk of having Benign Prostatic Hyperplasia (BPH) without visiting a hospital.

In this paper, we present the results of the second study and conclude that the proposed method has enough flexibility to be applied in different behavioural change contexts. We end the paper with a discussion on the potential implications of using the method in behavioural change projects.

Tues 28th June
14:00-15:30

**Brighton Dome
Studio Theatre**

Aykut Coskun
Koc University, TUR

Cigdem Erbug
Middle East Technical
University, TUR

How I Learned to Appreciate our Tame Social Scientist: Experiences in Integrating Design Research and the Behavioural Sciences

Tues 28th June
14:00-15:30

Brighton Dome
Studio Theatre

Sander Hermsen
Remko van der Lugt
Utrecht University
of Applied Sciences,
NLD

Sander Mulder
Eindhoven University
of Technology, NLD

Reint Jan Renes
Utrecht University
of Applied Sciences
& Wageningen
University, NLD

Designing solutions for complex behaviour change processes can be greatly aided by integrating insights from the behavioural sciences into design practice. However, this integration is hampered by the relative inaccessibility of behavioural scientific knowledge. Working in a multidisciplinary of design researchers and behavioural scientists may bridge the gap between the two fields. This paper shares our experiences in working as such a multidisciplinary group on a large project, amongst others consisting of the design of interventions for workplace safety. Our cooperation was fruitful, both for design researchers – being able to better structure the messiness of the design process –, behavioural scientists – gaining in ecological validity of their methods –, and commissioners – increased trust in potential outcomes of the design process. However, difficulties preventing synergy also transpired.

A Design Approach for Risk Communication, the Case of Type 2 Diabetes

Type 2 diabetes continues to grow significantly around the world as a result of nutrition transition and obesity. Prevention methods depends on how well individuals at risk adapt to a healthy nutritional lifestyle and increase their physical exercise.

It is an emergent situation for diabetes risk communication and education programs specifically in vulnerable societies. This study leverages an interactive platform for diabetes risk communication using human-object interaction. The approach is based on an 'object-based learning' method for communicating risk. The designed object has elements to motivate and support the community toward an increase in physical activity and a healthy diet. Furthermore, this research looks at risk perceptions and stakeholder engagement of lay people from vulnerable communities. Understanding risk perception and misconception is important to provide diabetes educational services in accordance to local demands.

Tues 28th June
14:00-15:30

**Brighton Dome
Studio Theatre**

**Farzaneh Eftekhari
Tsai Lu Liu**

North Carolina State
University, USA

Metadesigning Design Research – How Can Designers Collaboratively Grow A Research Platform?

Tues 28th June
14:00-15:30

**Brighton Dome
Studio Theatre**

**Ingrid Mathilda
Tham**

Linnaeus University,
SWE & Goldsmiths,
University of London,
UK

**Anna-Karin
Arvidsson
Mikael Blomqvist**

**Susanne Bonja
Sara Hyltén-
Cavallius
Lena Håkansson
Miguel Salinas**

**Marie Sterte
Ola Ståhl
Tobias Svensén
Ole Victor**

Linnaeus University,
SWE

‘How can we design a meaningful and relevant research platform that will support futures of sustainability?’ was the question guiding the two-and-a-half-year- long, co-creative and emergent metadesign process of establishing a new research platform at the Department of Design, Linnaeus University, Sweden.

The meta focus on developing a whole research environment, as a design practice and design research endeavour, should be valuable for the design research community. Findings concern the viability of co-creative approaches in such a remit, negotiations of artistic/scientific research conventions, and the design institution’s position in the multi-disciplined university.

The research has identified tensions and conflicts between the academic institution and construct, and the application of ontologies, epistemologies and methodologies deemed auspicious for sustainability endeavours.

The paper itself is a collaborative effort between eleven of the researchers involved in developing the research platform.



Resonances: Listening as A Tool for Trans-cultural Storytelling

Tues 28th June
14:00-15:30

Brighton Dome
Founders Room A

Francesca Valsecchi
Tongji University,
CHN

Serena Pollastri
Lancaster University,
GBR

Roberta Tassi
Frog Design, GBR

Priscilla Chueng-Nainby
Edinburgh University,
GBR

As designers, we are often called to focus and extract information from the public and civic context, and elaborate them into insights and research purposes that will inform design projects. Storytelling is one of the most important tools in the research toolbox to communicate the insights we collect in the field, and to engage the research participants, and it is grandly challenged when it faces to serve people and cultures: how are stories built? How will plots, characters, and narrations be orchestrated? Which culture of reference will be displayed? Which critical translations will be performed?

During this active conversation with the participants, we will share and discuss principles and recommendations for a design toolkit for storytelling that leverages *listening* as the key pathway to shape stories across cultures and contexts.

Non-Local Situations: Speculating about Future Response-Abilities of Postindustrial Design (Research)

Design deals with the material, social, political, cultural, economic, and more, and in relation to history—past, present, and (possible) future(s). At the same time, the objects of design are becoming less traditionally thing-like and rather connected, dynamic, ‘smart’ components of product and service ecosystems. We need, then, to find ways to grapple with (eco) systems, contextual specificities, new forms of technologies, and societal needs in a changing world where we have yet to even begin to adequately come to grips with the implications of our dwindling resources and impending climate collapse; political structures are often woefully ineffective; and advanced capitalism seems to be spinning disastrously out of control.

The aim of this conversation is to speculate about future articulations, practices, and contexts of postindustrial design (research), and in the process to prototype the inclusive, rich, realistic yet hopeful discourse among passionate partial perspectives that is necessary to support it. This is a process of developing our ‘response-abilities’—our ‘collective capacity to respond’.

Tues 28th June

14:00-15:30

**Brighton Dome
Founders Room B**

**Heather Wiltse
Monica Lindh Karlsson
Kristina Lindström
Aditya Pawar
Åsa Ståhl**

Umeå University,
SWE

International Norms and Local Design Research: ICSID and the Promotion of Industrial Design in Latin America, 1970-1979

Tues 28th June
14:00-15:30

Old Courthouse

Tania Messell

University of Brighton,
GBR

The International Council of Societies of Industrial Design (ICSID) was founded in 1957 to raise the professional status of designers and to establish international standards for the profession. While the organisation expanded to include member societies from developing economies in the 1960s and 1970s, it was predominantly led by Western members, and design mainly promoted as a tool for industrial development, due to ICSID's close collaboration with the United Nations Industrial Development Organisation (UNIDO). Examining ICSID's early promotional activities in developing countries, in particular its first congress in Latin America 'Industrial Design for Human Development', held in 1979 Mexico, this paper appraises the reception of Western design precepts by a circle of Latin American designers and theorists, whose design methodology, which promulgated the primacy of local needs, resources and expertise, paved the way towards a more multifaceted understanding of design within ICSID and beyond.

Design Research in the East – at Universities and the Board of Industrial Design of the GDR between the 1960s and 1990

This paper focuses on the approach and effort put into design research in the GDR. There, the Board of Industrial Design (*Amt für industrielle Formgestaltung, AIF*), a commission reporting directly to the government, promoted and subsidized design research that was adequate to the policy of the board. Besides, a close connection between (state-owned) industry, universities as well as art and design schools cooperated on design research projects.

The economic design policy of the GDR has been developed in the PhD thesis of the board's head Martin Kelm, who pursued his functionalist approach to design at different levels. On the other hand, there was critique and a public debate about the design approach in the GDR and in the soviet block in general, accompanied by constant exchange between designers and design researchers of the GDR and the Federal Republic of Germany. With recurring interest in functionalism, the approach of design research in the GDR is getting more attention recently. Furthermore, teachers and academic approaches of design research survived the political (and economic) turnaround of 1990 and are now part of the pan-German design landscape.

Tues 28th June
14:00-15:30

Old Courthouse

Sylvia Wölfel

TU Berlin, DEU

Christian Wölfel

TU Dresden, DEU

Paper Session: Histories for Future-Focused Thinking

(Re)working the Past, (Dis)playing the Future: Italy – The New Domestic Landscape at MoMA, 1972

Tues 28th June
14:00-15:30

Old Courthouse

Ingrid Rashidi

University of Oslo,
NOR

Would a work—a painting, a building, a chair or a display—always operate within the framework of human intention? To bring thinking into the future, there is a need for future-focused methodologies. In this paper I will re-work the past by addressing the agency beyond human intention. By using the 1972 MoMA exhibition 'Italy: The New Domestic Landscape' as the empirical case, the paper will show how not only humans conceptualize reality, but things themselves have the capacity to display the future.

Find this paper online at www.drs2016.org/359

Recommendations to Rebuild the Body of Feminist Work in Industrial Design

Feminist work exists in industrial design and contributes to society, the feminist movement and the industrial design field itself. Though much of the work dates from the 1980s and 1990s, which leaves the contemporary industrial design field without much feminist critique and intervention, and without the many contributions of this body of work. Thus, there is a need to rebuild the body of feminist work in industrial design. However, the feminist movement in industrial design is difficult to grasp and it's hard to know how to move forward and contribute to this rebuilding.

This paper provides recommendations to inform this complex task based on readings on the topic of feminism and a literature review on feminism in design. The recommendations touch-on how to address the limited presence of feminism in industrial design, the contemporary relevance of older feminist work in industrial design and how contemporary feminism could inform newer work.

Tues 28th June
14:00-15:30

Old Courthouse

Isabel Prochner
Anne Marchand

Université de
Montréal, CAN

Using Rhetoric in Persuasive Design: What Rhetoric?

Tues 28th June
14:00-15:30

Grand Parade
Sallis Benney

Danny Godin
(UQAT), CAN

Richard Buchanan and a number of other design researchers have long argued about the synergy and similarities between design and rhetoric. The prospect of a new persuasive approach to design has also been evoked. Rhetoric, however, has a long history and has gone through numerous forms, many of which seemingly fit with Buchanan's rhetoric. Our long term goal is to define a persuasive approach to design and the effects of such an approach; therefore, as a first step, we need to identify the form that best fits Buchanan's rhetoric.

Using a comprehensive list of influential rhetoricians, we have compared the characteristics of different forms of rhetoric through the ages and found that argumentation should be used for further investigation and development of a persuasive design approach.

Design Fiction: Does the Search for Plausibility Lead to Deception?

Since its inception the term 'design fiction' has generated considerable interest as a future-focused method of research through design whose aim is to suspend disbelief about change by depicting prototypes inside diegeses, or 'story worlds'. Plausibility is one of the key qualities often associated with suspension of disbelief, a quality encoded within the artefacts created as design fictions. In this paper we consider whether by crafting this plausibility, works of design fiction are inherently, or can become, deceptive.

The notion of deception is potentially problematic for academic researchers who are bound by the research code of ethics at their particular institution and thus it is important to understand how plausibility and deception interact so as to understand any problems associated with using design fiction as a research method. We consider the plausibility of design fictions, looking at examples that are (1) obviously design fiction, (2) identified as design fiction, and (3) whose status is either ambiguous or concealed. We then explore the challenges involved in crafting plausibility by describing our experience of world-building for a design fiction that explores the notion of empathic communications in a digital world.

Our conclusions indicate that the form a design fiction takes, and pre-existing familiarity with that form, is a key determinant for whether an audience mistake it for reality and are deceived. Furthermore we suggest that designers may become minded to deliberately employ deceitful strategies in order help their design fiction reach a larger audience.

Tues 28th June

14:00-15:30

Grand Parade
Sallis Benney

Paul Coulton
Joseph Lindley
Haider Ali Akmal

Lancaster University,
GBR

Graphicality: Why is There Not Such a Word?

Tues 28th June
14:00-15:30

Grand Parade
Sallis Benney

Robert Harland
Loughborough
University, GBR

David Craib
Carleton University,
CAN

The concept of *graphicality* first appeared in the work of Edgar Allan Poe. Taking its title from Poe's painterly metaphor, this paper seeks to understand how graphicality may inform aspects of design thinking that have been neglected. We explore the current use, origins and aspects of graphicality, and contextualise it in some real world scenarios to reaffirm how we live in a graphic age, and how graphicality must be better understood in the way we comprehend other displays of human ability, such as musicality.

Poe provides us with a starting point for relating the physical and mental domains of image interpretation. Graphicality is shown to work on a continuum between subjectivity and objectivity, not as something to be measured but appreciated in how it enhances understanding and knowledge. This has implications for many academic disciplines, specifically in how it enhances our appreciation of the graphic in graphic design.

Designing as Anticipation and Innovation: Co-creating a Future by Learning from the Future as it Emerges

In this theoretical and conceptual paper we claim that there is a close connection between design, innovation, and anticipation. What they have in common is that they want to make sense of a future and they want to bring about change to a future that is only partly known. This applies even more, if design has to come up with completely new solutions for highly complex problems, such as the big challenges of our current economic or social systems.

We will develop a future-oriented perspective on innovation and design. Both design and innovation are operating in the field of uncertainty. That is why we will take a closer look at anticipation and how it deals with various forms of uncertainty. In highly complex domains it turns out that the future is not only unknown, but also unknowable. For design this means that we need completely new strategies and skills that have to go beyond problem solving and rather involve the notion of potentials and the creation of new niches and new problem spaces leading to new spaces of meaning. In the final part we will develop the notion of design as 'co-creating the future by learning from the future as it emerges' and derive an alternative set of (epistemic) attitudes and skills.

Tues 28th June
14:00-15:30

Grand Parade
Sallis Benney

Markus Peschl
University of Vienna,
AUT

Thomas Fundneider
theLivingCore,
AUT

Post-critical Potentials in Experimental Co-design

Tues 28th June
14:00-15:30

Grand Parade
M2

Sissel Olander

The Royal Danish
Academy of Fine Arts,
DNK

This paper focuses on the idea of post-criticality, and hinges on a critique of critique as developed by science scholar Bruno Latour. The paper explores the post-critical as some thing or some constellation, which may exceed from experimental and collaborative co-design events. Through a recounting of a co-design experiment, the paper seeks to characterize the post-critical as a situated and collaborative experimental possibility that may take many different non-descriptive forms.

Drawing on the work of Philosopher of Science Hans-Jörg Rheinberger and science scholar Nortje Marres, the paper reflects on the difference between experimental reasoning and empirical analysis. In so doing, the paper seeks to open a discussion on how experimental and collaborative design research and analytical movements like science and technology studies and actor network theory may cross-fertilize one another.

Collaborative Imaging. The Communicative Practice of Hand Sketching in Experimental Physics

This paper presents on-going ethnographic fieldwork in design research conducted in an x-ray laboratory. The study investigates physicists' hand sketching as a collaborative imaging practice and depicts collaborative drawing as a distinct form of knowledge in between the spaces of notation and verbal articulation. Physicists' collaborative sketching is captured through methods taken from design research and STS, including participant observation, videography and drawings by the design researcher.

In order to analyse the functions of the collaborative sketching, three key aspects of the research are discussed in this paper. First, the spaces and materiality of the laboratory are observed. Second, the hybrid practices combine old and new technologies and (non)-human agencies. And third, knowledge is transferred through sketches as 'enabling objects' of communication. Finally, it is argued that the observed collaboration resembles a complex communication system that can be explained through a visual typology.

Tues 28th June
14:00-15:30

Grand Parade
M2

Judith Dobler
University Potsdam,
DEU

Designing Diagrams for Social Issues

Tues 28th June
14:00-15:30

Grand Parade
M2

Michele Mauri
Paolo Ciuccarelli

Politecnico di Milano,
ITA

Emerging approaches in social sciences and new media studies involve inquiry into social issues via the web. By collecting, analysing and visualising digital traces (i.e. posts, tweets, comments), a 'issue map' can be created in order to make visible and understandable the network of the actors involved and their position in any public debate.

Drawing on experiences gathered during a European project, we identified a two-phases-approach for the creation of issue maps. In the two phases – exploration and communication – visualisations play a key role, with two different connotations: in the first, they act as analytical devices used by researchers. In the second, they become communicative artefacts for a larger public.

In this paper, we describe how we defined this approach, outlining the theoretical background and its connections with communication design. We highlight the main criticalities found in designing the issue maps before finally presenting our results.

The Role of Participation in Designing for IoT

The widespread proliferation of the internet-of-things (IoT) has led to the shift in focus from the technology itself to the way in which technology affects the social world.

Being inspired by the emerging intersection between actor network theory and co-design, this paper emphasizes the role of participation in designing IoT-based technologies by suggesting alternative ways to appropriate IoT into people's lives. It is argued that prototyping becomes crucial for designing IoT-based technologies where the invisible aspects of 'agency' and 'autonomy' are highlighted while still drawing on its full capabilities. In that, the value of tinkering and exploration are seen as ways to experiment with and constitute one's subjectivities in relation to IoT-based technologies.

Taking these points into consideration, it is suggested that there is a need to move towards a cosmopolitics of design where aesthetics and materialisation of technology also act as inquiries into issues of performance and social meaning-making.

Tues 28th June
14:00-15:30

Grand Parade
M2

Anuradha Reddy
Per Linde

Malmö University,
SWE

iPhoneography and New Aesthetics: The Emergence of a Social Visual Communication Through Image-based Social Media

Tues 28th June
14:00-15:30

Grand Parade
M2

Eman Alshawaf
University of
Minnesota, USA

New digital imaging practices have arisen with the emergence of image-based social media. An aesthetics that is both visual and social in nature is emerging and clearly manifesting on the user-friendly platform Instagram. While new visual aesthetics are rooted in the new attraction to vintage filters, social aesthetics manifest in embracing the mundane aspects of human life as a source for visual communication.

Amateur image-makers are taking the lead and experimenting with new visual forms of expression. The field of visual communication has not yet examined such timely issues, so this paper argues for increased attention to new digital imaging practices, such as iPhoneography, the practice of capturing, editing, and sharing images with one device, which is altering how we make and read images.

What Do Designers Have to Offer When Facing Societal Challenges?

Objects, artifacts, things. All these words are part of design, sometimes as synonyms, sometimes with different meanings. Since the establishment of design schools, designers have been trained to create new or improve existing products; we are good at designing these objects, artifacts and things.

However, when we as designers involve ourselves in societal challenges, when we engage in designing for social innovation, how can we use our expertise of designing objects? We will investigate this main research question in this conversation through interactive case study reviews, introduced by the catalysts, and bold propositions.

Participants will be asked to take a position on these propositions in order to address some key characteristics around designing for social innovation.

Tues 28th June

14:00-15:30

Grand Parade

G4

Mascha van der Voort

Robert-Jan den Haan

University of Twente,

NLD

Thomas Binder

The Royal Danish

Academy of Fine Arts,

DNK

Jacob Buur

University of Southern

Denmark, DNK

Per Linde

Malmö University, SWE

Rules of Thumb: An Experiment in Contextual Transposition

Tues 28th June
14:00-15:30

Grand Parade
Studio 101

Damon Taylor
Lesley Murray

University of Brighton,
GBR

Monika Büscher

Lancaster University,
GBR

Chris Speed

The University of
Edinburgh, GBR

Theo Zamenopolous

The Open University,
GBR

This paper describes an experiment in 'contextual transposition', a mobile, inventive method developed from conversations between the authors during an interdisciplinary research 'sprint', where our interests in alternative mobilities and 'designing' socially just futures generated productive creative friction.

The idea of 'hitching a ride' in automobility systems was mobilised and we embarked on a journey of 'contextual transposition'. Could one hitchhike in other contexts?

To explore this question, we designed an experiment. In this paper we describe it and discuss how we have used contextual transposition as a method for design research.

Juxtaposing Chinese and Western Representational Principles: New Design Methods for Information Graphics in the Field of Intercultural Communication

This article examines knowledge graphics from the Chinese and Western cultures, which, in the course of globalization, are being increasingly loosened from their original cultural references. If it is assumed that at most pictographs, but not complex graphics, are universally understandable, 'visual translations' must be developed for knowledge graphics if we are to transfer them into another cultural reference system.

Using the example of a widespread graphic form—the tree diagram—the research presented here will explain specific representational principles and the cultural concepts on which they are based. Here, on the visible surface, formal correlations can indeed be observed. However, if we ask what conceptual structures the graphics are based on, we encounter two fundamentally different representational systems.

The article focuses on the question of which design methods are capable of making the diverse relationships between these representational systems comprehensible.

Tues 28th June
14:00-15:30

Grand Parade
Studio 101

Ruedi Baur

Geneva School of Art
and Design, CHE

Ulrike Felsing

Geneva School of Art
and Design, CHE
/ Bern University of the
Arts, CHE

Elucidating Perceptions of Australian and Chinese Industrial Design from the Next Generation of Industrial Designers

Tues 28th June
14:00-15:30

Grand Parade
Studio 101

Blair Kuys

Swinburne University
of Technology, AUS

WenWen Zhang

Beijing Institute of
Technology, CHN

China is passing through a challenging transition: the labour force expansion and surging investment that propelled three decades of growth are now weakening (Woetzel et. al. 2015). This is a natural stage in a country's economic development, yet it raises questions as to where the new sources of growth lie. Australia is experiencing similar issues. In Australia the economy over this same period has survived on mainly mining of natural resources mostly exported to China. This cannot be sustained and a push from a resource economy to a knowledge economy needs to start. Australian manufacturing has suffered significantly with high labour costs and cheaper offshore markets. This is where design should be fundamental to the national agenda and be used to keep manufacturing strong. China, on the other hand is in an opposing position where manufacturing has been strong, however the economy now needs new avenues to grow.

This study goes into detail about perceived issues associated with industrial design programs at a university level in both China and Australia. It then consists of a pilot survey targeted at Chinese and Australian industrial design students and recent graduates. This has been done to better understand the mindsets and opinion of the next generation of industrial designers, with an aim to better address issues that arise for government, universities and industry. The survey respondents are the people that need to act and push design in areas it hasn't been before. China and Australia are used in this pilot study as that is where the authors reside — and is where the survey data has been obtained — however, there are many countries in similar situations that could use this study as a base for further research.

Find this paper online at www.drs2016.org/321

Translating Picturebooks: Re-examining Interlingual and Intersemiotic Translation

The paper explores picturebooks and their translation, analyzing the three Finnish translations of *The Tale of Peter Rabbit* by Beatrix Potter, all of which are based on a different illustration version. The paper approaches picturebook translation from the viewpoint of Jakobson's (1959) renowned classification of translation types, namely intralingual, interlingual and intersemiotic, focusing on the latter two. First, the paper examines the idea of book illustration as intersemiotic translation, analyzing how the illustration versions differ in recreating the story. Second, the paper provides examples of how the translations of picturebooks are, in fact, negotiated from the combination of verbal and visual information and therefore suggests that the translation of a picturebook does not fit into Jakobson's typology as such; instead, it is, to certain extent, a combination of interlingual and intersemiotic translation. The paper therefore suggests that the types of translation should not be considered as exclusive of each other.

Tues 28th June

14:00-15:30

**Grand Parade
Studio 101**

Anne Ketola

University of Tampere,
FIN

Long Kesh: Site – Sign – Body

Tues 28th June
14:00-15:30

Grand Parade
Studio 101

Ola Ståhl

Linnaeus University,
SWE

This paper engages with the former prison at Long Kesh in Belfast, Northern Ireland, and, in particular, with the republican inmates' protests in the 1970s and early 80s. Addressing the penal institution itself, its architecture, interior designs and the rituals implemented there, the paper argues these were not only designed but involved on-going design processes to which inmates responded by the developing a complex design practice involving the site itself as well as their bodies and the way these are made to signify within the semiotic regime of the penal institution.

Uses of Argumentation Theory and Dialogic Methods in the Design Research Process

Designers are becoming involved in working to address complex challenges and this has led some to argue that decision-making in design should be based on evidence and knowledge gained through research. However, while natural sciences aim to describe, explain and predict observable phenomena, design research often has the additional aim to be useful and to contribute to improving or interacting with situations. Consequently the knowledge brought together in design research must often satisfy the condition of generativity as well as generality, meaning that design research should have the additional capacity to generate creative reasoning and innovative design. In this conversation we propose a discussion around the role of using argumentation theory in design research and design pedagogy.

This conversation is intended to provide an opportunity to share concrete tools and approaches to bridging the gap between theory and practice in design research and design pedagogy.

Tues 28th June
14:00-15:30

Grand Parade
Studio 102

Luke Feast
Aalto University, FIN

Stella Boess
TU Delft, NLD

Karel van der Waarde
Basel School of
Design, CHE

Provocative Design for Unprovocative Designers: Strategies for Triggering Personal Dilemmas

Tues 28th June
16:00-17:30

**Brighton Dome
Concert Hall**

**Deger Ozkaramanli
Pieter Desmet**

The Delft University
of Technology, NLD

Traditional design approaches stimulate the creation of products that make daily interactions more efficient, comfortable, and pleasant. In contrast, provocative design approaches, such as critical design, have a different focus: they aim to challenge the status quo through products that expose assumptions and stimulate discussion.

In this paper, we argue that intentionally triggering personal dilemmas is a novel design approach that may be a means to enabling self-reflection. In line with this, this paper proposes three design strategies for triggering dilemmas. These strategies are explained through existing designs and supported by design ideas created using them.

Our findings indicate that triggering dilemmas is a counter-intuitive design intention, which can be supported by exercises that facilitate perspective taking and stalling moral judgment. We conclude with a discussion on the overlap between triggering dilemmas and other provocative design fields.

Temporal Design: Looking at Time as Social Coordination

Designers are increasingly paying attention to problematic experiences of time. From a critique of acceleration to an urge to frame present actions within more extended futures, designers have been analysing how different temporal perceptions may influence practices and how they can be influenced by design. In this paper, we argue that in order to challenge problematic relationships to time, designers should consider time in radically different terms.

Instead of regarding time largely in terms of pace and direction, they should start considering the complexity of aspects that sustain the coordination of particular groups. We present this approach through the concept of Temporal Design, which endeavours to reveal actors, practices and forces that determine social coordination within specific contexts. By surfacing this complexity, temporal design would allow it to be discussed, possibly demystifying problematic experiences and enabling more inclusive ways of understanding time.

Tues 28th June
16:00-17:30

**Brighton Dome
Concert Hall**

**Larissa Pschetz
Michelle Bastian
Chris Speed**

University of
Edinburgh, GBR

Could LEGO® Serious Play® be a Useful Technique for Product Co-design?

Tues 28th June
16:00-17:30

**Brighton Dome
Concert Hall**

**Julia Garde
Mascha van der Voort**
The University
of Twente, NLD

This paper studies the usefulness of the LEGO® Serious Play® technique for co-designing products with potential future users with the help of two design cases. The technique has originally been developed for team and strategy building and its strongest aspects are the fully developed step-by-step approach as well as the power of LEGO® to level the playing field and enable all participants to contribute to a group session.

While levelling the playing field has been verified in the presented design case studies, the step-by-step approach needs adaptations for product design and the participant group constellation needs special attention, as this constellation does not result as naturally from a design project as in applications within organizations.

Overall we believe that LEGO® Serious Play® is a very useful co-design tool after adjustments are made as outlined in this paper.

A Physical Modeling Tool to Support Collaborative Interpretation of Conversations

In this paper, we describe our work on producing physical tools for people doing collaborative text interpretation of conversational texts. Recognizing that although there is a linearity to conversation, we nonetheless believe that in many cases the content might better be represented as a physical, spatial object, where parts of the discussion can be modified out of their initial sequence, other parts can be added or subtracted, and gaps can be identified and filled.

We prepared a series of functional prototypes of a toolkit consisting of a set of separate elements, which could be assembled into large spatial structures. While addressing research questions on how the artifacts facilitate cooperation, interaction and communication, we found the significant advantage of this kind of modeling is its ability to facilitate shared collaborative understanding without compromising individual perspectives. It also prompted discussion on the metalevel of conversation.

Tues 28th June
16:00-17:30

Brighton Dome
Concert Hall

Piotr Michura
Academy of Fine Arts
Krakow, POL

Stan Ruecker
Elizabeth Jernegan
Juan de la Rosa
Xinyue Zhou
Illinois Institute of
Technology, USA

Priscilla Ferronato
Celso Scaletsky
Guilherme Meyer
Chiara Del Gaudio
Julia Dias
UNISINOS, BRA

Gerry Derksen
Winthrop University,
USA

Skilling and Learning Through Digital Do-It-Yourself: The Role of (Co-)Design

Tues 28th June
16:00-17:30

Brighton Dome
Concert Hall

Giuseppe Salvia
Carmen Bruno
Marita Canina

Politecnico di
Milano, ITA

The current trend of digitally enabled self-production (i.e. digital DIY) is emblematic of the contemporary attitude to making. Its investigation represents an opportunity for better understanding the dynamics underpinning the acquisition of competences for the next century citizens through making.

The objective of this paper is presenting our preliminary reflections on the factors characterising the current trend of digital DIY, envisaged as a phenomenon of social innovation empowering people by developing skills through making collaboratively. We introduce a model representing the dynamics (over the three levels of social innovation, social practice and creative process) and factors (i.e. technology, motivation and collaboration) for learning and skilling in this context.

The concluding section describes future developments based on co-design for the delivery of tools enabling designers and key players in four main areas of intervention in which the model can be transferred.



Vision Concepts Within the Landscape of Design Research

Tues 28th June
16:00-17:30

Brighton Dome
Studio Theatre

Ricardo M. Sarmieto
Gert Pasman
Pieter Jan Stappers
TU Delft, NLD

In the landscape of design research, several techniques of speculative design -or design about ideas- have been positioned, each with a different time frame. Design Fiction and Critical Design, for instance, emerged as making activities that explore the near and the speculative future, respectively.

We previously defined Vision Concepts as a design-led technique that explores and communicates speculative futures. Even though Vision Concepts, such as long-term concept cars and products, have been part of the industry since 1938, previous work has failed to identify and understand them from the design research perspective or compared them with other speculative design techniques. This study intends to identify which spot Vision Concepts occupies within the landscape of design research. To that end, we developed a multiple case analysis that includes examples of Vision Concepts, Design Fiction, and Critical Design.

This paper will help design researchers identify the similarities and differences between Vision Concepts and the other speculative design techniques and gain knowledge about when and why to apply this technique.

Visual Conversations on Urban Futures. Participatory Methods to Design Scenarios of Liveable Cities

Visualisations of future cities usually depict coherent scenarios that rarely express the complexity of urban life. Our research explores ways to articulate conflicts and diversities, rather than mitigate them, when reflecting on possible futures for urban life. We define Visual Conversations on Urban Futures as visualisations of future scenarios that utilise visual methods to generate, facilitate, and represent dialogues of multiple voices imagining possible futures for life in the city.

This paper will introduce our research on this topic and reflect on a number of significant examples to draft a description of methods and processes of Visual Conversations on Urban Futures. It will then present three design experiments in which we adopted this approach in the context of interdisciplinary academic research on possible scenarios for urban futures.

Finally, as this is an ongoing research project, we will suggest a number of open questions and possibilities for further practical and theoretical exploration.

Tues 28th June
16:00-17:30

**Brighton Dome
Studio Theatre**

**Serena Pollastri
Rachel Cooper
Nick Dunn
Christopher Boyko**

Lancaster University,
GBR

Games as Speculative Design: Allowing Players to Consider Alternate Presents and Plausible Futures

Tues 28th June
16:00-17:30

Brighton Dome
Studio Theatre

Paul Coulton
Dan Burnett
Adrian Gradinar

Lancaster University,
GBR

As games are inherently about exploring alternative worlds this paper proposes the utilisation of games as a medium for speculative design through which players can explore scenarios that represent plausible alternative presents and speculative futures. The paper reviews futures orientated design practices such as Design Fiction, Speculative Design, and Critical Design alongside complimentary research areas in games studies such as Critical Play, Persuasive Games, and Procedural Rhetoric to create a frame for using games as speculative design practice. The aim of this design frame is to create debate and facilitate productive future practice through which designers can develop games that encourage user reflection by enabling players to reflect upon the complex challenges the world now faces.

Future Product Ecosystems: Discovering the Value of Connections

Product Ecosystem Theory is an emerging approach to help understand the value networks that exist between products within a system. As products become increasingly interconnected, understanding the value that is gained from those connections becomes ever more important. This paper explores the concept of product ecosystems and how this concept can be employed in mapping current products' evolution as well as that of new product conceptual development. Case studies using both hindsight from historical design and foresight from new product propositions reveal the different connections that take place or need to be considered in the emerging landscape of product ecosystems.

This paper seeks to contribute to Product Ecosystem Theory through a discussion of the literature and analysis of emerging connections within a product ecosystem revealed in selected examples, as well as by proposing a conceptual tool to help map out products' value networks.

Tues 28th June
16:00-17:30

**Brighton Dome
Studio Theatre**

**Tim Williams
Marianella
Chamorro-Koc**

Queensland University
of Technology, AUS

An Approach to Future-oriented Technology Design – With a Reflection on the Role of the Artefact

Tues 28th June
16:00-17:30

**Brighton Dome
Studio Theatre**

Tiina Kymäläinen
VTT Technical
Research Centre
of Finland Ltd, FIN

This paper describes future-oriented design as a manner to carry out design research in the emerging technology context, i.e. it describes design activities within a research context. For the purpose the paper introduces a method called science fiction prototyping, which has arisen from the emerging technology research with a well-founded aim to encourage future-oriented thinking.

This paper briefly introduces the method; primarily so as to clarify why the future-oriented design by science fiction has been found useful. The focus of the paper is nevertheless on the reflection of how the science fiction prototypes may have most value for the design field.

The paper argues that this is achieved primarily by considering the prototypes as design outcomes of validated design-oriented research work i.e. by introducing the science fiction prototypes as research-oriented design artefacts.



This Time it's Personal

Tues 28th June
16:00-17:30

Brighton Dome
Founders Room A

Lucy Klippan
Mieke van der
Bijl-Brouwer
Tasman Munro

University of
Technology Sydney,
AUS

Marcus Willcocks
University of the Arts
London, GBR

We designers often use storytelling to put ourselves 'in another person's shoes', to try and see the world from a user's perspective. The process helps us to understand both the user and the context in a new way and therefore design a better product or service for them. So what could we learn about design by turning the lens back on ourselves? This is the focus of our session, as we share stories about the confronting, challenging, pleasurable or distressing situations we find ourselves in, as designers, and how we have navigated through each one – often relying on intuition to do so. Each of the four catalysts will share a story and participants are invited to share stories of their own.

Plans and Speculated Actions

In the last decades, much design research around 'future-focused thinking' has come to prominence in relation to changes in human behaviour, at different scales, from the Quantified Self, to visions of smart cities, to Transition Design. The design of products, services, environments and systems plays an important role in affecting what people do, now and in the future: what has become known in recent years as design for behaviour change.

Our Conversation is motivated by three, interlinked questions: on designers' agency; on sense-making; and on complexity. We will collectively explore considerations of people, and people's behaviour, in design, particularly in the ways visions of futures are drafted.

Tues 28th June
16:00-17:30

Brighton Dome
Founders Room B

Veronica Ranner
Dan Lockton
Royal College of Art,
GBR

Molly Steenson
Carnegie Mellon
University, USA

Gyorgyi Galik
Future Cities Catapult,
GBR

Tobie Kerridge
University of London,
GBR

Design Practice and Design Research: Finally Together?

Tues 28th June
16:00-17:30

Old Courthouse

Kees Dorst

University of
Technology Sydney,
AUS / Eindhoven
University of
Technology, NLD

Early design research was driven by the ambition to create a coherent Science of Design – an ambition that was later abandoned in favour of a more pluralist approach. But despite great progress in the last 50 years, Design Research can still be criticised for being (1) too disconnected from design practice, (2) internally scattered and confused (3) not achieving the impact that was hoped for. In this paper we will discuss possible solutions to these conundrums by learning from three professional and academic fields: Marketing, Art Theory and Management, respectively. Based on these three discussions an attempt will be made to create an integrated answer by considering how design research and practice might come together in the creation of a new field, 'Academic Design'.

Redrawing the Boundaries of Craft in India

This thesis asks if craftspeople have agency within the current paradigm of textile craft practice in India. Agency fuels freedom by empowering marginalized people to evaluate and engage with their realities, so as to be powerful agents of social change. Traditional textile production in India is a constant struggle for the craftsperson, because those in seats of power – politicians, policy makers and designers – have limited or denied their agency. In response to those limitations, there are a variety of cross-cultural initiatives by Indian NGOs, international brands and designers that are engaging with craftspeople in the interests of creating change for and with them. In this context, it becomes critical to ask whether the agency of craftspeople is, in fact, being enhanced through these efforts. Using Amartya Sen's capabilities framework, this paper will explore two themes: cultural agency in a globalized context and national agency in an Indian context.

Tues 28th June
16:00-17:30

Old Courthouse

Kamala Murali

The Good Earth
Company, IND

Reverse Innovation: How Has Design in the Greater Pearl River Delta Region Changed the World

Tues 28th June
16:00-17:30

Old Courthouse

Tao Huang

Southern Illinois
University at
Carbondale, USA

Ningchang Zhou

South China
Agricultural
University, CHN

After more than 40 years of rapid development, industrial design in Mainland China is due for a thorough documentation and examination. In particular, design in the Greater Pearl River Delta region has played a crucial role in this process and must be studied carefully to help us understand what could transpire in the future.

This paper aims at deepening the understanding of the cultural context of innovations in the Greater Pearl River Delta Region. Based on years of direct involvement with the growing of the industrial design profession, the authors started a research project to document significant design companies that marked the trajectory of development of the profession and business of industrial design.

The paper further aims to uncover culturally significant design innovations and innovations that have gained great international success that could be categorized as 'reverse innovation'. Both have played a role to the advancement of the profession.

Beautiful Nerds: Growing a Rigorous Design Research Dialogue in the Irish Context

Ireland is a country with a small and emergent design research community. Relative to other countries, the practice of design itself in Ireland is a recent development with the first formal design courses materialising in the mid-1970s.

Without historical legacy and sustained coordinated support from design specific state development agencies, the progress of this nascent Irish design sector has been fragmented and unfocused. Irish Design 2015 (ID2015) a yearlong government backed initiative sought to address this lack of coherence in tandem with increasing the visibility and profile of Irish design.

This article reflects on the historical context Irish design research and practice sits within and explores the early success of the ITERATIONS Design Research and Practice review as one of a series of initiatives launched as part of ID2015. It makes the case for robust dialogue and advocacy in addressing the needs of an emergent community of practice.

Tues 28th June
16:00-17:30

Old Courthouse

Adam de Eyto

University of Limerick,
IRL

Carmel Maher

Institute of Technology
Carlow, IRL

Mark Hadfield

Maggie Hutchings

Bournemouth
University, GBR

Design Research is Alive and Kicking...

Tues 28th June
16:00-17:30

Old Courthouse

Paul Rodgers

Lancaster University,
GBR

This paper explores the current situation of design research with a particular emphasis on how emerging forms of design research are framing and addressing contemporary global issues. The paper examines how design research can be a creative and transformative force in helping to shape our lives in more responsible, sustainable, and meaningful ways.

Joyce Yee

Northumbria
University, GBR

Today, the plurality in design research is clearly evident given the wide range of conceptual, methodological, technological and theoretical approaches adopted. Moreover, various forms of design research now routinely appear in a vast array of disciplines in and around modern design praxis, including business, engineering, computing, and healthcare.

This paper reviews a rich selection of the state-of-the-art design research that exemplify the range of approaches, methods, applications, and collaborations prevalent in emerging forms of design research and presents 10 characteristics of 'good' design research that will support design researchers in addressing the complex global issues we face.



Schön's Legacy: Examining Contemporary Citation Practices in DRS Publications

Tues 28th June
16:00-17:30

Grand Parade
Sallis Benney

Jordan Beck
Indiana University,
USA

Laureline Chiapello
University of
Montreal, CAN

Donald Schön was one of the most influential scholars in the design field; his work was and still is among the most highly cited. But how and why do scholars cite Schön's work? What do these citations do? In this paper, we present a content analysis of 63 texts published at the last two DRS conferences in an effort to understand the function of citations of Donald Schön's work. We find scholars primarily cite Schön's work either to support their own research topics, methods or methodologies, and arguments or to credit Schön for his concepts or ideas. And we observe few instances of citations that engage critically with Schön or build on his ideas. Our conclusions suggest that a deeper understanding of citation function would be an interesting and important project.

Paper Session: 50 Years of Design Research

User Design: Constructions of the ‘User’ in the History of Design Research

Over the past 50 years of design research, the ‘user’ has been consistently invoked as a measure of good design and as driver of design decisions. As scholars have variously recognized, the focus of design has in turn been displaced from physical objects to *relationships* between things/ environments and their future users/occupants. In this paper I identify, compare, and critically analyze different techniques for anticipating or understanding such relationships drawing from original material produced in the context of the design methods movement, the Design Research Society (DRS), and the Environmental Design Research Association (EDRA). I combine this material with histories of ergonomics that preceded these organizations’ founding and a brief commentary on contemporary user-centered design (UCD) methods.

This paper contributes a comprehensive comparative review of user-oriented design methods, alongside a critical outlook on continuities and ruptures between quantitative and qualitative figurations of the user in the history of design research.

Tues 28th June
16:00-17:30

Grand Parade
Sallis Benney

Theodora Vardouli
MIT, USA

Find this paper online at www.drs2016.org/262

Design Research and Design Participation

Tues 28th June
16:00-17:30

Grand Parade
Sallis Benney

Robert Aish
University College
London, GBR

This paper brings together some key research issues in design participation: Is it possible to develop a computer-based architectural design application which can be used by completely untutored lay participants in a meaningful design process? How can the designs created by the participants be objectively compared with other building designs created to the same brief by professional architects? What are the implications of design participation as an expression of a wider social and political process of 'democratisation'? The research described here is based on a pioneering project called 'Computer Aids for Design Participation' conducted in the 1970's. While the computing facilities used in this project would be considered incredibly primitive by today's standard, the research methodology, including software design and empirical studies with participants is still relevant today.

The Design Research Society in the 1980s and 1990s: A Memoir

This paper records some experiences of the author as a Council member and Officer of the Design Research Society during the 1980s and 1990s. This included a precarious period when the Society's very existence was in question and it was in danger of being wound up. During this time we managed to get the Society back on to a firm footing and broke new ground, firstly embracing the internet which massively improved communications between members, and secondly we began to co-operate with the Design Societies of East Asia. We re-established DRS as a learned society with a truly international reach.

Tues 28th June
16:00-17:30

Grand Parade
Sallis Benney

Conall Ó Catháin
Past Chairman DRS,
IRE

Design Research: What is It? What is it for?

Tues 28th June
16:00-17:30

Grand Parade
Sallis Benney

Victor Margolin
University of Illinois,
USA

The slippage in use between design research as an activity without a precise identity and its characterization of an intellectual field has caused considerable confusion. PhD programs in design are now offered and have become vehicles for producing academic design researchers. This has vastly increased the number of researchers with doctorates but it has not contributed to the coherence of a field and certainly not to the formation of a discipline.

As more PhD graduates take up teaching positions, they are under pressure to continue their research and publish it. Without a set of shared questions, they are often left to their own devices to invent a research topic. While the authors adopt what appear to be valid methodologies to guide their investigations, the questions they pose are often narrowly drawn, have no relation to a larger set of issues, and are consequently of little interest or value to other scholars. When it comes to pedagogy, the lack of consensus about what course of studies would constitute a doctorate in design is especially disconcerting. By virtue of not having any consensual curriculum, it is difficult to assess the value of someone's degree. A big problem in the field is the confusion between an academic degree in design and one in design studies. Instead of perpetuating the term 'design research,' I suggest adopting the related terms 'design' and 'design studies' to delineate more precisely the nature of the knowledge or capabilities they signify.



The Aesthetics of Action in New Social Design

Tues 28th June
16:00-17:30

**Grand Parade
M2**

Ilpo Koskinen

PolyU, Hong Kong,
CHN

Social design has recently gained more attention for several reasons and it has responded to these through new forms. One question literature in social design needs to address is aesthetics. Its aesthetic approaches has been discussed elsewhere (author), but one remaining question is the aesthetics of action in it. This paper asks what kinds of aesthetic approaches are there to social objects such as social forms and organizations. It describes three approaches to the aesthetics of action, agonistic, convivial and conceptual, and studies their implications through three case studies in London, Milan, and Helsinki. The paper is a part of a larger ongoing exploration of aesthetics in social design.

A Creative Ontological Analysis of Collective Imagery during Co-Design for Service Innovation

This paper describes an ontological attempt in the understanding of co-design activity in the wild within the context of service innovation. The research has an aim to analyse the transformation of ideas during co-design by examining informal data from a workshop that inspired villagers in Turkey to innovate collaboratively. Contrary to the often process-oriented analysis of co-design activity, the workshop facilitates designing by envisioning and enacting participants' collective imagery in physical forms in an iterative cycle of deconstruction, construction and reconstruction.

We report an understanding of the ontology established to describe and analyse the informal data collected from the physical forms of collective imagery. A machine learning approach is used to underpin assumptions made in the understanding of the activity based on the ontology. The analysis suggests the frequency and relevancy of ideas significantly influenced the possibility that an idea will become part of a design solution. An evaluation of the machine learning analysis delivers insights into the understanding of data collected during co-design in the wild.

Tues 28th June
16:00-17:30

**Grand Parade
M2**

**Priscilla
Chueng-Nainby
BingXin Zi
John Lee
Astury Gardin**
University of
Edinburgh, GBR

The Foam: a Possible Model for the Motion Graphic Design

Tues 28th June
16:00-17:30

**Grand Parade
M2**

Anamaria Galeotti

Laureate International
Universities, BRA

Clice Mazzilli

University of São
Paulo, BRA

This paper discusses the elements of motion graphic design language as a complex system of visual, verbal and sonorous signs, which are simultaneously transmitted and correlated in time and space. Born out of the cinema, the motion graphic design was improved by the television and thereafter the informatics, incorporating the elements of the graphic design. As the technologies of pre-production, production and post-production progressed in the field, a more complex digital audio-visual design could be conceived, enabling an experiment such as the Audio-Visual Foam Model – the main object of this research – to be done. It consists of an immersive and interactive 3D installation where one can experience how these fragile and hybrid elements of language interact between themselves, just like foam bubbles.

Entitled 'Passion and Violence', the experiment clearly demonstrates the role played by the motion graphic designer and suggests a contemporary methodology for working with this audio-visual design.

Space as a Becoming: Fresh Water Expo Pavilion as a Creative Practice for an Architecture to Come

In relation to the affective introduction of the post-structuralist paradigm particularly the Deleuzeian discourse to the agenda of architectural theory and praxis, as well as the rising influence of digitalization and its immense penetration into even everyday life, the last decade of the 20th Century addressed to a critical threshold in the successive transformation process of the spatiality in its long-term run. So, by interacting with the Deleuzeian Philosophy and their notions like lines of forces, folding, becoming, smooth space, territory, spatium, this article aims to reveal the relevance of these notions in architectural discourse, as well as discusses the shifting perspectives of design thought and the creative practice, where architectural embodiment becomes a multitude of intensities and an open-ended production. Furthermore, this paper argues the applicability of Deleuzeian thoughts within the architectural design and the notion of space as a 'becoming', by opening up the Fresh Water Pavilion of NOX Architecture into question in terms of unfolding the essences of a transformable-evolvable architectural spatiality.

Tues 28th June

16:00-17:30

Grand Parade

M2

Emine Görgül

Istanbul Technical

University, TUR

Form as an Abstraction of Mechanism

Tues 28th June
16:00-17:30

**Grand Parade
M2**

**Lewis Urquhart
Andrew Wodehouse**
University of
Strathclyde, GBR

There is an emergent body of research linking the nature of form to design, functionality and user experience. This paper builds on these recent studies to propose a new approach connecting conceptual-design with advanced manufacturing techniques. Using the properties of work materials and advanced forming manufacturing processes, radical approaches to design and production could be open to designers and engineers, offering novel modes of user experience. By firstly reviewing the literature on product form and its bond with the concepts within the fields of user interaction and user experience, a number of 'functional mechanisms' are introduced that could potentially be integrated into this new and more homogeneous manufacturing framework.

Intuitive Interaction research – New Directions and Possible Responses.

This paper discusses and compares older and newer approaches to intuitive interaction research over the past fifteen years and asks how we can move forward from here. Outcomes from the different research endeavours are discussed and explained. Existing continua of intuitive interaction are discussed, and a new suggested framework for understanding these various approaches and how the different ideas and findings relate to each other is presented, as a first step to forming a solid platform from which new move forward in various new directions. The framework shows the relationships, differences and commonalities between these ideas and discusses the implications for researchers and designers.

Tues 28th June

16:00-17:30

Grand Parade

M2

Alethea Blackler

Vesna Popovic

Queensland

University of

Technology, AUS



Design and Dissent

Can an adversarial design approach help to foster public political actions in the refugee crises? How can policy makers by means of adversarial design be supported in mapping out the conflicting visions of all stakeholders involved and how is this helpful in the decision making process? During this conversation we will explore the role of design for mapping out conflicting ideas and opinions around the refugee crisis. Following the agonistic philosophy of Belgian political theorist Chantal Mouffe we will encourage contestation and dare our participants to relate to one another as adversaries, explore what they disagree on, instead of looking for their common interest.

Tues 28th June
16:00-17:30

Grand Parade
G4

Danielle Arets
Bas Raijmakers
The Design Academy
Eindhoven, NLD

Vera Winthagen
Eindhoven, NLD

Paper Session: Design Education and Learning

LIVD: An Avant-Garde Publication With Pedagogical and Epistemological Aims

Tues 28th June
16:00-17:30

Grand Parade
Studio 101

Meredith James
Portland State
University, USA

Similar to modernist avant-garde publications like '*Bauhausbücher (Bauhaus Books)*' the contemporary publication 'LIVD' incorporates theories and research that feed into and out of a (graphic / 2D) design discourse, linking these theories with practice and education. LIVD includes contributions from practitioners, students, and educators, seeking a balance with both epistemological and pedagogical aims.

Find this paper online at www.drs2016.org/125

Online Reflective Interactions on Social Network Sites in Design Studio Course

This study focuses on the reflective social environment within design studio course education. Studio critique, through which teachers and students reflect, is the medium of interaction and communication. In order to address issues related to communication and reflective interactions, a supplemental online environment is proposed to be used parallel to studio. To form an engaging online environment, social network sites are taken as a model, showing similarities with design studio and being the predominant online communication media. For testing this proposition, online network sites are used parallel to studio courses in an action research programme. Interviews and questionnaires with teachers and students identified five specific limitations in studios; temporal, spatial, archival, relational, hierarchical. Network sites were content analysed to find out if the uses addressed these limitations. Findings showed that the supplemental online platform functioned as an online archive connecting everybody in studio and partially answered temporal, spatial, hierarchical limitations.

Tues 28th June
16:00-17:30

**Grand Parade
Studio 101**

Simgé Hough
Istanbul Bilgi
University, TUR

Communication is not Collaboration: Observations from a Case Study in Collaborative Learning

Tues 28th June
16:00-17:30

Grand Parade
Studio 101

Iestyn Jowers
Mark Gaved
Gary Elliott-Cirigottis
The Open University,
GBR

Delphine Dallison
Alan Rothead
Mark Craig
MAKLab, Glasgow,
GBR

This paper presents a case study that focusses on developing communication and collaboration skills of undergraduate design students studying at a distance, and vocational learners based in a community maker-space. Participants were drawn from these formal and informal educational settings and engaged in a project framed in the context of distributed manufacturing, with designers working at a distance from the makers, whilst communicating using asynchronous online tools. Early analysis of the collected data has identified a diversity of working practice across the participants, and highlighted a disjunction between communication and collaboration. Encouraging learners to communicate is not the same as encouraging collaboration. Instead effective collaboration depends on sharing expertise through dialogue.

Design Studio Desk and Shared Place Attachments: A Study on Ownership, Personalization, and Agency

Increasing numbers of students, limited space, and decreasing budgets nudge many university administrators to shift from assigned design studio desks to flexible workspace arrangements.

This paper explores student attachment to the individual desk and shared spaces in a graduate design studio in the School of Design at Carnegie Mellon University. The studio had four interconnected spaces with: individual desks, collaborative workspaces, a kitchen-social cafe area, and a distance-learning classroom.

We explored student perspectives and attitudes on studio aesthetics, functionality, agency, ownership, personalization, and occupancy patterns with four methods (i.e., online survey, student class schedules, interviews, time-lapse study). Perception of ownership, personalization, and agency were greatest for individual desks.

Students perceived the individual desk as a primary territory even though the administration said desks were shared hot-desks. Individual work and collaborative work occurred throughout the studio regardless of functional assignment (e.g., spaces for individual work, collaboration, classroom).

Tues 28th June
16:00-17:30

Grand Parade
Studio 101

Peter Scupelli
Bruce Hanington
Carnegie Mellon
University, USA

Exploring Framing Within a Team of Industrial Design Students

Tues 28th June
16:00-17:30

Grand Parade
Studio 101

Mithra Zahedi
Lorna Heaton
Marie Reumont
Manon Guité
Giovanni De Paolo

University of
Montreal, CAN

This paper presents a case study that focusses on developing communication and collaboration skills of undergraduate design students studying at a distance, and vocational learners based in a community maker-space. Participants were drawn from these formal and informal educational settings and engaged in a project framed in the context of distributed manufacturing, with designers working at a distance from the makers, whilst communicating using asynchronous online tools. Early analysis of the collected data has identified a diversity of working practice across the participants, and highlighted a disjunction between communication and collaboration. Encouraging learners to communicate is not the same as encouraging collaboration. Instead effective collaboration depends on sharing expertise through dialogue.

Democratic Design Experiments: From Open Design to Open Society

In Europe, designers and design researchers are increasingly exploring societal challenges through engagements with issues that call forward new publics and new modes of democratic citizenship. Whatever this is called – design activism, social design, adversarial design, participatory design, or something else – we see here design engagements which are both controversial in their commitment to agendas of social change and experimental in the sense that they openly probe for what can possibly be enacted. Framing such engagements as democratic design experiments of re-presentation and emergent civic action, this Conversation will explore how cultural similarities and differences influence such experiments of design in transformations towards an open society.

Tues 28th June

16:00-17:30

Grand Parade

Studio 102

Yanki Lee

Design Institute,

Hong Kong, CHN

Albert Tsang

Polytechnic University,

Hong Kong, GBR

Ann Light

University of Sussex,

GBR

Thomas Binder

Royal Danish Academy

of Fine Arts, DNK

Abstracts

Wednesday 29 June





(Sustainable) Design Research for Change

Design is the expert practice of change-making. Being change oriented places a burden on design research that can be at odds with the creativity of designing. As with many professional practices, there are pressures for design to become more evidence-based but do designers have a good track record in learning from design research in this way?

The case study of Sustainable Design suggests not. The demand for designers to take responsibility for enhancing the sustainability of our societies has been voiced powerfully for a long time and as a result sustainable design has become a strongly 'research-led' process. Since arguably the majority of designs remain ecologically harmful in significant ways, why has sustainable design research not been as effective as it could have been? Should more improvement in the ecological performance of designed products, environments and services have taken place?

Our second debate considers how design research can address the massive challenge of enhancing societal sustainability? What can we learn from sustainable design research?



Guy Julier (Chair) is the University of Brighton Principal Research Fellow in Contemporary Design at the Victoria & Albert Museum and Professor of Design Culture. From 2003 to 2010 he was Honorary Professor at Glasgow School of Art and in 2008 was the William Evans Visiting Fellow at the University of Otago, Dunedin, New Zealand. In 2013 he was appointed Visiting Professor at the University of Southern Denmark for two years.



Conny Bakker is associate professor at TU Delft, faculty of Industrial Design Engineering, the Netherlands, where she coordinates and teaches several courses in Sustainable Design and Design for the Circular Economy, including a popular MOOC (Massive Open Online Course) on EdX. Her research field is Circular Product Design, in particular the design and development of products that have multiple lifecycles. A second research interest is the field of user centred sustainable design, which focuses on exploring the relationships between consumer behaviour, sustainability and design. Conny co-leads the European FP7 project ResCoM, that helps designers and manufacturers understand how collection, remanufacturing and reuse of products can lead to more profitable, resource-efficient and resilient business practices.



Jonathan Chapman is Professor of Sustainable Design, Director of Design Research Initiatives and Chair of the University of Brighton's Professorial Board (Arts & Humanities). Best known for his concept of 'emotionally durable design', his research into the emotional dimensions of product longevity has advanced design and business thinking in a range of settings, from Sony, Puma, Philips and The Body Shop to the House of Lords and the UN.



Yolande Strengers is a Senior Research Fellow at RMIT University's Centre for Urban Research, where she co-leads the Beyond Behaviour Research Program. She is currently based at the Dynamics of Energy, Mobility and Energy Demand (DEMAND) Centre, Lancaster University as a Visiting Fellow. Yolande leads a series of applied projects exploring the intersections between smart technology and everyday life. Her work is oriented towards achieving sustainability outcomes and demand reductions. Grounded in the social sciences, Yolande's research spans the disciplines of sociology, geography, science and technology studies, and human-computer interaction design.



Design Education and Learning

The aim of the Special Interest Group in Design Pedagogy is to bring together design researchers, teachers and practitioners, and others responsible for the delivery of design education, and to clarify and develop the role of design research in providing the theoretical underpinning for design education. These aims are not directed simply at one type of design education, but are intended to include all ages. However as the current membership of DRS is predominantly from universities inevitably there is some emphasis on design education at that level. There is a specialist strand at the conference devoted to Design Pedagogy Research.

The Design Pedagogy SIG has its own conference specialising in aspects of Design Education Research. It is held in collaboration with CUMULUS, on the years which alternate with DRS Conferences. Previous ones were Paris 2011, Oslo 2013 and Chicago 2015. The next is scheduled for London 2017.

The SIG has also generated a number of publications including several special issues of journals.

Wed 29th June

11:15-12:45

**Brighton Dome
Concert Hall**

Chair: Mike Tovey
Coventry University,
GBR

'Dis-course is killer!' Educating the critically reflective designer

Wed 29th June
11:15-12:45

Brighton Dome
Concert Hall

Veronika Kelly
University of South
Australia, AUS

Design practice knowledge is culturally and socially mediated, and historically situated. It is a discourse. Discourse, when conceived as a social practice, is simultaneously a method of understanding and signifying the world, a mode of acting upon the world and other persons, and also a means of transforming these operations (Fairclough, 1993). The significance of conceiving of design as a discursive practice is that it draws attention to the ways in which design knowledge is (re)produced by a particular culture and tied to human conduct. In these terms, a critical approach to analysing discourse as a social practice can be an active force for rethinking ideas about design and what it means to 'be' a designer. In the context of design education, such an approach provides a means of enabling students to take up more critically informed positions in their practice.

This paper discusses research into the development of a theoretical framework that follows Fairclough, Foucault, and Schön in linking their thought on discourse, culture, and practice respectively as the basis for a critical pedagogy. The framework is discussed in relation to the results of a pilot study with undergraduate communication design students at an Australian university. The paper argues that applying the framework through the integration of theory and practice has recourse to students' conduct as emerging designers that also presents a potential to transform design practice and its operations.

Promoting an Emancipatory Research Paradigm in Design Education and Practice

Emancipatory research is a research perspective of producing knowledge that can be of benefit to disadvantaged people. It is an umbrella term that can include many streams of critical theory based research such as feminist, disability, race and gender theory. One of the key assumptions in emancipatory research is that there are multiple realities, and that research is not only created by the 'dominant or elite researcher'. Given the development of branches of design research such as inclusive design, participatory design and design for social innovation, where the designer interacts with and designs with and for people who may be marginalized for reasons of race, gender, sexual orientation, disability, economic background etc., designers should be introduced to the concept of emancipatory research during their education, so that they will be able to recognise the impact of their own privilege on their practice and develop research interventions that are sensitive to this.

This paper examines the aims and principles of emancipatory research, and uses guidelines on evaluating emancipatory research-based interventions, borrowing from disability studies, to analyse three interventions between designers from the 'centre' and artisans from the 'periphery', to assess whether these interventions can be considered emancipatory or not.

Wed 29th June
11:15-12:45

**Brighton Dome
Concert Hall**

Lesley-Ann Noel
North Carolina State
University, USA

Design Thinking: A Rod for Design's Own Back?

Wed 29th June

11:15-12:45

**Brighton Dome
Concert Hall**

Aysar Ghassan

Coventry University,
GBR

Design Thinking is frequently argued to be unlike scientific thinking. Existing literature questions the validity of this differentiation with regards to: the characterisation of scientific thinking in design research; the notion that designers are more effective than scientists at generating empathy with users; the idea that scientific problems are not wicked. Such research posits commonalities between the way designers and scientists think. In further investigating the relationship between design and scientific thinking, this paper explores the issue of inductive reasoning. Frequently, research suggests that designers do not rely on inductive reasoning. This paper revisits Rowe's (1987) study which observes designers to commonly employ it. Rowe's work provides further evidence of a link between design and scientific thinking.

This paper calls for additional research into such links in order to optimise design's potential. It also suggests that highlighting commonalities between design and scientific thinking may support access to government funding, and thus the future prosperity of design in UK universities.

Sustainable Design

The papers in the Sustainability SIG stream continue the overarching DRS theme by reflecting on the evolution of design for sustainability and discussions around more future-focused approaches.

In the Sustainability SIG's main session Ceschin and Gaziulusoy's *Design for Sustainability: An Evolutionary Review* explores the evolution of responses from the design discipline to sustainability issues, showing how approaches have expanded from technical and product-centric focus towards large scale systems level changes taking a socio-technical approach. Roy also looks at the evolution of sustainable design through focusing on six popular consumer products. The paper uses lessons from the successes and failures of examples of these products to draw out guidelines on how to design successful new products and to design for the environment. It concludes with trends and sustainability challenges for future consumer product design and innovation. These two papers are followed by Darzentas who discusses more contemporary approaches to sustainable design by positing that service design should follow a systems thinking approach to reflect the human-centered nature of the domain.

Increasingly sustainable design researchers, and organisations, are recognising an opportunity to develop business models that specifically address sustainable development challenges. Sustainable business models aim to deliver environmental, social and economic benefits whilst still creating value for consumers and stakeholders. The next set of papers presented in the Sustainability SIG stream include papers with a focus on developing sustainable business models.

The increasing focus on more socio-technical approaches to design is reflected throughout the sustainability SIG stream this year, but the final five papers have a specific focus on design driven by/or focused on the consumer.

Wed 29th June
11:15-12:45

**Brighton Dome
Studio Theatre**

**Chair: Rhoda
Trimingham**

Loughborough
University, GBR

Theme Session: Sustainable Design

Design for Sustainability: An Evolutionary Review

Wed 29th June
11:15-12:45

**Brighton Dome
Studio Theatre**

Fabrizio Ceschin

Brunel University,
GBR

Idil Gaziusoy

University of
Melbourne, AUS

In this paper we explore the evolution of response from design discipline to sustainability issues. Following a quasi-chronological pattern, our exploration provides an overview of the Design for Sustainability (DfS) field, categorising the approaches developed in the past two decades under four innovation levels: Product, Product-Service System, Spatio-Social and Socio-Technical System. As a result of this overview, we propose an evolutionary framework and map the reviewed DfS approaches onto this framework.

The proposed framework synthesizes the evolution of DfS field, showing how it has progressively expanded from a technical and product-centric focus towards large scale system level changes in which sustainability is understood as a socio-technical challenge. The framework also shows how the various DfS approaches contribute to particular sustainability aspects and visualise linkages, overlaps and complementarities between these approaches.

Find this paper online at www.drs2016.org/059

Theme Session: Sustainable Design

Consumer Product Design and Innovation: Past, Present and Future

This paper summarises some of the content and conclusions of a new book which discusses the innovation, design and evolution of six consumer products – bicycles, washing machines, vacuum cleaners, electric lamps, television and mobile (cell) phones – from their original inventions to the present. It discusses common patterns of innovation, how environmental concerns and legislation have influenced design, and some of the effects these products have had on the environment and society.

The paper also uses lessons from the successes and failures of examples of these products to draw out guidelines for designers, engineers, marketers, managers and educators on how to design successful new products and to design for the environment. It concludes with trends and sustainability challenges for future consumer product design and innovation.

Wed 29th June
11:15-12:45

**Brighton Dome
Studio Theatre**

Robin Roy

The Open University,
GBR

Find this paper online at www.drs2016.org/048

Product-Service Systems or Service Design 'By-Products'? A Systems Thinking Approach

Wed 29th June
11:15-12:45

**Brighton Dome
Studio Theatre**

**John Darzentas
Jenny Darzentas**
University of the
Aegean, GRC

Service Design has developed, in the last two decades, to be an autonomous multi/interdisciplinary paradigm of a complex domain affecting Design Thinking. Product-Service Systems (PSS) is a representative model of designing through services related to existing products. Terms such as 'servitising' are used to declare that, for instance, inventing and adding services based around existing products will increase the value of any related intervention.

This paper posits that Service Design should follow a Systems Thinking approach, without the presupposition of related products, allowing for these products to emerge as 'by-products' of the process. It is also claimed that, in order to positively utilise the inherent complexity of Service Design, thinking tools such as Systems Thinking are required to capture the design space. This should be a primary concern in such a human centred complex domain as Service Design. Design methodologies and approaches can then be used to continue with the design process.

The Politics of Commoning and Designing

This session prompts designers to engage with the political dimensions of working with commons. It brings together practitioners, activists and researchers who explore the tensions and potentialities they encounter when designing for (and from within) commons and 'community economies'. As political theorist Massimo De Angelis (2007) points out, commons can today be thought as the basis on which to build towards futures of social justice, environmental sustainability and a good life for all. However, just as 'community economies' that have at their core the well-being of humans and non-humans alike (Gibson-Graham and Roelvink, 2011), they operate within a world dominated by capital's priorities and are thus not only sites of hope, but also sites of struggle as well as targets of co-optation and enclosure. In organising this panel, our concern was that the political understandings of commons and the politics of their contexts often go unaddressed in design work and discourse. Our desire has been to create a space that foregrounds these dynamics and confronts design with the political meanings and implications of commons.

In this short text we introduce three aspects of commons that have implications for design, before introducing the papers in the panel. First, we introduce the common as a *political notion*, briefly considering the implications for design when working with different theories. Secondly, departing from an idea of commoning as an ongoing process rather than something that ends with a completed commission, we suggest that the common demands rethinking the ways in which design relates to the challenge of commitment, and particularly, how commons and community economies are sustained over time. Thirdly, the common demands that production cycles are thought in direct relation to livelihood – where do the resources for cultivating commons come from, how are they distributed, and what could be the contribution of the activity of designing within the political economy of the commons?

Wed 29th June
11:15-12:45

Brighton Dome
Founders Room

Chair: Bianca
Elzenbaumer
Leeds Collge of Art,
GBR

Chair: Valeria Graziano
Middlesex University,
GBR

Chair: Kim Trogal
University of the Arts
London, GBR

Theme Session: The Politics of Commoning and Designing

Commons & Community Economies: Entry Points to Design for Eco-social Justice?

Wed 29th June
11:15-12:45

Brighton Dome
Founders Room

Fabio Franz

Sheffield School of
Architecture, GBR

Bianca Elzenbaumer

Leeds College of Art,
GBR

Many designers today (including ourselves) are experimenting with how their practice can engage in meaningful ways with the complexity of pressing social and environmental issues. Being very much concerned with the politics and power relations that run through such issues, in this paper we will explore what points of orientation the framework of the 'commons' and that of 'community economies' – seen from an autonomist and feminist Marxist perspective – can offer when working on socially and politically engaged projects. We mobilise these two frameworks as possible entry points through which eco-socially just modes of reproducing livelihoods can be fostered. Moreover, we will consider how they can encourage designers to more directly activate their skills to support human activities that move our societies towards eco-social justice.

Find this paper online at www.drs2016.org/096

Theme Session: The Politics of Commoning and Designing

Designing Participation for Commoning in Temporary Spaces: A Case Study in Aveiro, Portugal

Western contemporary cities are investing in interactive spaces that promote passive participation through consumption. At the same time there are collaborative networks emerging in those urban areas enabling new forms of participation for the common good. One of the questions design research can raise is how design practices can assist in creating spaces that facilitate processes of commoning. This paper focuses on participatory processes in temporary spaces through the aesthetic experience. The concepts of 'commons/commoning' and co-creation are examined from the perspective of Design for Social Innovation, Design Activism and Participatory Design. In this sense, this paper aims to critically analyse an experimental, interdisciplinary and cross-sectorial initiative setting up in a coastal urban community in Portugal. The project explored the possibilities to strengthen community relationships through design collaborations and encounters between different local capacities.

Wed 29th June

11:15-12:45

**Brighton Dome
Founders Room**

**Janaina Barbosa
João Mota**

Aveiro University, PRT

**Maria Hellström
Reimer**

Malmö University,
SWE

Find this paper online at www.drs2016.org/393

Theme Session: The Politics of Commoning and Designing

From Rules in Use to Culture in Use: Commoning and Infrastructuring Practices in an Open Cultural Movement

Wed 29th June
11:15-12:45

**Brighton Dome
Founders Room**

Sanna Marttila
Aalto University,
FIN

This paper explores how design and commoning practices can contribute to sustaining open cultural commons and guarding against enclosure. Based on a long-term engagement with a cultural movement, the author examines how design activities can strengthen interaction and participation in commons-like frameworks, and describes commoning and infrastructuring practices that can support commons culture. By critically reflecting on the development of a local Finnish chapter of the OpenGLAM (Galleries, Libraries, Archives and Museums) movement, the paper contributes to the ongoing discussion of design as infrastructuring in complex and open-ended socio-technical settings.

Find this paper online at www.drs2016.org/454

Theme Session: The Politics of Commoning and Designing

Design Togetherness, Pluralism and Convergence

We describe an inquiry into how we relate to each other in design, as *we design*. In particular, we are interested in to what extent, and in what ways, we acknowledge diversity in knowledge, experience, and skill. We have conducted a series of project courses within design education to make students explore different ways of doing design together. Our findings point to two main tendencies: towards cultures of pluralism, of coming together as *who* we are; and cultures of representation, of coming together as *what* we are.

This points to important issues related to how methodology and process structure the way we perceive and relate to each other. Indeed, in a disciplinary methodological framework ultimately oriented towards convergence and the making of a final design, how do we evolve and engage with that which must not converge to a single point but where difference and diversity must be acknowledged?

Wed 29th June
11:15-12:45

Brighton Dome
Founders Room

Monica Karlsson
Johan Redström
Umeå University,
SWE

Find this paper online at www.drs2016.org/120



Reframing the Paradox: Evidence-based Design and Design for the Public Sector

Today we face complex challenges: the European migrant crisis, delivering health and social care for an aging population, dealing with the social impacts of growing economic inequality, and the transition to sustainable wellbeing societies. Increasingly, designers are working to address such complex challenges and to deliver improved societal outcomes. However, a paradox is emerging. On the one hand, governments are realising that they cannot address new complex challenges in the way they approached them in the past and so policymakers are turning to design for new strategies and techniques. On the other hand, policymaking is increasingly being influenced by the positivist view of research that underpins traditional evidence-based practice models. This session brings together new research that examines the tension between the potential of design approaches to address governments' most urgent challenges and the assumptions of evidence-based practice and designerly ways of knowing.

The papers can be placed in two groups according to questions they share in common. The contributions from Kimbell; Bailey and Lloyd; and Umney, Earl and Lloyd, focus in different ways on the encounter between designerly ways of knowing and cultures of decision-making in central government. They broadly pose to the question: Are designers ethically and critically prepared for intervening in social and political contexts? The papers in the second group focus in different ways on the methods and techniques of designing in the public sector. The contributions from O'Rafferty, DeEyto and Lewis; Teal and French; Manohar, Smith and Calvo; Gagnon and Côté; and Sustar and Feast relate to the question: How are co-design and design research approaches used in designing and evaluating public services and infrastructures? Common themes in this group are the perceived lack legitimacy of design knowledge in within the policy process, and the use of mixed-methods approaches to generating evidence and knowledge in designing for services.

Wed 29th June
11:15-12:45

Old Courthouse

Chair: Luke Feast
Aalto University, SWE

Chair: Sabine Junginger
Hertie School of
Governance, DEU

Chair: Peter Jones
OCAD University, CAN

Theme Session: Reframing the Paradox

Open Practices: Lessons from Co-design of Public Services for Behaviour Change

Wed 29th June
11:15-12:45

Old Courthouse

Simon O'Rafferty

Adam DeEyto

Huw Lewis

University of
Limerick, IRL

This paper explores what the distinctive value of design may be in a policy context. The paper broadly supports the contention by Smith and Otto (2014) that design offers 'distinct way of knowing that incorporates both analysing and doing in the process of constructing knowledge'. The paper will also outline potential limitations of the direct translating of design practice and methods into a policy context. To achieve this, the paper uses insights gained from an on-going design research project, Open Practices, which aims to co-design services and policy interventions to enable sustainable behaviour change. In this case, co-design, as a method and context for policy design, interweaves alternative ideas and perspectives (e.g. interdisciplinary knowledge, desirable visions of future behaviours), new policy practices (e.g. co-creation, policy labs, practical experiments, ethnographic study) and new social relations (e.g. new networks and actors).

Find this paper online at www.drs2016.org/472

Theme Session: Reframing the Paradox

Capturing the 'How': Showing the Value of Co-design Through Creative Evaluation

Evaluation is undertaken for various reasons from helping to ensure that objectives are met to identifying success. This paper examines the significance of creative evaluation in a co-design approach. We have identified a major gap in appropriately embedding evaluation into engagement and consultation processes. The study explores the use of evaluation to evidence the value of co-design and consultation. As a part of this we have established a broad framework to gather information and data to build a portfolio of evidence to evidence the difference we are making.

From the initial studies we have identified findings that are significant and shared across our partners within their evaluation practice. Throughout the project, our evaluation is embedded in our process. We have proposed an evaluation process, and an evaluation framework which will be used at various stages of the project to capture evidence. At each stage we capture the impact in a meaningful format so it is visible to communities and the researchers, in turn making evaluation a collaborative process. For this purpose, we developed a creative evaluation approach which is innovative, engaging but also designed in an unobtrusive manner.

Wed 29th June
11:15-12:45

Old Courthouse

Arthi Manohara
Madeline Smith
Mirian Calvoc

Glasgow School of Art,
GBR

Find this paper online at www.drs2016.org/469

Design in the Time of Policy Problems

Wed 29th June
11:15-12:45

Old Courthouse

Lucy Kimbell

University of the Arts
London, GBR

This paper discusses an emerging context in which design expertise is being applied – the making of government policy. It reviews existing research and identifies the claim that design changes the nature of policy making. The paper then adapts a conceptual framework from social studies of science to make sense of the encounter between design and policy making. The paper applies this lens to an empirical account of design being applied to policy making in a team in the UK government.

The findings are that in addition to supporting officials in applying design approaches, the team's work shapes the emergence of hybrid policy making practices, and at times problematizes the nature of policy making. It does this within logics of accountability, innovation, and reordering. The contribution is to provide empirical detail and a nuanced account of what happens in these encounter between design expertise and policy making practice.

Design Thinking

Design thinking's *human-centered, collaborative, experimental* and *iterative*, and *situated and systemic* nature places the needs and motivations of the users at the center, along with building deep empathy, and giving the designers permission to fail and learn from mistakes as they learn by doing. In recent years, it has gathered increasing momentum in both academia and industry. It has been a central mission of many books, journals, conferences and symposia. Business management magazines and books have covered stories about the power of design thinking, suggesting it provides significant value for business innovation. To this point, the main impact of the design thinking approach has been in education; in particular, how universities teach design thinking as a foundation for innovation. Research shows that there is a common set of phases observed in projects where design thinking was practiced; however, there is no agreement regarding the most relevant tools and methods to be applied in each phase.

This DRS theme on design thinking focused on exploring questions such as: What is the nature of design thinking? What could it bring to other professions? What are the best practices both in academia and industry in introducing/applying/practicing/advancing design thinking? What are the relevant definitions of design thinking? How do design thinking approaches and practices vary across disciplines, contexts, and problems? What are the methods/ tools/ techniques/ strategies used in applying design thinking? How and why do they differ? How does practicing design thinking impact the innovation process and the outcomes? What is the impact of design thinking in socio-cultural and technological advancements? The papers presented refined or extended existing theories and frameworks on design thinking to uncover new patterns across disciplinary cultures, explore connections between industry and academia, generate new perspectives to broaden understanding, challenge existing assumptions and beliefs, and propose implications for implementation. As researchers show, there is much to learn from case studies that investigate design thinking implications from differing approaches and interactions.

Wed 29th June
11:15-12:45

Grand Parade
Sallis Benney

Chair: Seda Yilmaz
Iowa State University,
USA

From Technology-driven to Experience Driven Innovation: A Case from the Aviation Industry using ViP

Wed 29th June
11:15-12:45

Grand Parade
Sallis Benney

Jenny Tsay
Zodiac Aerospace,
NLD

Christine de Lille
TU Delft, NLD

Manufacturing industries have been challenged to transform their technology-driven innovation towards experience-driven innovation for forecasting innovation. This paper presents a vision-driven innovation framework that is context-based and user-centered, for supporting a major aviation manufacturer in the transition of its innovation process to become an active on-board service enabler.

This paper describes an action research case study that was carried out in the R&D department of the aviation manufacturer. The developed eight-phase approach uses user-experience insights as the main driving force to support forecasting of innovation for Zodiac Aerospace, to enable multiple internal and external stakeholders (designers, sales managers, passengers, cabin crews, and airline inflight service teams) to play active roles in different phases of the innovation process (from providing qualitative insights of air travel experience, to co-formulating future vision, and to evaluating the designed concepts).

This paper contributes knowledge by a step-by-step approach to guide manufactures to innovate from a holistic perspective, extending the ViP approach by taking end-users into account to support a transformation from technology-driven to experience driven innovation.

Theme Session: Design Thinking

Becoming a More User-Centred Organization: A Design Tool to Support Transformation

This paper describes how organizations can be supported with design tools through their transformation towards becoming more user-centred. Existing business model tools are starting points and extended through a design perspective, which allows additional flexibility and user-focus within an ongoing continuous change process. In this sense, the tools act as boundary objects facilitating stakeholder collaboration by creating a common understanding, a shared vision and values translated into actionable insights. The designed toolkit was developed using three design iterations and identifies three key levels of activities needed: on the organizational, customer and empathy level. Each level has its own perspective, involvement and actions.

Findings indicate that the designed tool may indeed assist organisations in describing, discovering and developing improved customer relationships with cards and turn them into actions in a organizational context. The card-based approach with keywords and images offers an open-structured way in the modelling process to design tangible user-centred solutions. The paper reflects upon design-decisions in exploring this developed toolkit and suggests further research on usage areas, trials with companies and toolkit usability.

Wed 29th June

11:15-12:45

Grand Parade
Sallis Benney

Lennart Kaland
Christine de Lille
TU Delft, NLD

Find this paper online at www.drs2016.org/352

Contrasting Similarities and Differences Between Academia and Industry: Evaluating Processes used for Product Development

Wed 29th June
11:15-12:45

Grand Parade
Sallis Benney

Nathan Kotlarewski
Christine Thong
Blair Kuys

Swinburne University
of Technology, AUS

Evan Danahay
Timberwood Panels
Pty Ltd, AUS

The purpose of this paper is to explore the process-based similarities and differences between academia and industry projects engaged in product design and development. The literature discusses similarities and differences between various product development processes but there is little published regarding the methods used, the time spent in different stages, iterations between stages and the nature of the activities that happen in each stage in academia and industry.

To investigate this two case studies of product development; one from academia and one from industry were contrasted using the framework of Ulrich and Eppinger's product design and development process, combined with Frayling's research model into, through and for design. This paper visually maps the differences and similarities between academic and industry product development processes used in timber products and construction sectors.

Theme Session: Design Thinking

United We Stand: A Critique of the Design Thinking Approach in Interdisciplinary Innovation

There has been a recent upsurge in the promotion of 'creative thinking'. The input of several disciplines is necessary to innovate new products and services. However, there remain many challenges to collaboration amongst creative and science-based disciplines. This paper examines disparities between designers and technologists when innovating and tackling problems. It is suggested that dominance of one party is likely to result in inadequate results. This paper seeks to explore how collaboration can be mediated by design thinking. A case study of designers and technologists working on a software development project is presented.

The case study highlights challenges resulting from differences between designers and technologists. Guiding principles aimed at facilitating collaboration are outlined. Finally, the paper reflects on the symbiosis between the disciplines, and how difference in fact cultivates innovation.

Wed 29th June
11:15-12:45

Grand Parade
Sallis Benney

Fiona Maciver
Julian Malins

Norwich University
of the Arts, GBR

Julia Kantorovitch
VTT Technical
Research Centre of
Finland, FIN

Aggelos Liapis
Athens University
of Economics and
Business, GRC

Find this paper online at www.drs2016.org/037

Theme Session: Design Thinking

Blending Hard and Soft Design via Thematic Analysis

Wed 29th June
11:15-12:45

Grand Parade
Sallis Benney

Vasilije Kokotovich
Kees Dorst
University of
Technology Sydney,
AUS

As the world becomes increasingly complex, from both a technological perspective and a sociocultural perspective, we need to adapt our problem solving and design capacity to match these changes. This paper will compare aspects of TRIZ and the emergent Frame Creation methodology as examples of design-based problem solving methodologies for resolving technical and sociocultural problems.

We argue that while on the surface TRIZ and Frame Creation merely appear to diverge, a close analysis reveals noteworthy similarities, such as the drawing upon core attributes of the problem situation and building up a solution frame from first principles. We then introduce the latent thematic analysis methodology as a common ground that can lead to a possible blending of the two.

Find this paper online at www.drs2016.org/280

Design for Tangible, Embedded and Networked Technologies

The DRS special interest group in Design for Tangible, Embedded and Networked Technologies is concerned with design as it deals with networked and embedded technologies. It seeks to complement the work of the Human-Computer Interaction (HCI) and Interaction Design research communities from a broader space of design research; in doing so, it also harbours the ambition to 'infect' design research with important theories and practices in these fields. We asked for contributors' critical reflections on new work concerned with perceptual qualities of networked and embedded technologies (in particular the tangible), with design methodologies for new materials and things (distributed, invisible, or emergent), and with a focus on the person at the centre of future networks (including implications for ethics in design and technology).

The special interest group was convened in early 2015, in conjunction with an international Arcintex research network workshop and symposium at Nottingham Trent University. DRS2016 is the SIG's first appearance at a Design Research Society conference, and we are very pleased to welcome eleven excellent papers, organised around two key themes of data (its value, modalities, and availability to different stakeholders), and design strategies (including participatory methods, Service Design and User-Centred Design).

Wed 29th June
11:15-12:45

Grand Parade
M2

Chair: Sarah Kettley
Nottingham Trent
University, GBR

**Chair: Anne
Cranny-Francis**
University of
Technology Sydney,
AUS

Designing from, with and by Data: Introducing the Ablative Framework

Wed 29th June
11:15-12:45

**Grand Parade
M2**

**Chris Speed
Jon Oberlander**
University of
Edinburgh, GBR

This paper introduces a framework for designers in which existing methodologies can be placed in order to better acknowledge how they work with data in different ways to support their practice. The paper starts by distinguishing three kinds of value associated with data: (i) raw measurements; (ii) commercial and social; and (iii) moral and ethical. We then note that changes in computing and communications technologies serve to de-emphasise computers as devices, and re-emphasise the flow of data between people, machines, and things; thus, we share the view that human-data interaction is a key challenge for designers.

In addressing the challenge, we introduce the framework for designers to distinguish design *from*, *with*, and *by* data. We note that informatics provides the theory for, and technologies of, information processing, while design provides the methods to adapt and create products and services. The paper uses case studies to illustrate our approach.

Feel it! See it! Hear it! Probing Tangible Interaction and Data Representational Modality

In this paper we present the design, implementation and evaluation of three tangible devices that measure and represent indoor air quality through different modalities. The motivation for creating these devices is twofold. First, we are interested in exploring how tangible interaction, combined with different representational modalities, affects the way people perceive data. At the same time, we aim to provide people with a novel interface that makes them aware of ambient indoor air quality. To achieve this, the approach we take is to create, what we term *design probes*: three objects that possess similar design features but differ in one aspect (here: representational modality).

We discuss the design rationale and technical implementation of these devices and follow by describing a deployment study conducted to explore their use in real environments. Based on the results of this study we divide our discussion into three parts: *Social Aspects*, *Personal Space* and *Subtle Changes*. We conclude by presenting future research plans that aims to probe deeper into how representational modality affects people's experience of data.

Wed 29th June
11:15-12:45

Grand Parade
M2

Trevor Hogan
Eva Hornecker
Bauhaus-Universität
Weimar, DEU

Designing Information Feedback within Hybrid Physical/Digital Interactions

Wed 29th June
11:15-12:45

**Grand Parade
M2**

**David Gullick
Paul Coulton**

Lancaster University,
GBR

Whilst digital and physical interactions were once treated as separate design challenges, there is a growing need for them to be considered together to allow the creation of hybrid digital/physical experiences. For example, digital games can now include physical objects (with digital properties) or digital objects (with physical properties), both of which may be used to provide input, output, or in-game information in various combinations.

In this paper we consider how users perceive and understand interactions that include physical/digital objects through the design of a novel game which allows us to consider: i) the character of the space/spaces in which we interact; ii) how users perceive their operation; and iii) how we can design such objects to extend the bandwidth of information we provide to the user/player. The prototype is used as the focus of a participatory design workshop in which players experimented with, and discussed physical ways of representing the virtual in-game information. The results have been used to provide a framing for designers approaching information feedback in this domain, and highlight the requirement for further design research.

Harnessing the Digital Records of Everyday Things

We address how, framed by the Internet of Things, digitally-enabled physical objects may acquire rich digital records throughout their lifetimes, and how these might enhance their value, meaning and utility. We reflect on emerging findings from two case studies, one focusing on wargaming miniatures and the other on an augmented guitar, that engage communities of practice in capturing and utilising rich digital records of things.

We articulate an agenda for future research in terms of four key themes: How can the digital records of everyday things be captured using both manual and automated approaches? How can these records enhance the embodied use of things in suitably discrete ways? How can people generate diverse stories and accounts from these records? How can we revisit current notions of ownership to reflect a more fluid sense of custodianship? The findings of the studies reveal common emergent themes and preferences of the practicing communities that surround these objects and the above questions, while ongoing participatory and probe studies continue to reveal nuances and evaluate possible approaches.

Wed 29th June
11:15-12:45

Grand Parade
M2

Dimitrios Darzentas
Adrian Hazzard
Michael Brown
Martin Flintham
Steve Benford

University of
Nottingham, GBR



Embodied Making and Learning

Theory on the embodied mind has evolved rapidly in the past decade, influencing research on cognition in all strands of science. Also the field of Design has started to investigate the implications of understanding the *Mind* as fundamentally dependent on the embodied interaction with our environment for development. Design- and craft researchers have for long consulted theories close to phenomenology in the search to understand the implicit and experiential knowledge that emerges in the act of making. Theories on *Tacit Knowledge*, *Affordances* and *Knowing-in-action* may all be directly linked to the theory on the embodied mind. Although there are different strands, the general theory on the embodied mind may be summed up to the following four E:s – The mind is *Embodied*, thus we are situated and our understandings are *Embedded*. Our mind is *Enacted* through the body. We offload meaning on external objects, thus our mind is *Extended*.

In this thematic session papers explore the phenomenon of embodied making and the conditions for it within the wide spectrum of design processes, and how embodied making contribute to learning during the design process. Papers presented in this additional theme considers the basic conditions and consequences of being a body in the world, experiencing and learning through working in materials. The term 'design processes' is used in a broad sense: the focus is on the act of making, and the maker could thus be everyone engaged in creative processes making objects in a material. The papers presented in this track take up core issues of embodied making and learning through various theoretical and methodological means.

Wed 29th June

11:15-12:45

Grand Parade

G4

Chair: Marte Gulliksen

Telemark University
College, NOR

Chair: Camilla Groth

Aalto University, FIN

The Role of Sensory Experiences and Emotions in Craft Practice

Wed 29th June
11:15-12:45

Grand Parade
G4

Camilla Groth
Aalto University,
FIN

Emotions have traditionally been overlooked in the practice of scientific research. In the field of design and craft research, too, personal feelings and emotions have been considered as interfering with the rigour and validation of the research. However, as a result of findings in neuroscience, a new understanding has emerged, providing emotions a central role in risk assessment and decision making processes. This has implications also for how we understand craft practice. In this practice-led research, a craft practitioner analysed five video-recordings of herself while throwing clay blindfolded.

The researcher-practitioner specifically studied critical incidents in the throwing process and made a detailed analysis of how felt experiences and emotions guided her in her risk assessment, decision making and problem solving processes during the throwing sessions. The research suggests that sensory experiences and emotions moderate and guide the making process and are thus important factors in craft practice.

Learning to Learn: What can be Learned from First-hand Experience with Materials?

A child cannot be taught how to walk – it has to sense the balance of its body, the smoothness of the floor, the strength of its muscles, and respond appropriately. The author argues that the process of learning depends on embodied functions and subjective experiences of the one who is learning. This paper discusses the first-hand perspective in the process of material transformation. During such a process, the acting person has to be attentive and make innumerable adaptive choices. Examples from a doctoral study focusing on young children (3 year olds), illustrate how the children’s first-person experiences related to their learning.

The author proposes that similar processes take place at all ages and that experience of learning through material transformation is an arena for learning how to learn. The paper initiates discussion about interactive relationships between the senses, attention, emotional engagement, responsibility, mastery, self-confidence and learning during material transformations.

Wed 29th June
11:15-12:45

Grand Parade
G4

Biljana Fredriksen
University College of
Southeast Norway,
NOR

Why Making Matters: Developing an Interdisciplinary Research Project on how Embodied Making may Contribute to Learning

Wed 29th June
11:15-12:45

Grand Parade
G4

Marte Gulliksen
Telemark University
College, NOR

This paper presents an ongoing project to develop a future study of embodied making, particularly when carving green wood. Making activities such as woodcarving have been studied using phenomenological, experiential, observational, analytical, and reflective methodologies, among others. These studies have documented many aspects of embodied making and its consequences for the person, product, and process. Neuroscientific methods have recently generated knowledge on the anatomical and functional aspects of embodied making.

The project is built on the assumption that it is possible to develop an interdisciplinary study combining these different methods, with the potential to confirm and expand current knowledge on both the phenomenon of embodied making itself and learning in and through such making. The project aims to provide a coherent description of some relevant neurobiological knowledge as a starting point for developing an interdisciplinary research project on how embodied making may contribute to learning.

Theme Session: Embodied Making and Learning

Physiological Measurements of Drawing and Forming Activities

The embodiment of tools and experiential knowledge of materials gained over time lies at the heart of both design and craft practices. However, empirical studies combining the study of mind and body in relation to design and craft practice is in its infancy. In the Handling Mind project, we conducted psychophysiological experiments in order to illuminate the relationships between making and feeling, handling creative situations and the embodied mind in thirty participants, both students and professionals representing expertise in various design fields, working with visual (drawing) or material (forming clay) tasks of 1) copying, 2) creating novel designs, or 3) freely improvising.

Our findings highlight both the importance of the embodiment with respect to the material and the different physiological states observed in tasks differing in requirements related to following orders or creativity. We conclude that the embodied activities are both supported and altered by bodily and mental processes.

Wed 29th June
11:15-12:45

Grand Parade
G4

Marianne Leinikka

Finnish Institute of
Occupational Health,
FIN

Minna Huutilainen

University of Helsinki
/ Finnish Institute of
Occupational Health,
FIN

**Pirita Seitamaa-
Hakkarainen**

University of Helsinki,
FIN

Camilla Groth
Mimmu Rankanen
Maarit Mäkelä

Aalto University, FIN

Find this paper online at www.drs2016.org/335

Code, Decode, Recode: Constructing, Deconstructing and Reconstructing Knowledge through Making

Wed 29th June
11:15-12:45

**Grand Parade
G4**

Anna Piper

Nottingham Trent
University, GBR

In craft practice, embodied knowledge is constructed ('coded') through the hands-on experience of making and application of technical rules, subsequently deconstructed ('decoded') through reflection and analysis, before being rebuilt ('recoded') to further develop practice and outcomes. In this paper practice-led PhD research into the development composite woven garments is used to demonstrate the vital role that process and object analysis play in the advancement of creative practice and a successful transition from hand to digital production. Drawing parallels between hand weaving and computer use, it explores how the 'digital thinking' inherent in weaving can facilitate a productive relationship with digital weaving technologies.

Presented as a 'visual essay' this paper aims to bridge the gap between implicit and explicit knowledge, using a predominantly visual method to maximise the reach of the research, communicating implicit and explicit knowledge with equal clarity and offering an alternative approach to the dissemination of practice-led research.

Theme Session: Embodied Making and Learning

Experience Labs: Co-creating Health and Care Innovations using Design tools and Artefacts

For healthcare innovations to be successful, the voices of those receiving or delivering such innovations need to be heard much earlier in the design process. This is not easy as there are likely to be multiple stakeholders involved, and their different backgrounds make it difficult to challenge or evaluate potential innovation in the early stage of development. This paper positions the Experience Lab as a means of co-creating sustainable, innovative solutions to healthcare challenges. The Experience Lab offers participants, both receiving and delivering healthcare, the opportunity to engage in the design process, share insights, experience new concepts and imagine new ways of responding to challenges. The material artefacts and bespoke tools provide the conditions through which to create new meanings and shared experiences.

This paper presents the Experience Lab approach, artefacts and tools, providing examples of these in context. The paper concludes with the need for further research to understand the role of artefacts and tools in supporting detail design and implementation beyond the Lab, and the potential of the Lab approach for other contexts.

Wed 29th June

11:15-12:45

**Grand Parade
G4**

**Tara French
Gemma Teal
Sneha Raman**

The Glasgow
School of Art, GBR

Find this paper online at www.drs2016.org/458



Food and Eating Design

Although almost all products in developed countries have been designed to some extent, the role of designers in determining what people eat and how they eat it has been relatively small. Until recently, the development of food products has remained primarily in the hands of breeders and farmers (agriculture), food technologists and marketers (food industry), and chefs and hospitality experts (restaurants). However, most of these professionals have not been explicitly trained to conceive and create new products for consumers and it seems likely that the food innovation process can benefit from the creative skills and tools that designers have acquired during their training and practice.

Currently, the role of designers in the food realm is often focused on products or services associated with food, such as packaging and branding, tableware and flatware, cooking utensils, restaurant interiors or retail displays, but not so much on the food itself. Fortunately, in the past 10 years we have seen a growing interest for the design discipline among culinary innovators, industrial partners, and scientific researchers in the food domain.

Wed 29th June
11:15-12:45

Grand Parade
Studio 101

Chair: Rick
Schifferstein
TU Delft, NLD

Designing for Sustainability: A Dialogue-Based Approach to the Design of Food Packaging Experiences

Wed 29th June
11:15-12:45

Grand Parade
Studio 101

Zoi Stergiadou
Spyros Bofylatos
Jenny Darzentas

University of the
Aegean, GRC

Packaging plays a vital role in making products competitive and our lives vibrant and interesting. This paper investigates the design process of food packaging as an artifact that aims to co-create meaning entwined with the values of sustainability through designing propositional artifacts. These are artifacts that embody issues of concern and can help us reflect on their implications. A case study is presented where the aim of communication-through-packaging was to disseminate the values of sustainability in various ways, by informing and motivating consumers to change their buying habits, encourage packaging reuse or upcycling, and embrace authenticity, quality and locality in food products. More specifically case study details the development of a packaging artifact for butter beans from a unique, protected region in Greece. The tools guiding the design process were a framework of information abstraction along with Information Design guidelines. The 'dialogue based' approach refers to the co-evolution of meaning.

Theme Session: Food and Eating Design

Designing with Empathy: Implications for Food Design

A broken food system has resulted in a wide disparity between food producers and consumers, undermining the perceived link between food and nature. It is therefore important to re-create the relationship with food when co-designing future solutions. This requires new tools and a new set of skills among food designers. Designing with empathy is well known from design processes as a way to respect human experiences. We therefore question if empathy for food can be used when co-designing the food system of tomorrow? The purpose of this paper is to explore what empathy means in food design, and how empathy for food can be created among users and stakeholders involved in the design process. The aim is to contribute to strengthening food design as a field that can contribute to tackle future food-related challenges in a responsible way.

Wed 29th June

11:15-12:45

Grand Parade

Studio 101

Hafdís Hermannsdóttir

Cecilie Dawes

Eva De Moor

Hanne Gideonsen

Food Studio, NOR

Find this paper online at www.drs2016.org/520

Towards a Sensory Congruent Beer Bottle: Consumer Associations between Beer Brands, Flavours, and Bottle Designs

Wed 29th June
11:15-12:45

Grand Parade
Studio 101

Anna Fenko
Sanne Heiltjes

University of Twente,
NLD

Lianne van den
Berg-Weitzel

Cartils, NLD

Sensory packaging design congruent with product and brand characteristics may be used as an innovative tool to communicate product and brand values to consumers and to enhance taste experience. This study investigated whether consumers associate sensory properties of beer bottles with certain brand values and beer flavours.

Participants evaluated five beer products on a list of brand values, flavour characteristics and package characteristics. The results demonstrated that consumers systematically associate tactile and auditory characteristics of a bottle with certain brand values and specific beer flavours. The study creates a conceptual tool for designing brand congruent multisensory beer bottles.



Designing the Unknown: Supervising Design Students who Manage Mental Health Issues

Wed 29th June
14:00-15:30

Brighton Dome
Concert Hall

Welby Ings

Auckland University
of Technology,
NZL

Seneca in his Moral Essays said, 'No great genius has ever existed without some touch of madness' (1928, p. 284). When working with highly gifted designers, it is not uncommon to encounter such a connection. However, as supervisors we can often find ourselves navigating unstable territories with little pedagogical guidance.

This article discusses some implications of working creatively with Design students who manage mental health conditions in a postgraduate environment in a New Zealand University. In doing so, it considers it reflects upon the research journeys of two candidates and the construction of responsive, creativity supportive environments developed to support their research. The paper also proposes a number of strategies that may be employed to support the development of productive early research experiences of emerging designers, such that both their lives and the pedagogical approaches that support them, are developed in more responsible, meaningful, and open ways.

Using Design Thinking to Create a New Education Paradigm for Elementary Level Children for Higher Student Engagement and Success

Can design education have a positive impact on primary school education beyond merely preparing designers? As designers, we know almost intuitively that design education is 'good education', and most designers would affirm that it would be beneficial to expose children to design education, because of the benefits of the signature pedagogies of design, such as problem-based learning, human centred creativity and iterations of prototyping and testing.

This paper seeks to review and synthesize existing literature and make preliminary analyses, which will support the development of design thinking education interventions at primary school level, which could lead to a paradigm shift in education at this level. While it has been widely demonstrated that design education can play a successful role in supporting traditional education models in the delivery of skills such as math and language arts, this paper seeks to demonstrate that in addition to meeting traditional education demands, design thinking principles in children's education, such as empathy, collaboration and facilitation, human-centeredness, and creativity by iterations of prototyping and testing, will provide a sound base for children not only seeking to enter a design profession in the future but moving into any profession in the future and will lead to higher engagement at school and greater success in life.

Wed 29th June
14:00-15:30

**Brighton Dome
Concert Hall**

**Lesley-Ann Noel
Tsai Lu Liu**

North Carolina State
University, USA

Design Research in Interior Design Education: A Living Framework for Teaching the Undergraduate Capstone Studio in the 21st Century

Wed 29th June
14:00-15:30

**Brighton Dome
Concert Hall**

**Charles Boggs
Meghan Woodcock
Helena Moussatche
Catherine Pizzichemi**

Savannah College of
Art and Design, USA

This paper serves as a reflective discussion on the changing forces impacting the undergraduate interior design capstone studio. Reinforced by a successful Council for Interior Design Accreditation (CIDA) visit during the fall of 2015, the program has identified a major shift in the process approach to better structure the potential development of design innovation: moving from a reactive mode based on industry expectations and standard systematic research methods towards using a living research and design framework refined throughout the design process as observations and findings evolve. The CIDA accreditation review offered 'evidence' of the results of this shift. By reviewing the process of teaching the capstone over the last 7 years, this paper provides a platform to ground the current state of the pedagogical framework employed from its early stages to its current form.

Designing Universities of the Future

How can we reform curricula, and universities at large, through a participatory design approach? Two development processes, one from Umeå Institute of Design in Sweden and the other one from Aalto University in Finland, are shown to exemplify this. These cases are used to highlight different practices on how change is designed and executed, what the prerequisites for a successful process are, what challenges these approaches bring, and how we can develop the practice of developing universities – through a participatory design approach – further.

Wed 29th June
14:00-15:30

Brighton Dome
Concert Hall

Anna Valtonen
Aalto University,
FIN

Dexign Futures: A Pedagogy for Long-Horizon Design Scenarios

Wed 29th June
14:00-15:30

Brighton Dome
Concert Hall

Peter Scupelli
Judy Brooks

Carnegie Mellon
University, USA

Arnold Wasserman

Collective Invention,
USA

The transition towards societal level sustainability requires thinking and acting anew. Traditional design pedagogy poorly equips designers to integrate long- range strategic thinking with current human-centered design methods. In this paper, we describe a three-course sequence: *Dexign Futures Seminar* (DFS), *Introduction to Dexign the Future* (iDTF), and *Dexign the Future* (DTF). The term *dexign* indicates an experimental type of design that integrates Futures Thinking with Design Thinking. Students learn to engage strategic long time horizon scenarios from a generative design perspective. DFS, online modules, teaches students to critique and deconstruct existing futures scenarios. iDTF situates students to explore futures based themes and apply design methods and research techniques. DTF takes students into a semester-long project designing for 2050. In this paper, we describe lessons learned that lead to a pedagogy for supporting novices as they develop skills and methods for long time horizon futures design.



Supporting SMEs in Designing Sustainable Business Models for Energy Access for the BoP: A Strategic Design Tool

Wed 29th June
14:00-15:30

Brighton Dome
Studio Theatre

Silvia Emili
Fabrizio Ceschin
David Harrison

Brunel University,
GBR

About 1.4 billion people from the Bottom of the Pyramid (BoP) currently lack sustainable energy services. In these contexts, SMEs and practitioners need to combine feasible technical solutions and appropriate business models. Distributed Renewable Energy (DRE) systems emerge as possible solution to provide small-scale and locally based electricity. DRE can be implemented with sustainable business models (Product-Service Systems – PSS) that shift the business focus from selling products to providing a combination of products and services that are able to fulfil customers' satisfaction.

In this paper we explore the combination of DRE and PSS by presenting a strategic design tool that aims at supporting SMEs and practitioners in designing sustainable business models for energy in the BoP. The tool finds several applications which have been tested with companies and practitioners in South Africa and Botswana. The new version of the tool is then presented to support idea-generation for designing business models for energy access for the BoP.

Extending Clothing Lifetimes: An Exploration of Design and Supply Chain Challenges

The environmental impact of clothing could be reduced if average garment lifetimes were increased. The paper explores the design and supply chain implications of clothing longevity, adapting models from sustainable clothing design research, and evidence from interviews and expert roundtables. The research concludes that the process of design for longevity could be adopted by clothing retailers and brands, but that the principles behind adopting this strategy lack credence in industry, because the mandate to do so, and robust business models, are lacking. The paper identifies a range of conflicting priorities between commercial and sustainable practice that must be addressed to reduce the environmental impact of clothing by extending its useful life, and makes recommendations for industry and future research. However, the limitations to adopting more sustainable practice relate to fashion and market segment, are systemic within the clothing supply chain and attempts to resolve these require a commercial imperative.

Wed 29th June
14:00-15:30

**Brighton Dome
Studio Theatre**

**Lynn Oxborrow
Stella Claxton**
Nottingham Trent
University, GBR

The Effect of Consumer Attitudes on Design for Product Longevity: The Case of the Fashion Industry

Wed 29th June
14:00-15:30

**Brighton Dome
Studio Theatre**

**Angharad McLaren
Tim Cooper
Lynn Oxborrow
Helen Hill**

Nottingham Trent
University, GBR

Helen Goworek
University of
Leicester, GBR

Product longevity is a key aspect of sustainability and encouraging consumers to prolong the lifetime of products therefore has a part to play in minimising environmental sustainability impacts. The production, distribution and disposal phases of the clothing life cycle all create environmental impacts, but extending garments' active life via design, maintenance and re-use of clothing is the most effective method of reducing the negative effects of the clothing industry on the environment.

The study took an exploratory approach using mixed qualitative research methods to investigate consumer perspectives on clothing longevity and explore everyday processes and practices of clothing use, e.g. purchase, wear, care, maintenance, repair, re-use and disposal. The research findings showed that numerous factors affect consumers' perspectives of clothing longevity during the purchase, usage and disposal stages of the clothing lifecycle. The conclusion addresses how these factors can influence product design practice in the fashion industry.

Framing Complexity in Design Through Theories of Social Practice and Structuration: A Comparative Case Study of Urban Cycling

Even if cycling is promoted as a new form of urban lifestyle, current car-centric approaches hold this type of mobility under gridlock. This article explores dissonances between visions, planning and execution in urban mobility and proposes a practice-oriented design model based on theories of Shove and Giddens. A model as a combination of mutual influences is developed, reflecting the complexity of urban design problems. The model is applied in a comparative case study on cycling in Freiburg im Breisgau (Germany) and Trondheim (Norway). In Freiburg cycling is of mundane, everyday character, while it carries traits of mere commuting in Trondheim. Applications of the model show strong connections between elements of structure, material, meaning and competence. The model can help planners and designers to grasp urban complexity within systemic relationships, thereby supporting steps towards a practice-oriented design.

Wed 29th June
14:00-15:30

**Brighton Dome
Studio Theatre**

**Tobias Hofmeister
Martina Keitsch**

Norwegian University
of Science and
Technology, NOR

Integrating Sustainability Literacy into Design Education

Wed 29th June
14:00-15:30

Brighton Dome
Studio Theatre

Andrea Quam

Iowa State University,
USA

A base definition of sustainability is balancing environmental, economic and societal concerns with future generations in mind. At its core, sustainability is future-focused, as the education of future design professionals must be. Design is understood to be a discipline seeking to improve the condition of current and future populations. Why then, is sustainability not universally integrated into design education programs and their curricula?

This paper will look at a logical framework for instructors to introduce sustainability into design curriculum in a manner that shifts from looking at sustainability competencies, to a more profession-specific vision for sustainable literacy. An argument for the need, approach and opportunity for sustainability literacy, as well as a case study in which this framework was applied to a graphic design studio class will be shared.

A Sociotechnical Framework for the Design of Collaborative Services: Diagnosis and Conceptualisation

Feminist work exists in industrial design and contributes to society, the feminist movement and the industrial design field itself. Though much of the work dates from the 1980s and 1990s, which leaves the contemporary industrial design field without much feminist critique and intervention, and without the many contributions of this body of work. Thus, there is a need to rebuild the body of feminist work in industrial design. However, the feminist movement in industrial design is difficult to grasp and it's hard to know how to move forward and contribute to this rebuilding.

This paper provides recommendations to inform this complex task based on readings on the topic of feminism and a literature review on feminism in design. The recommendations touch-on how to address the limited presence of feminism in industrial design, the contemporary relevance of older feminist work in industrial design and how contemporary feminism could inform newer work.

Wed 29th June

14:00-15:30

**Brighton Dome
Studio Theatre**

**Joon Sang Baek
Yoonee Pakh
Sojung Kim**

Ulsan National
Institute of Science
and Technology,
KOR

Automating Experience: Does the 'Automated Home' Diminish or Deepen User Experience?

Wed 29th June

14:00-15:30

Brighton Dome

Founders Room A

Jonathan Chapman

Merryn Haines-Gadd

University of

Brighton, GBR

Jon Mason

Dzmitry Aliakseyeu

Philips, NLD

In a technologically streamlined world, our dominant version of reality comes with the majority of problems mitigated through the constant and rapid evolution of technology systems. One notable progression is that of automating technologies within the home, which have been suggested deliver rich experiences that are both immersive and smart. The vision for automated living spaces sees people interacting easily within digital environments where by electronics are sensitive to our needs, personalised to requirements, anticipatory of behaviour and responsive to our presence all enabled by the extraordinary potential of the Internet of Things. There are significant benefits that accompany these forms of development. Yet, for all its affordances, there are larger issues concerning agency still to be explored. Hosted in partnership with Philips Lighting and the University of Brighton, this conversation explores the relationships between the automated home and user experience, asking: Does the automated home diminish or deepen user experience?

Connecting Diversities: Migration, Social Innovation and Design

Europe is and will be in the next decades, the place-to-go for several millions people. The challenge is to think this perspective not as a threat, but as an opportunity. That is, to imagine how migration can become a driver of innovation towards a younger, dynamic, cosmopolitan and, at the end of the day, more resilient Europe. The migration issue is here to stay in Europe and worldwide.

This conversation will focus on the European context, but its results, in terms of design problems and research directions could have a more general value. This conversation goes in this direction: 'Connecting diversities' is an exploration, done from a design perspective, of how collaboration between migrants and residents can strengthen the social fabric.

Wed 29th June
14:00-15:30

Brighton Dome
Founders Room B

Ezio Manzini
University of the Arts
London /
DESIS Network, GBR

Carla Cipolla
DESIS Network /
Federal University of
Rio de Janeiro, BRA

Lorraine Gamman
University of the Arts
London, GBR

Adam Thorpe
University of the Arts
London, GBR

Virginia Tassinari
LUCA arts – campus
C-Mine, BEL

The Introduction of Design to Policymaking: Policy Lab and the UK Government

Wed 29th June
14:00-15:30

Old Courthouse

Jocelyn Bailey

Peter Lloyd

University of
Brighton, GBR

The use of design within government institutions is a rapidly accelerating trend of global dimensions. The emergent nature of these design practices, and cultures, raises questions about what exactly is happening in the interactions between design and political institutions, and how that might be understood in broader socio-economic and political terms.

This paper reports on a series of interviews with senior level civil servants working in UK central government, all of whom have had some exposure to design methods and techniques through interaction with the UK Policy Lab. The paper sets out the ways in which the epistemology and practices of design, as introduced through Policy Lab, both expose and challenge those of the political institutions and policy professionals they seek to change.

Problematizing Evidence-Based Design: A Case Study of Designing for Services in the Finnish Government

The increasing complexity of design problems and degree of innovation required of design solutions today has led many authors to claim that decision making in design should be based on strong scientific evidence. However, current models of evidence-based practice are too simplistic for design since they tend to focus only on evidence strength. We investigate the role of evidence in service design through analysing a case study of creating a service design solution to improve immigration services in the Finnish public sector. By using a conceptual framework that emphasises the impact of different kinds of evidence on knowledge as justified true belief, we illustrate some of the different roles that evidence can play within the design process. The insights from the study indicate that relevant evidence is more useful than strong evidence during the early phases of the design process.

Wed 29th June
14:00-15:30

Old Courthouse

Helena Sustar
Luke Feast

Aalto University,
FIN

Designed Engagement

Wed 29th June
14:00-15:30

Old Courthouse

Gemma Teal
Tara French

The Glasgow
School of Art,
GBR

Designed Engagement uses design methods and skills to transform the way we talk to people in the community. We go to where people are: designing positive and thought provoking public engagement to stimulate creative dialogue and explore new ways of addressing societal challenges. Involving the public in dialogue around changes to policy and the design of services is a key target for policy makers, however traditional approaches offer little scope for creativity and meaningful engagement. Design brings a wealth of expertise to create engaging experiences, facilitate dialogue, and translate insights into tangible outputs for decision makers. We discuss public engagement literature and previous examples of design within this context. We introduce 'Designed Engagement' to denote design-led approaches to public engagement, illustrated through two examples of pop-up Designed Engagement. We discuss advantages, limitations and implications for design, concluding with the need for further research to evaluate and demonstrate the contribution and value of design in public engagement.

Public Design and Social Innovation: Learning from Applied Research

The design approach is increasingly adopted as a creative process to create innovation in organization. The process is based on the holistic way designers apprehend problems. Even though the design approach is sensitive to human experiences, its contribution in generating innovation is uncertain. In the light of a literature review on how design for social innovation should be conducted, we propose to revisit research projects in public and social contexts undertaken by the authors in the last ten years. This paper hopes to shed light on what is recommended in literature and on what really happens in the practice of public design projects. Over the years, the authors produced a considerable amount of design research centered on the implantation of public infrastructures in urban and regional landscapes. Sometimes, these research projects caused challenges for the nearby populations as well as for the general public in terms of social acceptability issues.

This paper proposes a first critical observation of Quebec's public design research contexts through the analysis of three types of design research projects: a thesis, an applied research on public infrastructures for a public organization and an academic research financed by public funds on public infrastructures.

Wed 29th June
14:00-15:30

Old Courthouse

Caroline Gagnon
Université Laval,
CAN

Valérie Côté
Université de
Montréal, CAN

Design as Analysis: Examining the Use of Precedents in Parliamentary Debate

Wed 29th June
14:00-15:30

Old Courthouse

Darren Umney
Christopher Earl

Open University, GBR

Peter Lloyd

University of
Brighton, GBR

Design continues to look beyond the confines of the studio as both practitioners and researchers engage with wider social and political contexts. This paper takes design into the Parliamentary debating chamber where a country raises and debates problems and proposes and explores solutions. There is an increasing amount of work that explores the use of design in policy-making processes but little that explores design as an interpretation of the Parliamentary process. This paper draws on one characteristic of the design process, the use of precedent, and examines how this appears and functions in Parliamentary debate. The paper argues that this 'design analysis' gives insight into debate as a design process and into the debate transcript as a naturally occurring source of design data. This contributes to the scope of design studies and suggests that the UK Parliament could be considered one of the most influential design studios in a country.

Exposing Charities to Design-led Approaches through Design Research

This paper discusses the value of using design research to expose Voluntary Community Sector (VCS) organisations to design-led approaches. The discussion is based on the findings from two qualitative, exploratory doctoral inquiries into the relevance and applicability of adopting a Design for Service (DfS) approach to effect transformation in VCS contexts. Using Action Research and a case study structure, the DfS approach was introduced and applied within four VCS organisations in succession. The research findings have provided valuable evidence and insight into design's capacity to incite transformational change, and the challenges of doing so, at a critical time for the sector.

Wed 29th June
14:00-15:30

Old Courthouse

Laura Warwick
Robert Djaelani
Northumbria
University, GBR

What is the Nature and Intended Use of Design Methods?

Wed 29th June
14:00-15:30

Grand Parade
Sallis Benney

Colin Gray
Purdue University,
USA

Interest in the codification and application of design methods is rapidly growing as businesses increasingly utilize 'design thinking' approaches. However, in this uptake of design methods that encourage designerly action, the ontological status of design methods is often diffuse, with contradictory messages from practitioners and academics about the purpose and desired use of methods within a designer's process. In this paper, I explore the paradoxical nature of design methods, arguing for a nuanced view that includes the [often] conflicting qualities of prescription and performance. A prescriptive view of methods is drawn from the specification of methods and their 'proper' use in the academic literature, while a performative view focuses on *in situ* use in practice, describing how practitioners use methods to support their everyday work. The ontological characteristics and practical outcomes of each view of design methods are considered, concluding with productive tensions that juxtapose academia and practice.

Don't Look Back: The Paradoxical Role of Recording in the Fashion Design Process

Although there is little systematic research in academia or industry examining design processes in Fashion, anecdotal evidence, based on self-reports and observations, suggests that designers very rarely record the process of designing. Conversely, benefits and requirements of recording the design process within other domains, such as Engineering and Architecture, are well supported in the literature. This paper attempts to explore the dichotomy of recording and non-recording practice across these fields through a review of the literature, semi-structured interviews and a report on one case study in particular, drawing out further detail. Commonalities and differences are identified and new directions for research proposed.

Wed 29th June

14:00-15:30

Grand Parade
Sallis Benney

Helen McGilp
Claudia Eckert
Christopher Earl

The Open University,
GBR

Designing Creative Destruction

Wed 29th June
14:00-15:30

Grand Parade
Sallis Benney

Ashley Hall
Royal College of
Art, GBR

This research aims to make a contribution in the context of design thinking at a global cultural scale and specifically how design methods are a feature of the homogenising and heterogenising forces of globalisation via creative destruction. Since Schumpeter's description of economic innovation destroying the old and creating the new, a number of other interpretations of creative destruction have developed including those driving cultural evolution. However a design model showing the impact of different types of design method on cultural evolution can develop an understanding on a more systemic level from the medium to longer term impact of new designs that homogenise or increase the differences between various cultures.

This research explores the theoretical terrain between creative destruction, design thinking and cybernetics in the context of exchanging cultural influences for collaborative creativity and concludes with an experiment that proposes a feedback loop between ubiquitousising and differentiating design methods mediating cultural variety in creative ecosystems.

The Cycle of Interdisciplinary Learning and Theory-solution Building in Design Research

This article discusses a new perspective on the sustainable product/service development process as an iterative cycle of interdisciplinary learning phase and theory-solution building phase. Such a perspective puts emphases on deductive or abductive-inductive communication activities between stakeholders, difference in research paradigms within which involved researchers act in, and how given information leads to useful insights for theory-building or solution-building via cognitive operations. The cycle is described with the author's observations made during a research project, with specific cognitive activities pronounced in stakeholders' learning and ideation activities.

Wed 29th June
14:00-15:30

Grand Parade
Sallis Benney

Young-ae Hahn
Yonsei University,
KOR

Critically Exploring the Development of a Conceptual Framework for Building Innovative Brands

Wed 29th June
14:00-15:30

Grand Parade
Sallis Benney

Xinya You

David Hands

Lancaster University,
GBR

The success of today's brands increasingly relies on consumer-centred co-innovation. In this context, brands must play a role that is more proactive than their traditional one of serving as a communication tool. Based on an extensive review of the literature, this paper defines the new role of brands as a driving force for innovation and, to illustrate the potential of that new role, proposes a conceptual framework for building innovative brands that comprises the following five dimensions: (1) the command centre – the brand management team; (2) the strategic vision – the context of building innovative brands; (3) the organisational foundation – the organisation's innovation capability; (4) the cross-cultural perspective – driving innovation cross-culturally; and (5) the human-centred innovation approach – *design thinking*. It is hoped that the comprehensive, interdisciplinary, and strategic outcomes will inspire researchers and marketing professionals to apply the findings described here and to conduct further study on this topic.



Ad Hoc Pairings: Semantic Relationships and Mobile Devices

Wed 29th June
14:00-15:30

**Grand Parade
M2**

Jason Germany
University of
Washington, USA

As the digital world continues to become more mobile and wireless, a new challenge has arisen in this always connected landscape. That challenge has been created by the very thing that has helped to enable this nomadic experience – the loss of wires has resulted in a loss of what was once visually mapped connections between two or more digital objects which helped to semantically define the relationship between ad hoc devices as well as user and devices. Current applications require the use of screen-based (explicit) interfaces to manage these connections but this research explores opportunities to leverage more implicit and tangible methods to creating these connections. This research and resulting user study (N=12) explored the use of gestures between primitive forms as a means of encoding paired relationships. The analysis of the resulting 108 patterns generated helped to isolate pairing attributes and an encoding protocol that could inform current and future tangible connections between digital devices.

A Toaster For Life: Using Design Fiction to Facilitate Discussion on the Creation of a Sustainable Internet of Things

This paper presents a design fiction created by the author – the *Toaster For Life*. The design is an initial prototype that seeks to embody Sterling’s concept of *spimes* which when viewed simply, are a class of near future, sustainable, manufactured objects designed to make the *implicit* impacts of a technological product’s entire lifestyle more *explicit* to its potential users. This paper argues that when properly understood, spimes act as a rhetorical device that can be used as a lens through which designers can speculate and reflect upon sustainable technological product futures whilst also critiquing the unsustainable production and consumption practices that define our current lifestyles. To make this case, the paper contextualises the *Toaster For Life* in relation to the spimes concept, the unsustainability of Internet of Things products and sustainable design praxis; and reflects upon the design fiction methodology used to highlight the potential benefits of such an approach.

Wed 29th June

14:00-15:30

Grand Parade

M2

Michael Stead

Lancaster University,

GBR

Making Service Design in a Digital Business

Wed 29th June
14:00-15:30

**Grand Parade
M2**

**Piia Ryttilahti
Simo Rontti
Titta Jylkäs
Mira Alhonsuo
Hanna-Riina
Vuontisjärvi
Laura Laivamaa**

University of
Lapland, FIN

Digital businesses involve multiple stakeholders, each with their own distinct sets of values. In addition to the business value of the global digital ecosystem, a complex web of socio-cultural human values has emerged from digital development. In this research paper, this ecosystem is examined in a Finnish context, through business-led research and development consortia (Need for Speed, N4S).

The aim of the paper is to present insights into a more socio-culturally sensitive research framework for a digital service development through three experiments using participatory and co-design tools: a stakeholder mapping tool, a value network mapping tool and a design game. The experiments follow the framework of three approaches to making the co-designs (i.e., probes, toolkits and prototyping) presented by Sanders and Stappers (2014). The theoretical framework is pragmatic, developing the process holistically through trial and error or, as a pragmatist would say, through the experience of disruption and crisis. (Kilpinen 2012).

Serious Play Strategies in the Design of Kinetic and Wearable Devices

Encouraging spontaneous creativity is an on-going quest in design. Play embodies this. This paper builds on the concept of 'serious play' as a design strategy for creating new and innovative ideas. It discusses a qualitative study involving six teams of designers, each generating initial concepts for wearable and interactive kinetic devices. It describes the playful interactions that emerged as a common strategy for their collaborative and creative ideation practices. It contributes features that further clarify the nature of serious play in relation to humour, role-playing scenarios, gestures, and multi-sensory involvement.

Wed 29th June

14:00-15:30

Grand Parade

M2

Lois Frankel

Ellen Hrinivch

Carleton University,

CAN

Tangibility in e-textile Participatory Service Design with Mental Health Participants

Wed 29th June
14:00-15:30

**Grand Parade
M2**

**Sarah Kettley
Anna Sadkowska
Rachel Lucas**

Nottingham Trent
University, GBR

This paper introduces a project in which members of the Nottinghamshire Mind Network are engaged in the participatory design of e-textile service networks informed by the Person-Centred Approach mode of psychotherapy. Early reflections on separate e-textile and service design workshops reveal two distinct functions of tangibility in this process.

First, we discuss how we have attempted to make novel technical futures tangible for participants through the experience of making textile circuits and soft handheld objects. Second, we discuss our finding that the experiences of participants in the mental health sector can lack presence for relevant audiences; our response to this, in the form of collaborative film work is introduced.

The paper contributes to the technical and participatory design communities in its presentation of the Person-Centred attitude to the configuration of potentially vulnerable user groups, and the development of a methodology for the inclusive design of embedded technologies.

The Future of Design Education

Design as a discipline has evolved and is expanding its impact from individual physical objects and spaces to experiences and organizations. An emerging question is 'how will the increasing influence of design impact the future of design education and create value for its stakeholders as well as for the discipline of design?' Probably a more critical question is 'how can or should design education prepare future designers for this expanding sphere of design influence?' Design education is at the crossroads and faces an uncertain future, some say 'If design is to live up to its promise it must create new, enduring curricula for design education that merge science and technology, art and business, and indeed, all the knowledge of the university'. What is the promise that design has to offer? How can design schools lay the foundation to deliver that promise? It is time to take a comprehensive look at the current state of design education and start a conversation about its future.

Wed 29th June
14:00-15:30

Grand Parade
G4

Sapna Singh
Elizabeth Sanders
Ohio State
University, USA

Terry Irwin
Carnegie Mellon
University, USA

Pieter Jan
Stappers
TU Delft, NLD

Nicole Lotz
Open University,
GBR

Erik Bohemia
Loughborough
University,
GBR

Digital Sketch Modelling: Integrating digital sketching as a Transition between Sketching and CAD in Industrial Design Education

Wed 29th June
14:00-15:30

Grand Parade
Studio 101

Charlie Ranscombe
Katherine
Bissett-Johnson
Swinburne
University of
Technology, AUS

Literature on the use of design tools in educational settings notes an uneasy relationship between student use of traditional hand sketching and digital modelling tools (CAD) during the industrial design process. This is often manifested in the transition from sketching to CAD and exacerbated by a preference of current students to use CAD. In this research we report the teaching of a new design practice 'Digital Sketch Modelling' which combines the strengths of sketching in ideation and CAD in dimensional accuracy while versing students in digital sketching skills that are now expected of graduates going into industry. In doing so we move beyond treating digital sketching as an equivalent of traditional sketching to become a new transitional design tool. This paper sets out the key steps of the Digital Sketch Modelling technique and reports its integration in industrial design curriculum over the last two years. In doing so we contribute a new type of design practice with a research based foundation that answers the requirements of modern industrial design practice.

Prototyping in the In-between: A Method for Spatial Design Education

A challenge in today's design education practice is to formulate and use methods that support competences in the in-between-space between basic form training and learning that is relevant for designers in the future society. The aim of the paper is to discuss and to evaluate prototyping exercises in design education placed in that in-between space. Four different approaches to prototyping exercises are described, examined and evaluated in the paper. The prototyping exercises are engaging the students in the learning cycle phases of *learning by experimentation* and *learning by experiencing*. The result shows that the prototyping exercises did support learning of diverse competences in that in-between space but were also counterproductive and met different kinds of resistance in the students. This paper invites to a dialogue on how different prototyping techniques in design education might be used when educating designers.

Wed 29th June

14:00-15:30

**Grand Parade
Studio 101**

**Jennie Schaeffer
Marianne Palmgren**
Mälardalen
Högskola, SWE

Global Flows of Materials: Design Research and Practice in Architecture

Wed 29th June
14:00-15:30

Grand Parade
Studio 101

Janet McGaw
University of
Melbourne, AUS

This paper presents a pedagogical approach to teaching architectural studios that begins with spatial and material design research into the socio-cultural consequences of the global flows of building materials. This work responds to the challenge set by architectural theorist, Peg Rawes, to consider 'relational architectural ecologies' within design. She has argued that sustainability research in architecture has been siloed within building science and, as a consequence, has been addressed through technological approaches without due consideration to social 'ecologies'. Students design research work, which innovatively re-imagines sustainable futures, is discussed

What is Sought from Graphic Designers? A First Thematic Analysis of Job Offers for Graphic Design Positions in the United Kingdom

An empirically grounded understanding about which knowledge and skills that are sought from designers is missing for a number of professional subfields of design. This gap in research challenges i) design educators in planning their educational offerings and ii) design practitioners and students in articulating their contribution to clients and future employers. In this paper, we study the references that are made to knowledge and skills in job offers for graphic designers in UK. Based on a first thematic analysis of 1,406 job offers, we distinguish four main knowledge areas for graphic designers in terms of i) operational design skills, ii) process management skills, iii) technical design skills and iv) software skills. We note that expertise in 2D software, teamwork, project planning and administration, creativity and aesthetic as well as detailing and production emerge as the most frequently mentioned skills across the offers.

Wed 29th June
14:00-15:30

**Grand Parade
Studio 101**

Oscar Person

Aalto University, FIN

Paulo Dziobczenski

Aalto University, FIN
CAPES Foundation,
BRA

Evaluating Living and Learning on Campus: A Community Engaged Research Model

Wed 29th June
14:00-15:30

Grand Parade
Studio 101

Rebekah Radtke
University of
Kentucky, USA

How can we strategically assess the investments made to living and learning environments and its impact on students? How can we create an inclusive design research model in higher education? By utilizing a post-occupancy evaluation process, students completed a nine-month study to investigate and assess the investment in student living and learning spaces. This paper shares the findings of the post occupancy evaluation of a living-learning program in a residence hall to better understand how the spaces are utilized and its impact on learning. The process utilizes design research as a community engaged model, with collaboration among a diverse group of administration, partners, staff, faculty, and most importantly, students. By combining the need for design research on campus and a framework for participatory research models, this case study reveals the importance of assessing campus buildings through student participation in design research.

Managing Mess: Exploring how to Design and Conduct Research into Design Practice

In his book *After Method: Mess in social science research*, John Law, a sociologist of science and technology, explores research into phenomena that are 'messy'. Law outlines the problem of scholars who bring research methods to complex social situations in ways that, in their attempts to clarify, ultimately result in distorting these situations. Law argues that, since many methods are engaged with simplifying and describing social realities, rather than offering a neutral mode of understanding them, the methods actively help to create the realities. In effect, social realities as revealed by methods, are underpinned by the political positions of those methods. Accordingly, Law advocates thinking 'hard about our relations with whatever it is we know' as we ask 'how far the process of knowing' also brings into being that which we seek to understand. This DRS Conversation is mindful of the issues outlined by Law, and will explore what different researchers and practitioners of design can say about modes of design practice.

Wed 29th June
14:00-15:30

Grand Parade
Studio 102

Arlene Oak
Claire Nicholas
University of Alberta,
CAN

Janet McDonnell
University of the Arts
London, GBR

Nathan Crilly
University of
Cambridge, GBR

Design and Interdisciplinarity: The Improbable Introduction of 'Fundamental Physics' in a Design School

Wed 29th June
16:00-17:30

Brighton Dome
Concert Hall

Annie Gentes

CoDesign Lab,
Telecom Paristech,
FRA

Anne-Lyse Renon

ENSCI-Les Ateliers,
LIAS – IMM, FRA

Julien Bobroff

CNRS University
Paris-Saclay, FRA

This paper analyzes the introduction of fundamental physics in design education as a pedagogical method that brings interdisciplinarity into play. It presents the framework of three workshops that took place in a design school. For each workshop, a theme was chosen by the designers and the professor of physics: superconductivity in 2011, quantum physics in 2013 and light and optics in 2014. The authors suggest that introducing physics in a design curriculum was thought in terms of an 'a fortiori' education program that would help practitioners to draw pertinent questions and responses whatever the situation.

The authors suggest therefore that the curriculum had five goals that correspond to a model of design: affective (how to cope with uncertainty), reflexive learning (how to cope with processes rather than contents), cognitive (how to cope with non knowledge), economic (how to cope with the industrial society of innovation), and political (how to cope with the equality of disciplines and 'indiscipline').

Card Games Creation as a Learning Method

This paper explains on the base of a case study how Communication Design students explore, classify and discuss theoretical knowledge by using design methods. We question how the setting and methodology and subject of the class influences motivation and learning outcomes.

Based on the assumption that design degree students are mainly motivated when using visual and tactile skills, a course concept that uses design as a framework to learn information-seeking techniques was implemented to learn teach how to classify, organise and discuss information in a meaningful way. The specific procedure, the outcome and evaluation of the course demonstrate that the students' motivation is positively influenced by this approach for a number of reasons, e.g. the autonomy of students solving a task, the attribution of time and the form of feedback and last but not least the competition for best design. The paper discusses the educational strategy and correlates the aspects of the case with measures of Keller's Model of Motivational Instruction (2000).

Wed 29th June
16:00-17:30

**Brighton Dome
Concert Hall**

Birgit Bauer

HTW University of
Applied Sciences, DEU

‘Spend another day in our class talking about this research please’: Student Insights from a Research-based Design Thinking Exercise

Wed 29th June
16:00-17:30

**Brighton Dome
Concert Hall**

**Cynthia Atman
Ahmer Arif
Kathryn Shroyer
Jennifer Turns
Jim Borgford-Parnell**
University of
Washington, USA

This paper explores how guided discovery can be used to connect insights from the ever-growing body of research on design processes with design teaching. This paper focuses on a specific instance of a guided discovery activity in which engineering students were invited to engage with selected timelines from a study of designer processes; guidance included prompts at two points in time. The goal was to see if the students could discover meaningful insights about the design process and what features of design processes contribute to quality solutions. The students in this study succeeded in discovering six meaningful insights about the design process. The distribution of students’ insights was not the same at the two time-points, suggesting that the guidance is important in what students discovered. Our findings speak to the value of the specific guided discovery activity that we studied, and the overall idea of developing activities using guided discovery.

Design Culture and Contemporary Education

This qualitative situational analysis study charted the implications and potentialities of embracing a design culture within contemporary education. Fifteen design philosophers, instructors, and practitioners provided data using situational analysis grounded theory methodology (Clarke, 2005) to examine three levels of inquiry. Data was interpreted using traditional grounded theory coding (Corbin & Strauss, 2008) and charted on three maps: situational, social world arena, and positional. As the study progressed, the 'in vivo code' of integrating differences became the most developed concept of the study. The 'in vivo code' also addressed the central quest of the study as well as what remains to be learned about how design culture can take education beyond a limited test-centered and skills based system to one that views learning as complex and multidimensional.

Wed 29th June
16:00-17:30

**Brighton Dome
Concert Hall**

Therese Uri
Creighton University,
USA

The Use of Argumentation in Design Research

Wed 29th June
16:00-17:30

Brighton Dome
Concert Hall

Stella Boess
TU Delft, NLD

This paper proposes argumentation as a key skill that ties research methodology into design. The paper first aligns Toulmin argumentation with core ideas in design goal setting, and then provides an example of how this skills set can be acquired in the context of design. A design education course is presented with its starting points and teaching activities in order to illustrate the application of argumentation in design research. The course is compared with another recently presented course that takes the same argumentation model as an underlying principle. The comparison between the courses reveals how materials can be geared towards different emphases in learning goals. The paper concludes with an outlook towards further uses of the argumentation model as a basis for design research.



Design of Resilient Consumer Products

Wed 29th June
16:00-17:30

Brighton Dome
Studio Theatre

Anders Haug

University of
Southern Denmark,
DNK

Consumer product sustainability is a topic that has been of increasing interest to practice and academia in recent decades. In this context, a widely discussed means of achieving sustainability is to design more durable products, thereby reducing the need for the production of new products. In particular, the emotional perspective on product durability has received attention in recent design literature, since consumer products are often replaced long before they become physically non-functioning. However, the literature does not provide a full account of the causes of product replacement or of the means for making products more durable. This paper addresses these issues by defining the concept of 'resilient product design', providing a detailed classification of causes of product replacement, and organising means to extend product longevity. Hereby, the paper provides a more structured basis for designers to design resilient consumer products and for researchers to engage in further studies.

Mixing up Everyday Life: Uncovering Sufficiency Practices through Designerly Tools

Sustainability and its subsequent transformations are a global challenge. In this paper, the focus lies on demonstrating a way to break down these global issues into its micro-elements which can be dealt with in the individual's private sphere. Everyday life has always been where practices and its inherent conflicts between <rational and irrational> can be rooted. Design can provide the tools to make the familiar visible and the intuitive communicable through questioning the <normal> and offering alternative scenarios. We add to this, that a mixture of participatory and qualitative methods can guide an investigation, producing an array of multi-faceted information. Our aim in this examination is to provide an understanding of the potentials for a possible transformation towards a sufficient way of life and the restrictions stemming from subjective, situational criteria of the individual.

Wed 29th June
16:00-17:30

Brighton Dome
Studio Theatre

Miriam Lahusen
Florian Sametinger
Gesche Joost

Berlin University of the
Arts, DEU

Lars-Arvid Brischke
Institute for Energy
and Environmental
Research, DEU

Susanne Ritzmann
HMKW University
of Applied Sciences
Berlin, DEU

Designing for Sustainable Transition through Value Sensitive Design

Wed 29th June
16:00-17:30

Brighton Dome
Studio Theatre

Luisa Mok
Sampsa Hyysalo
Jenni Väänänen
Aalto University,
FIN

Designers can do much for a more sustainable future. Sustainability transitions research and empirical assessment of its course in a specific context can be used to identify a relevant space-time for different design initiatives. We explore this reasoning in advancing solar photovoltaics in the existing housing stock, where a loss of aesthetic qualities and the heritage value of buildings may curb where solar arrays can be sited. By using the Value Sensitive Design framework we illustrate how a working compromise among the seemingly conflicting values involved can be found. The value mix used and the resulting concept informs solar proponents in siting solar in culturally sensitive ways and shows the heritage constituency that solar technology does not categorically mean a misfit with cultural heritage.

Give Car-free Life a Try: Designing Seeds for Changed Practices

For sustainable practices to emerge, they have to be tried out. In the design intervention A Car-free Year, we studied the particularities of three families' changed practices. With a collaborative mind-set, the practices' constituting elements were analysed, and their intertwined links followed, forming possible design concepts. When designing these seeds for changed practices, we have found, through the knowledge gained from the participants' different perspectives, possibilities to design initiatives that could enable more people to live car-free. We believe that designing enabling ecosystems, where all types of elements encourage sustainable practices, can be an important role of sustainable design. Furthermore, design research can challenge existing societal norms, as clearly revealed in this project, and consequently inspire more people to make sustainable lifestyle choices.

Wed 29th June
16:00-17:30

**Brighton Dome
Studio Theatre**

**Mia Hesselgren
Hanna Hasselqvist**
KTH Royal Institute of
Technology, SWE

Moving Textile Artisans' Communities towards a Sustainable Future: A Theoretical Framework

Wed 29th June
16:00-17:30

**Brighton Dome
Studio Theatre**

**Francesco
Mazzarella
Carolina Escobar-
Tello**

Val Mitchell
Loughborough
University, GBR

The current economic crisis is building momentum for designers to challenge the linear take-make-waste model and explore sustainable strategies, services and systems. With this in mind, this research explores how service design can encourage textile artisans' communities towards a sustainable future, providing social engagement, rescuing cultural heritage, boosting economic development and enhancing environmental stewardship. Service design is here proposed as an approach to empower such communities, co-design collaborative services and sustain innovations within an enabling ecosystem. The paper focuses on the first study of this research where a theoretical framework to help textile artisans' communities transitioning to a sustainable future was co-developed with academic experts in the field. A Nominal Group Technique and semi-structure interviews were used to collect data; results and findings are presented as barriers, enablers and a manifesto to encourage a sustainable future. To conclude, next steps and challenges posed by the envisioned future are discussed.

Sharing 10 years of Experience with Class AUP0479: Design for Sustainability

Unsustainability, be it environmental, social or economic, is a feature of our contemporary society. This complex challenge affects every aspect of the design field, such that moving towards sustainability requires profound changes to current practices and goals. This paper argues that design, in practice, must contend with real emerging issues, and especially in large urban centers. This paper discusses 10 years of experience with the elective university course AUP0479 – Design for Sustainability offered by The Faculty of Architecture and Urbanism – FAUUSP, Brazil, which deals with the work of the local COOPAMARE waste pickers cooperative. The class operates with design for need rather than design for greed as a foundation. As an observation on the span of the course’s history, it raises questions and points to future opportunities for integrating sustainability in design teaching.

Wed 29th June
16:00-17:30

**Brighton Dome
Studio Theatre**

**Maria Santos
Tatiana Sakurai
Verena Lima**

University of São Paulo,
BRA

Futurescaping the Museum: Curating an open exchange about museum futures

Wed 29th June
16:00-17:30

Brighton Dome
Founders Room A

Vince Dziekan
Monash University,
AUS

Marta Ajmar
V&A Museum, GBR

George Oates
Good, Form &
Spectacle, GBR

Teal Triggs
Royal College of Art,
GBR

This Conversation session will curate an open exchange about museum futures by exploring design as both a form of cultural heritage and as a catalyst for socio-cultural agency. The confluence of this subject is extremely timely and relevant given the Victoria & Albert Museum's transformative vision and influential, catalysing role in the impending Olympic Park redevelopment. As part of London's single most significant cultural infrastructure project since the establishment of 'Albertopolis' back in the 1850s, the museum is approaching 'V&A East' as a 'once-in-a-lifetime' opportunity to redesign the museum in response to the digital, democratic age. In this session, an invited panel of catalysts will initiate exploratory dialogue about the topic of museum futures through a set of different lenses: i.e. data, materiality, communication systems and curatorial design.

Design as Symbolic Violence. Design for Social Justice

Design embeds ideas in communication and artefacts in subtle and psychologically powerful ways. Sociologist Pierre Bourdieu coined the term 'symbolic violence' to describe how powerful ideologies, priorities, values and even sensibilities are constructed and reproduced through cultural institutions, processes and practices. Through symbolic violence, individuals learn to consider unjust conditions as natural and even come to value customs and ideas that are oppressive. Design functions as symbolic violence when it is involved with the creation and reproduction of ideas, practices, tools and processes that result in structural and other types of violence (including ecocide). Breaking symbolic violence involves discovering how it works and building capacities to challenge and transform dysfunctional ideologies, structures and institutions. This conversation will give participants an opportunity to discuss, critique and/or develop the theory of design as symbolic violence as a basis for the development of design strategies for social justice.

Wed 29th June
16:00-17:30

Brighton Dome
Founders Room B

Joanna Boehnert
University of
Westminster, GBR

Bianca Elzenbaumer
Leeds College of Art,
GBR

The Value of Design: An Issue of Vision, Creativity and Interpretation

Wed 29th June
16:00-17:30

Old Courthouse

Mariana Braga

Politecnico di Milano,
ITA

What is the value of design? Why should firms invest in design? The paper aims at clarifying the value of design, its dimensions and its variables (qualitative and quantitative) throughout a literature review and analysis. The premise is that firms invest in design to create value. Design has evolved, becoming closely related to innovation, and the need to clarify its dimensions and relationships to value within firms and society rises. Despite the global growing interest in design, it is not fully understood how it brings benefits to the company. The concept of value is found in a fragmented literature including economics, marketing, business, management, value engineering, design domains, social and environmental sustainability. In conclusion, the value of design still is under-researched and new dimensions emerge. It is shaped by designers and companies visions, creativity and interpretations. Better cross- fertilization is required to identify the mechanisms of value creation by design.

Challenges in Co-designing a Building

This paper explores the challenges faced in implementing Co-Design approaches to building design. Co-design approaches have been increasingly applied in building design over the last decade. They call on building designers to engage users more actively by asking them to express their experience and knowledge directly throughout the design process. However there are some concerns as it radically changes how we design, what we design, and who designs. The paper explores these by reviewing the literature around the development of the architecture profession and comparing participatory approaches to others and concludes that there are a number of challenges in co-designing a building, including changes in the role of actors in the design process and issues around managing conflicts between the interests of different users in a multi-user building project. The questions that are raised here will be explored further through a case study of user-engagement in a hospital design project.

Wed 29th June
16:00-17:30

Old Courthouse

Min Hi Chun

University of Reading,
GBR

How Companies Adopt Different Design Approaches

Wed 29th June
16:00-17:30

Old Courthouse

KwanMyung Kim

Ulsan National
Institute of Science
and Technology,
KOR

Product design process cannot be explained without both industrial design and engineering design. However, the two fields have different design approaches toward product design. This study explored different types of combined design approaches that companies adopt with industrial design and engineering design. Industrial designers and engineering designers from six global consumer product companies were interviewed. As a result, three different types of combined design approaches; Industrial design-led design process, engineering design-led design process, and cooperative design process were identified. The companies adopted the processes differently based on their purpose and situations. In particular, Industrial design-led design process cases were strongly implemented by the CEOs' strong support who believed industrial design is the primary route to secure competitiveness of their products. However, engineering design-led process was mainly used for redesign of existing products. In cooperative design process, both design groups work collaboratively in concept design phase.

Space as Organisational Strategy

More and more companies use physical space as a way to enhance creativity, create change and stimulate interaction. There seems to be a strong link between work practice, learning and innovation in an organisation.

This research investigates how space affects this interrelationship and explores how space can support organisational strategy. This is investigated by exploring three cases from an educational, a cultural and an industrial setting to illustrate how space can be used to support an organisation's policy and help its strategic intentions. The theoretical framing takes its departure point in design literature on workspace planning and creative spaces for learning.

The paper also builds on literature from design management, organisational change and psychology to explain how space can influence people. The findings demonstrate how space can be used to enhance organisational strategy and demonstrate how closely the creation of space can be related to the development of that strategy.

Wed 29th June
16:00-17:30

Old Courthouse

Pia Storvang

University of
Southern Denmark,
DNK

A Multilevel Approach to Research 'Obscure' Innovation Processes and Practices

Wed 29th June
16:00-17:30

Old Courthouse

**Emmanouil
Chatzakis**

Teesside University,
GBR

Neil Smith

Northumbria
University, GBR

Erik Bohemia

Loughborough
University, GBR

The paper's aim is to discuss a need for a multilevel research approach to investigate innovation practices in organisations. We argue that this approach overcomes some of the limitations of the single level research methods commonly used investigating innovation performance and success. Specifically, the multilevel research approach allows researchers and subsequently organisations to take into consideration 'obscured' practices within innovation processes.

First, we put forward a motion that innovation processes permeate the formalised organisational structures and practices. Then, we outline a case where many of the practices associated with innovation are 'obscured'. This is followed with discussion on how the commonly used single level research methods fail to take into consideration these obscured factors. We then introduce Activity Theory and propose a multilevel framework which aims to overcome the shortfalls of the previous analytical methods.



Integrating Nanotechnology in the Design Process: An Ethnographic Study in Architectural Practice in Egypt

Wed 29th June
16:00-17:30

Grand Parade
Sallis Benney

Sherif Abdelmohsen
The American
University in Cairo /
Ain Shams
University, EGY

Ramy Bakir
Arab Academy
for Science and
Technology, EGY

Design and building technology are widely separated in the architectural professional practice, an issue often discernible in developing countries. Architects mostly acknowledge building materials and technology as facilitators for design near final design stages; a process that might dismiss many of the benefits that could have been attained were it engaged early on within a framework of informed appropriation of technology.

This paper presents the findings of an ethnographic study that investigates how this gap could be bridged by means of understanding how nanotechnology – both as process and product – affects designer’s rationale early on in the design process. The study provides a thick description of the design decision making process of a group of architects working on a residential project in an architectural firm in Egypt, and how it was affected by nanotechnology design knowledge at early design stages.

Design Research, Storytelling, and Entrepreneur Women in Rural Costa Rica: A Case Study

This paper describes a project exploring design research practices and emphatic design to produce context-specific knowledge to inform and facilitate visual storytelling, in collaboration with the Women's Association of Chira Island, a rural ecotourism association from the Pacific of Costa Rica. While their pioneering ecotourism projects have gained national recognition, its members have faced multiple challenges, including reassessing gender and social roles and furthering their capacity to support development in the community. Their experiences and stories became their most valuable asset, triggering the need to communicate them to benefit similar populations.

The contents of this project were developed during three field research visits and two years of collaborative design work, employing 'time,' 'space,' and 'voice' to contextualize the stories. This investigation resulted in printed materials and videos designed for mobility and easy reproduction to be used by the association as tools to inspire women in similar rural areas.

Wed 29th June
16:00-17:30

Grand Parade
Sallis Benney

Maria Hernandez
University of
Houston-Downtown,
USA

A Case Based Discussion on the Role of Design Competences in Social Innovation

Wed 29th June
16:00-17:30

Grand Parade
Sallis Benney

Tamami Komatsu

Manuela Celi

Alessandro Deserti

Politecnico di Milano,
ITA

Francesca Rizzo

Alma Mater
Studiorum Università
di Bologna, ITA

Thus far, many contributions in the field of design have described design's role in the life cycle of a successful Social Innovation (SI). Design, in fact, has been proposed by many authors to be the most suitable approach to developing SI initiatives from their start-up to release.

In particular, some authors have proposed Design Thinking as the best methodology for the development of new SIs; while others, promote Participatory Design as the best method to support SIs, heralding its process of collaboration, networking and coproduction.

Nevertheless, many research results have demonstrated that the need to find a balance between social and economic objectives is one of the main barriers to SI. This paper discusses these general results as they have been elaborated in the context of the SIMPACT European project and focuses on the value of design competences to better design SI products, services and brands, which is explored through the discussion of two well established cases of SI in Europe.

Of Open Bodies: Challenges and Perspectives of an Open Design Paradigm

Several design practitioners claim to follow an open design philosophy, using open sourcing material, models or tools. But there has been little work on framing the properties of artefacts produced that way, nor on studying how 'openness' influence design processes (Aitamurto, Holland & Hussain, 2015).

In this paper, we propose to investigate Open Design through examples of prosthetic hands. These highly specific and personalized devices have to answer highly sensitive social, personal, subjective and functional requirements. They perfectly illustrate the challenges the Open Paradigm may help tackling, such as greater inclusivity through the reduction of stigma, access to social participation and empowerment of users in general.

First, we build upon the related work to identify properties of openness. We then present the methodology used to review nine different prosthetic hands. Building upon these examples, we frame a critical perspective on openness and how this paradigm encompasses or informs other design practices. We conclude by presenting our current and future work, to provide perspectives on the applications of our essay.

Wed 29th June
16:00-17:30

Grand Parade
Sallis Benney

Émeline Brulé
Frédéric Valentin
Telecom-ParisTech,
FRA

Riding Shotgun in the Fight Against Human Trafficking

Wed 29th June
16:00-17:30

Grand Parade
Sallis Benney

Lisa Mercer
University of North
Texas, USA

The 3.5 million truck drivers on U.S. highways are in a unique position to identify incidents of human trafficking and to help victims by providing information to authorities. Studies show that truck stops in the United States are a common venue for sex trafficking due to their remote locations and lax security. This research project asks: How can a specifically designed technologically-based communication enable truck drivers to report incidents at a higher rate than is now being reported?



The Idea of Architecture, The User As Inhabitant: Design through a Christopher Alexander Lens

Wed 29th June
16:00-17:30

**Grand Parade
M2**

Molly Steenson
Carnegie Mellon
University, USA

The architect Christopher Alexander contributed the major notion of 'architecture' to the field of design research and its associated practices, an engagement that began in 1962, with the Design Methods movement. As co-author of *A Pattern Language* and author of such books as *Notes on the Synthesis of Form* and *The Timeless Way of Building*, he and his colleagues influenced the notion of architecture in the fields of design, design research and computer programming. Through the joint interpretations and applications of Alexander's version of architecture by designers and programmers, two important practices emerged: the use of patterns in programming, and the concept of a user as the inhabitant of a system of software.

Yet this view of 'architecture' held by designers and programmers differs from how architects practice the field, not to mention how they negatively they assess Alexander. Ultimately, there is much to learn from Alexander's contrarian stance and in the connections and disconnections in the idea of architecture, as it is understood in user-centered design.

The Design Methods Movement: From optimism to Darwinism

The past, of course, is a foreign country with different values and practices. When the Design Research Society (DRS) was born in 1966, things were very different from now. It grew out of the Design Methods Movement (DMM), itself a product of post war optimism and belief in science-based progress.

This paper is in four parts, describing –

1. The post-war optimism of the 1950s
2. The DMM and its role in the formation of the DRS.
3. The end of optimism and the replacement of belief in scientific progress by a suspicion of science and a search for alternatives.
4. An alternative approach in which biology is shown to be a better model than physics when attempting to make design 'scientific'. This involves a generalised Darwinism with different kinds of memes as imperfect replicators.

Wed 29th June
16:00-17:30

**Grand Parade
M2**

John Z. Langrish
Salford University,
GBR

Design Research for Sustainability: Historic Origin and Development

Wed 29th June
16:00-17:30

**Grand Parade
M2**

Astrid Skjerven
Oslo and Akershus
University College,
NOR

The paper presents a historical flashback and analysis of how design research traditions have developed. They have comprised both theoretical and practical methods, and has undergone several stages, with shifting emphasis on the two. Our own era's belief that it has been mainly based on experience and a discourse through products, is a myth that has created unnecessary barriers towards traditional academic research. The profession has been dominated by a holistic view that combines human culture and the natural environment. The paper demonstrates how design research in a multidisciplinary setting may become a decisive factor in the development of sustainability of culture and environment.

20th Century Boys: Pioneering British Design Thinkers

The history of modern British design is often told through well known design icons such as the Mini, red double decker bus and the mini skirt. While these iconic designs are notable due to their significant contribution they make to the identity of British design, there is another, untold history that has the potential to provide insight into the foundations of contemporary design consultancy and design research. This paper considers the complex interactions between pioneering British design thinkers, manufacturers, consumers and educators as a means of uncovering an alternative history of British design, one that examines the culture of designing (its social history) as well as the artefacts it produced (its material culture). Based on biographical interviews and initial archival research, the paper profiles five pioneering design thinkers – Misha Black, Michael Farr, Bruce Archer, James Pilditch, and Peter Gorb – and discusses their contribution to design across corporate, consultancy, education and research domains.

Wed 29th June
16:00-17:30

**Grand Parade
M2**

Emma Murphy

Glasgow School of
Art, GBR

Martyn Evans

Manchester
Metropolitan
University, GBR

60 Years of Creativity in Business Organizations

Wed 29th June
16:00-17:30

Grand Parade
M2

Ricardo Sosa
Pete Rive
Andy Connor

Auckland University
of Technology, NZL

This paper analyses the role of creativity in business organizations by examining the core ideas of an article published sixty years ago as a way to elucidate how relevant they are today in view of the research literature.

The paper proposes the use of computational social simulations to support systematic reasoning about some of these longstanding issues around organizational creativity. An example of an agent-based simulation to study team ideation is presented to support systematic reasoning about the role of creativity in business organizations and to articulate future lines of inquiry.

Virtual and Blended Design Studios

The design studio has been the preferred environment to support creative, social and artefact-centred design education and practice. While corporate design studios become increasingly connected across locations, design education becomes progressively augmented with virtual learning environments. Virtual and blended studios differ from traditional physical environments in significant ways. With designers working at a distance, the people, resources, and objects of design are not physically co-located, which poses particular challenges but also offers some unique benefits.

This conversation is going to tackle the question: How can we best support learners in virtual design studios?

Wed 29th June
16:00-17:30

Grand Parade
G4

Nicole Lotz
Georgy Holden
The Open University,
GBR

Erik Bohemia
Loughborough
University, GBR

Sam Dunne
Cohere, GBR

Joi Roberts
Honeywell Scanning
& Mobility, USA

Paper Session: Mixed - Tangible, Embedded & IBM Design

From Nano to Macro: Material Inspiration within Ubiquitous Computing Research

Wed 29th June
16:00-17:30

Grand Parade
Studio 101

Isabel Paiva
New University of
Lisbon, PRT

Technological disruption grants continuous inspiration for design innovation. In particular, current paper focuses on the emergent interaction between the fields of ubiquitous computing (U.C.) and design. The interdisciplinary character of U.C. research requires knowledge from art, design, and architecture (A.D.A.) and as such, presents opportunity for cross-fertilization and future design. Within U.C., the inquiry labelled as material turn frames a particular dialogue between nanotechnology and traditional materials. Nanotechnology opened new material avenues and has impacted methodologies of design and drives the discussion throughout this paper. In addition, the way these new technologies might address human centred design approach are considered. In sum, this paper discusses routes for disciplinary displacements of A.D.A. suggesting that these have a positive impact in the future of the practice.

Find this paper online at www.drs2016.org/414

Intuitive Interaction in a Mixed Reality System

Tangible physical systems are more intuitive than Intangible virtual Systems. Mixed reality systems are considered as an alternative to virtual systems, bringing advantages of tangible systems into an interaction. However, past research has mainly focussed on technical aspects of incorporating *pervasive-ness* and *immersive-ness* in the virtual systems. This paper reports on an empirical study of intuitive Interaction in a Mixed Reality game system for children and the design aspects that could facilitate intuitive Interaction in such systems. A related samples Friedman's test showed that the Mixed Reality game system demonstrated more intuitive interactions than non-intuitive Interactions. A linear regression analysis further established that the variation in intuitive Interaction in the Mixed Reality system could be statistically significantly explained primarily by physical affordances offered by the Mixed Reality system and to a lesser extent by the perceived affordances in the system. Design guidelines to develop intuitive Mixed Reality systems are discussed. These guidelines should allow designers to exploit the wonders of advances in technology and at the same time allow users to directly interact with the physical real world. This will allow users to access maximal physical affordances, which are primary contributors to intuitive interaction in Tangible and Mixed Reality systems.

Wed 29th June

16:00-17:30

Grand Parade

Studio 101

Shital Desai

Alethea Blackler

Vesna Popovic

Queensland University
of Technology, AUS

Wearable Sensory Devices for Children in Play Areas

Wed 29th June
16:00-17:30

Grand Parade
Studio 101

Cai-Ru Liao
Wen-Huei Chou
Chung-Wen Hung

YunTech, Taiwan,
CHN

Parents are often concerned about safety problems when children are playing alone in play areas. Using scenario analysis, this study combined with play areas' service designs to create a wearable assistance device for children, to encourage children to use these devices to ask for assistance and to solve assistance problems when children encounter danger or difficulty.

Non-participant observation, literature review, and data analysis were used to summarize problems encountered by children in play areas and analyze usage requirements of interactive assistance devices. This information served as a basis for the research and design of interactive assistance devices. Scenario analysis was used to simulate and re-enact the interactive requirements and scenarios children may encounter in play areas. At the same time, user requirements of play areas, parents, and children were compiled and service design blueprints were used to render service flow analysis of all persons involved. Finally, prototyping was used to propose design concepts.

The aim of this study is expected to reduce danger or difficulties encountered with children while playing in play areas, such as reduce children's crying, improve assistance problems encountered during playing, and serve as references for relevant follow-up studies.

Towards a Unified Theory of Design?

Design embeds ideas in communication and artefacts in subtle and psychologically powerful ways. Sociologist Pierre Bourdieu coined the term 'symbolic violence' to describe how powerful ideologies, priorities, values and even sensibilities are constructed and reproduced through cultural institutions, processes and practices. Through symbolic violence, individuals learn to consider unjust conditions as natural and even come to value customs and ideas that are oppressive. Design functions as symbolic violence when it is involved with the creation and reproduction of ideas, practices, tools and processes that result in structural and other types of violence (including ecocide). Breaking symbolic violence involves discovering how it works and building capacities to challenge and transform dysfunctional ideologies, structures and institutions.

This conversation will give participants an opportunity to discuss, critique and/or develop the theory of design as symbolic violence as a basis for the development of design strategies for social justice.

Wed 29th June
16:00-17:30

Grand Parade
Studio 102

Jörg Henseler
Jelle van Dijk
Geke Ludden

University of Twente,
NLD

Caroline Hummels
Eindhoven University
of Technology, NLD

Mikael Wiberg
Umeå University,
SWE

Ann Light
University of Sussex,
GBR

Abstracts

Thursday 30 June





Design Research in (the Tech) Industry

As Design Schools have been incorporated into university systems, developing formal research activity and doctoral programs, the industries responsible for bringing computation to everyday devices have developed and promoted contextual inquiry and user research. While much of this work has been done in partnership with universities, it has often been led by industry.

Current industry trends suggest that this balance is shifting further. Digital devices afford rapid, field-released modification which means that tech companies can incorporate design thinking into processes of rapid iteration. Design research in industry at the moment is predominantly a series of data-analytic-based sprints. This accelerated empiricism constrains design research's capacity for long-term forethought and criticality.

Industry-driven initiatives such as personas have resulted in very significant contributions to design research so shouldn't design research be led by the discipline of design? In our third debate we ask how academic design researchers can gain agency in the face of the wealth and speed of the tech industry?



Lucy Kimbell (Chair) is director of the Innovation Insights Hub, University of the Arts London. She is associate fellow at Saïd Business School, University of Oxford where she has been teaching design on the MBA since 2005. During 2014-15 Lucy was AHRC design research fellow embedded in Policy Lab in the Cabinet Office of the UK government. She has written widely on design thinking and design for service. Lucy's book, 'Service Innovation Handbook', was published in 2014.



Jabe Bloom is an experienced executive leader of software and product development companies. For 20 years he has focused on connecting design with software engineering and operational excellence. Jabe has addressed such topics as Lean Systems, LeanUX, Complexity Theory, Strategy Deployment, Management as Design, Temporally Informed Design and Design Thinking as an international keynote speaker. Currently he is pursuing a PhD in Design Studies at Carnegie Mellon University. His research focuses on understanding how temporality can better inform Transition Design.



Kees Dorst was trained as an Industrial Design Engineer at TU Delft, and studied Philosophy at Erasmus University Rotterdam. Currently, he is Professor of Design Innovation at the University of Technology Sydney and holds a professorship at Eindhoven University of Technology in The Netherlands. He is founder and director of the UTS Design Innovation Research Centre and the Designing Out Crime center. He lectures at universities and design schools throughout the world. He has published many papers and several books – including ‘Understanding Design’ (2006) and ‘Design Expertise’, with Bryan Lawson (2009). His most recent publications include ‘Frame Innovation – create new thinking by design’ (2015) and ‘Designing for the Common Good’ (2016).



Design Innovation Management

The aim of this section organised by the Design Innovation Management Special Interest Group was to explore Changing Design Policies and Practices. This section starts by identifying and critically examining national and regional design policies, which guide the interaction of design capacities, seen as a stimulus for economic and social change. Looking to the future, there is significant interest in how design policies may be instrumental in catalysing national responses to global challenges re: poverty, ageing and health; conflict and security; climate change; and in the 'movement of everything'. The involvement of users in developing solutions acknowledges that their take up is dependent on the ways users make and negotiate meanings of objects and services. Research suggests that a move to incorporate co-design processes will have significant implications on future designers' and researchers' practices. So we proposed to explore the following question: how we design, what we design, and who designs?

Thurs 30th June
11:15-12:45

**Brighton Dome
Concert Hall**

Chair: Erik Bohemia
Loughborough
University, GBR

Authors contributing to this section consider points such as:

- Emergent trends in design policy
- Understanding how such policies might be embedded within the private, public and service sectors
- The value of design, its dimensions and influences, and how differing design approaches address this
- An exploration of sense-making and meaning within innovation
- Evaluations of participatory methods which facilitate co-design processes

The challenges for stakeholders within co-design, and the support needs of local communities and start-ups. The significance of resourcing and clustering, and the implications best practice has on policy formation. Unpacking this discourse in more detail, the papers are presented under four sub-themes: emergent thinking in design policy; the value of design and how design approaches might address this; the emergence of co-design in addressing social challenges; and the significance of resourcing and clustering.

Resourcing in Co-Design

Thurs 30th June
11:15-12:45

Brighton Dome
Concert Hall

Salu Ylirisku
Jacob Buur
Line Revsbæk

University of
Southern Denmark,
DNK

This paper introduces the concept of 'resourcing' to describe the fundamental activity of negotiating the use of what is available for co-design. Even though resourcing is an ever-present undertaking in all co-designing, no theoretical concept has thus far addressed the constitutive practices in collaborative design processes. We define the concept of resourcing on the basis of pragmatist process theories and complexity theory perspectives of social life, which enable us to explicate the gap between managerial thinking that understands resources as objective entities to be planned and controlled, and the actual unfolding of co-design in complex responsive conversation.

Through the analysis of three co-design events we illustrate how the different response sensitivities of co-designers can diversify and enrich resourcing. The analyses also reveal that resourcing is a dynamically evolving process that changes in response to what emerges in the complex interplay of intentions between people involved in co-design.

Find this paper online at www.drs2016.org/342

Theme Session: Design Innovation Management

From Participation to Collaboration: Reflections on the Co-creation of Innovative Business Ideas

Design-led innovation interventions are predicated on the importance of establishing complex disciplinary collaborations. This paper reflects on the effects of different co-design methods to support knowledge exchange and the co-creation of new business ideas with multidisciplinary participants.

It draws on data collected from sandpit style events entitled Chiasma, undertaken as part of the knowledge exchange hub, Design in Action (DiA) in which co-design methods were used to bring designers, entrepreneurs, and academics together to develop innovative business ideas in Scotland. Employing a thematic analysis of idea generation, team formation, and idea development, we suggest that a more nuanced range of methods, tools, and techniques can strengthen multidisciplinary engagement and participation.

We argue that such approaches can be enhanced by designers and researchers' shifting focus from co-design methods to supporting collaborative mindsets in knowledge exchange towards innovation.

Thurs 30th June
11:15-12:45

**Brighton Dome
Concert Hall**

**Lynn-Sayers McHattie
Katherine Champion
Cara Broadley**

The Glasgow School
of Art, GBR

Michael Johnson
Abertay University,
GBR

Find this paper online at www.drs2016.org/191

Bridging Service Design with Integrated Co-design Decision Maker Interventions

Thurs 30th June
11:15-12:45

Brighton Dome
Concert Hall

Sune Gudiksen
Anders Christensen
Pernille Henriksen
Aalborg University,
DNK

In recent years, co-design research has moved into the heart of business and organisational matters of concern. As a consequence of that fact, the idea of what design is capable of evolves into something that does not only encompass product and service design, but also at the same time changes organisations' way of doing things – or in other words, it challenges the organisational culture and the mindset of the decision-makers as a way towards the successful embedding of a project within the organisation. This paper investigates how the development of a new service design project together with integrated co-design interventions might raise the chances for creating a shift in decision-maker mindset and viewpoints. Additionally, we take a closer look at what consequence this has for the structure of the design process and the investigations and actions taken. Drawing on the empirical data from a three-month-long collaborations between students and companies, this paper presents the findings on ways to elicit decision-maker co-design interventions that enable and sustain the necessary support for a specific service design concept.

In the end, we argue that, as a matter of course, a new service design will lead to significant organisational changes; therefore, this might as well be addressed from the very beginning. This creates a path for design to intervene in and gain influence over various organisational levels in support of a specific service design project, hence becoming a stronger interventionist force.

Find this paper online at www.drs2016.org/475

Theme Session: Design Innovation Management

Exploring Framing and Meaning Making Over the Design Innovation Process

It is well established that key to achieving innovations is to innovate on meaning; however, most discussion is limited to the meaning of the end product to the user. We argue that meaning changes should be explored throughout the design process. We contend that framing is intrinsically related to the creation of new meaning due to its capacity to provide a new standpoint from which to approach problems and subsequently direct novel solutions. We provide an analysis of framing and meaning making by studying three design innovation methods that span social, product, and business design. We arrive at a common model of framing in which we explore how meaning changes are initiated and in what form they manifest. We contend that the act of framing creates new meaning by providing a new interpretation of the problem (to the designer) and/or an interpretation of the solution to the user.

Thurs 30th June

11:15-12:45

Brighton Dome

Concert Hall

Clementine Thurgood

Rohan Lulham

University of
Technology Sydney,
AUS

Find this paper online at www.drs2016.org/218



Inclusive Design

The Inclusive Design Research Special Interest Group (InclusiveSIG) of the Design Research Society provides an international platform for researchers, design practitioners, and the general public to exchange knowledge about accessible and attractive design and to empower wider participation in the design process.

The main foci of the inclusiveSIG include:

- Building and advancing knowledge for inclusive design and research
- Creating and evaluating tools and methods for inclusive design practice
- Developing strategies for engaging designers and the public
- Exploring new territories of inclusive design

Through these activities, we aim:

1. To share best practice in contemporary design, research, education, and public engagement
2. To keep pushing the boundaries of inclusive design and explore its potential in different contexts

This theme received 18 papers that cover a diverse range of topics, from redefining ageing, measuring user capabilities, to assessing product-related stigma. For example, the paper by Gudur et al. addresses one of the critical aspects of inclusive design discourses, i.e. the definition of ageing, and argues that “we should design based on capabilities of a target group rather than chronological ‘age’”. The paper by Ning and Dong collected user data covering many areas of competence, from the more quantitative domain of biomechanics, interaction, to more subjective and qualitative areas (e.g. comfort). It explores the relation between “maximum” and “comfortable” measurements, and verifies the feasibility of establishing predictive models of successful product interactions in the 50-70 user group. These papers not only address the traditional dimensions of inclusive design, i.e. young-old, able-disable, professional-lay, but also raise emerging topics such as participatory action and the cultural aspects of inclusive design, guaranteeing an inspiring discussion.

Thurs 30th June
11:15-12:45
**Brighton Dome
Studio Theatre**

Chair: Hua Dong
Tongji University,
CHN

Crafted with Care: Reflections from Co-designing Wearable Technologies with Care Home Residents

Thurs 30th June
11:15-12:45

Brighton Dome
Studio Theatre

Christopher Sze
Chong Lim
Sara Nevey

University of Dundee,
GBR

With increasing longevity and changes in population demographics; designers, engineers and architects are faced with the challenge of providing older adults with enabling technologies and home environments that facilitate physical activity and wellbeing. To promote acceptance and adoption, making these technologies more desirable and less stigmatizing is crucial. In this paper, we outline a craft-based co-design methodology that we developed working with groups of care home residents designing wearables for research. The research asks care home residents to wear activity-monitoring devices to provide insight into the ways they currently utilise their spaces and where improvements could be made. We propose that a craft-based approach allows designers to understand and uncover people's capabilities and needs in a non-intrusive and empathic way. Our findings show that using this approach enabled creativity, confidence and connectedness amongst participants. We discuss our reflections and insights that have implications on the approach and future work.

Find this paper online at www.drs2016.org/327

Theme Session: Inclusive Design

Towards Designing Inclusion: Insights from a User Data Collection Study in China

User data has been identified as one of the important knowledge bases for inclusive design. In order to explore the influential factors that may affect the reliability of data and then build up a more effective and efficient data-collection framework, we carried out an experimental study to collect data from older people (aged 50~70) in China, which included users' capability, psychological and social-cultural attributes. Users' actual product interaction performance was also investigated. Three issues were discussed based on the outcome of data analyses: a) mood states have significant effects on respondent's self-reporting results; b) compared with maximum settings, people may have a wider range of perceptions of 'comfortable' settings and it is possible to predict the performance in a 'comfortable' setting based on 'maximum' data; c) social-cultural variables, vision, hearing, dexterity, cognition and psychological characteristics can predict successful product interaction tasks at different levels by using multiple logistic regression analysis.

Thurs 30th June

11:15-12:45

**Brighton Dome
Studio Theatre**

**Weining Ning
Hua Dong**

Tongji University, CHN

Find this paper online at www.drs2016.org/230

Designing for Older People: But Who is an Older Person?

Thurs 30th June
11:15-12:45

Brighton Dome
Studio Theatre

Raghavendra Gudur
University of
Canberra, AUS

Alethea Blackler
Vesna Popovic
Queensland
University of
Technology, AUS

Doug Mahar
Sunshine Coast
University, AUS

This paper explores a critical aspect of designing for older people. It argues that we need a clear description of who is 'an older person'. Or, when a person starts being old from middle age. Research has well established that there is greater variability in abilities among older than among younger people. This often creates problems in designing intuitive product interfaces for this target group. Intuitive design is basically about developing interfaces that reflect target users' familiarity. However, when the target group are very diverse in their capabilities and familiarity it makes is extremely difficult to design intuitive interfaces.

Our research suggests that the main reason for this predicament is due to excessive focus on chronological ageing. And, if we look at a target group based more on their cognitive abilities instead- it will provide us much more effective approach in dealing with this problem.

Theme Session: Inclusive Design

To Shed Some Light on Empowerment: Towards Designing for Embodied Functionality

We present a case study as part of an investigation into the value of *Embodied theory* for the design of mixed physical-digital interactive products. An interactive light system was designed that *empowers* an independent living person with an Autistic Spectrum Disorder (ASD) in managing domestic activities. Reflecting on the case we develop our vision of *Embodied Functionality* (EF). Designing for EF goes beyond 'distributing' information technology in the environment. It aims at creating interactive physical-digital products that play a functional role (i.e. become part of) a person's embodied being-in-the-world, involving a person's identity. It does so by utilizing existing structure and by supporting action-perception couplings, reflection in- and on action and autonomy in social coordination. EF opens up an alternative design space holding the promise of a more successful appropriation of interactive (assistive) products into people's everyday lives.

Thurs 30th June
11:15-12:45

**Brighton Dome
Studio Theatre**

Jelle van Dijk

The University of
Twente, NLD

Fenne Verhoeven

Utrecht University
of Applied Sciences,
NLD

Find this paper online at www.drs2016.org/381



Design for Design: The Influence and Legacy of John Heskett

This session is an attempt to consider the many contributions of the late John Heskett and his importance for design research. Heskett was mainly known for his books and articles about design. Many of them had an historic dimension and some a contemporary, notably the book on design management in Philips and 'Logos and Toothpicks', later published as 'Design: a very brief introduction'. However in the 1990s and later he was committed to economic approaches and worked mainly as a conceptual researcher exploring how we may conceive of design in an economic context and framework. Being educated as an economist in London School of Economics, John was constantly aware of and motivated of the potential of economic and Strategic analyses of design. The Philips book for example was an analysis of how the Philips Corporation in the 1980s represented one of a few companies where design, linked with but not subservient to, engineering and marketing was one of pillars of Philips' success.

Heskett represented an anarchic approach to research and made a lot of contributions never published. That is now taken care of. This means several books will be published in the future with important contributions. This is particularly important since many design researchers rarely touch the technical papers found in the economic journals. But John Heskett made a lot of these insights available for designers who could use them in their work.

Heskett's interpretation of economic sources for researching design, his application of economics of innovation and growth theories has inspired many people and will be a source for a long time. We focus on the issues of strategic character, how Heskett used his acquired findings to set the stage for better strategic decision. Finally we will look into the program explored and ask whether we are seeing the contours of a paradigm or research program with a progressive future.

Thurs 30h June
11:15-12:45

**Brighton Dome
Founders Room**

Chair: Sylvia Liu
Hong Kong
Polytechnic University,
CHN

Chair: Tore Kristensen
Copenhagen Business
School, DNK

Theme Session: The Influence and Legacy of John Heskett

Doing Qualitative Studies, using Statistical Reasoning

Thurs 30th June
11:15-12:45

Brighton Dome
Founders Room

Tore Kristensen
Gorm Gabrielsen
Copenhagen
Business School,
DNK

The paper describes some experimental studies where qualitative assessments have been conducted. However, they have not been done using conventional qualitative methods. The sample is bigger, typically 135 and the methods for data collection was based on a bipolar non-numeric scale, developed by L.L. Thurstone in the late 1920s. In this case, the responses have been registered on an iPad where respondents are instructed to move a cursor between two extreme values. The advantage of this is that the data are kept at an individual level, the responses are set by a moving hand, which enables an embodied response rather than intellectualization. The actual studies demonstrate how design studies also may give insights into how well markets work, depending on the variation in the market. In a market with big variation, a message is less likely to penetrate the market than in a homogenous market.

Find this paper online at www.drs2016.org/462

Theme Session: The Influence and Legacy of John Heskett

Design as Driver for Understanding Sustainability and Creating Value in the Fur Industry

This paper examines the value of design in business seen through the example of the Danish company Copenhagen Fur. Design School Kolding (DK) has during 2014 and 2015 conducted a design research project and study with focus on sustainability as a key parameter in the company's future use of design on different levels. In order to propose a new frame for understanding the company's value creation we draw upon Heskett's models (2003) and his explanation of the relationship between economic theories and design (2008). To explain the relationship between design and sustainability we further elaborate towards theories connected to the transformation economy (Gardien 2014) and explain how Copenhagen Fur's potential for including design and sustainability throughout their entire value chain aligns with the present understanding in the fashion and textile industry.

Thurs 30th June

11:15-12:45

**Brighton Dome
Founders Room**

Else Skjold

Design School
Kolding, DNK

Irene Lønne

The Royal Academy of
Fine Arts, DNK

Find this paper online at www.drs2016.org/318

Theme Session: The Influence and Legacy of John Heskett

Design Awareness: Developing Design Capacity in Chinese Manufacturing Industry

Thurs 30th June
11:15-12:45

Brighton Dome
Founders Room

Sylvia Liu
Hong Kong
Polytechnic
University,
CHN

This study is an extension of John Heskett's research of managing design in Chinese manufacturing industry and focuses on their design awareness. Two sets of factors about design awareness and support for design are utilized for the questionnaire survey. The result introduces the levels of design awareness in the firms and its influence in design implementation and management.

Find this paper online at www.drs2016.org/199

Theme Session: The Influence and Legacy of John Heskett

Design Expanding into Strategy: Evidence from Design Consulting Firms

The purpose of this paper is to examine how design works at the level of strategy. Through analyses of the practices of five design consulting firms in Denmark, it explores how designers become part of strategy formation in the first place, the types of strategic work they undertake, and what design skills and knowledge they utilize in the making of strategy. The findings suggest that designers engage in strategy-level work in multiple domains ranging from redefinition of existing strategies to building unique organizational competencies to setting corporate vision by developing future scenarios.

Thurs 30th June
11:15-12:45

**Brighton Dome
Founders Room**

Suzan Boztepe
IT University of
Copenhagen,
DNK

Find this paper online at www.drs2016.org/430



Design Innovation for Society

What an exciting time for design it is. Instead of being merely concerned with the creation of artefacts, contemporary design may now seek ways to shape governance structures in Indonesia, may facilitate dialogue about the risks and challenges of self-presentation online, or may seek social transformation for people in vulnerable positions. Clearly, designers and scholars involved here are not concerned about revenue, but about social impact: about improving the way people live together. With this goal in mind, the designer is no longer on solid ground, but enters the realm of politics. She needs to lever between power structures, engage various stakeholders, and advocate new ways of thinking. Which role the designer could or maybe should adopt in innovation processes that aim for social good is not clearly articulated yet. We are at the stage of experimenting and exploring what roles the designer can play and what value this brings. Nevertheless, the notion that current societies are in urgent need for new solutions clearly fosters the bravery to invite the creative to the public domain. Because not only do designers wish to 'do good' and move into social design practice, also the public sector increasingly acknowledges that creative thinkers and new relationships with citizens are needed.

The papers in this session provide an overview of these new design practices and present approaches – often illustrated by compelling cases – to support the designer in this challenging and meaningful domain.

Thurs 30th June
11:15-12:45

Old Courthouse

**Chair: Mieke van der
Bijl-Brouwer**
University of
Technology Sydney,
AUS

Chair: Nynke Tromp
TU Delft, NLD

From the Specificity of the Project in Design to Social Innovation by Design: A Contribution

Thurs 30th June
11:15-12:45

Old Courthouse

**Marie-Julie
Catoir-Brisson
Stéphane Vial
Michela Deni
Thomas Watkin**

Université de Nîmes,
FRA

This contribution aims to understand the specificity of thinking and making social innovation, within and through the design field and its practice. The first part of this paper frames the relationships between project and design, characterising their definitions and goals. Design is presented as a discipline and field of action, where both thinking and the project process are directed at reaching a sustainable change in society. The second part of the paper presents how social innovation by design leads to new epistemological questions and dimensions within design's practices and challenges. Consequently, the University of Nîmes' pedagogical and research-driven design initiative illustrates how a commitment to social innovation by design has fostered new productive practices and knowledge, in turn leading to new forms of participation, collaboration and interaction between actors and users. In our experience, mixed methods and interdisciplinary dialogues are key elements in achieving social innovation by design.

Activating the Core Economy by Design

The traditional provision of public services needs to be transformed, and this transformation includes ceasing to consider users as passive recipients of services. Instead, the process of service development should be opened up to more participatory methods, whereby users and providers, working together, transform the way in which the welfare state is conceived and services designed and delivered. In achieving conditions of wellbeing, societies face very complex problems, particularly such groups as the elderly, who depend most heavily on the social care services. The paper describes the research developed, as part of the major project of MA Sustainable Design in Kingston University, London, whereby, through the core economy of all the human resources and social networks that support social life, new possibilities for services may emerge, capable of addressing the ageing and wellbeing agenda. The paper also reflects upon dialogic conversation, and social interaction, as the ideal means of engagement when working with social agendas.

Thurs 30th June
11:15-12:45

Old Courthouse

Paul Micklethwaite

Rebeca Torres

Castanedo

Kingston University,
GBR

Redesigning Governance: A Call for Design Across Three Orders of Governance

Thurs 30th June
11:15-12:45

Old Courthouse

Tanja Rosernqvist
Cynthia Mitchell

University of
Technology Sydney,
AUS

Designers are increasingly engaged in solving large-scale societal issues and the interest in the potentially activist role of design is growing. These new roles call for judicious approaches to designing and, importantly, for designers to be critically aware of how their work influences, not only our physical, but also our social worlds. This paper explores how designers can take part in rethinking governance structures by facilitating a process of questioning and re-imagining how, for example, public services are governed and importantly – by whom. This involves articulating people’s day-to-day experiences of governance and making explicit the institutional arrangements and the often embedded and unarticulated societal values that govern these experiences. This paper shares preliminary findings from an on-going research project, in which low-income communities and government stakeholders in Indonesia are involved in critically rethinking wastewater governance and their deeply held assumptions about how public services should be governed.

Find this paper online at www.drs2016.org/423

The Challenges of Human-Centred Design in a Public Sector Innovation Context

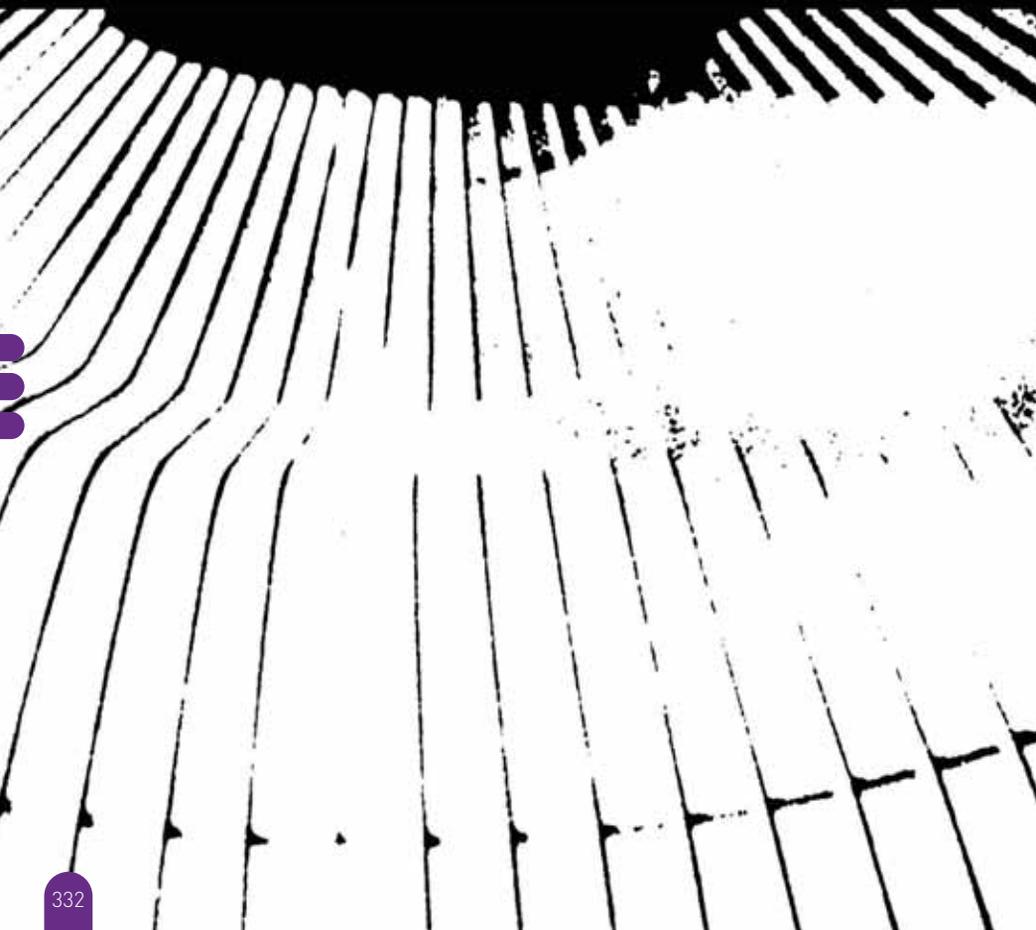
The world is increasingly faced with complex societal problems such as climate change, an ageing population, radicalising youth and chronic health problems. Public sector organisations have a key role in addressing these issues. It is widely acknowledged that tackling these problems requires new approaches and methods. Design, and in particular human-centred design, offers opportunities to develop these methods. In this paper I argue that a new type of human-centred innovation practice is necessary to adjust traditional user-centred design methods and tools to the public sector innovation context. This context involves different types of stakeholders with conflicting needs and aspirations, and requires a precise articulation of the value of human-centred design. I will propose a possible answer to these challenges through a case study relating to severe mental illness, in which we applied Dorst's frame creation methodology, in combination with the NADI-model of Needs and Aspirations for Design and Innovation.

Thurs 30th June
11:15-12:45

Old Courthouse

**Mieke van der
Bijl-Brouwer**

University of
Technology Sydney,
AUS



Aesthetic Pleasure in Design

Aesthetic pleasure, or the experience of beauty, may be conceived of as the pleasure derived from the sensory and cognitive exploration of an object. Although there is a long-standing tradition of research into aesthetics with reference to the arts, only fairly recently attention for the topic has burgeoned in design research, taking stock of the fact that products not only have a practical value, but that the way they are designed has the capacity to evoke pleasure. Some products are designed precisely to this effect, but even if they are not aesthetics have an important part to play in the experience people have of products. This awareness has inspired efforts to uncover the principles determining design aesthetics, often through application of principles found in different domains, mostly empirical aesthetics. Such an endeavour is highly relevant to design research, especially in view of findings indicating the relation of aesthetic pleasure to marketing success and ergonomics. The present additional theme offers a selection of studies tackling a variety of aspects related to design aesthetics, and doing so in various ways. It therefore illustrates the diversity of the field of design aesthetics.

Thurs 30h June

11:15-12:45

Grand Parade
Sallis Benney

Chair: Michaël
Berghman
TU Delft, NLD

The Beauty of Balance: An Empirical Integration of the Unified Model of Aesthetics for Product Design

Thurs 30th June
11:15-12:45

Grand Parade
Sallis Benney

Michaël Berghman
Paul Hekkert
TU Delft, NLD

The Unified Model of Aesthetics provides a comprehensive theory on aesthetics of product design. It posits that aesthetic appreciation derives from the reconciliation of the needs for safety and accomplishment, which manifests itself through the principles of unity-in-variety, most-advanced-yet-acceptable and autonomous-yet-connected. The present study considers the empirical integration of these principles, using a survey that scrutinizes aesthetic preferences of 300 respondents for 20 products. The principles are scrutinized separately, after which we conduct an integrated test to examine their combined effect and relative importance for aesthetic appreciation. We find that the perceptual qualities of unity and variety strongly affect aesthetic appreciation, but the typicality of a design becomes of little importance when taking into account perceptual and social measures.

Find this paper online at www.drs2016.org/440

Theme Session: Aesthetic Pleasure in Design

Measuring Design Typicality: A Comparison of Objective and Subjective Approaches

Design typicality plays a major role in consumers' reactions towards a product. Hence, assessing a product design's typicality is vital to predicting consumers' responses to a design. However, directly asking people for their subjective typicality experience may yield a biased measure as the rating arguably contains the overall aesthetic impression of the product. Against this background, we introduce four unbiased objective measures of design typicality (two based on feature points and two based on grids) and demonstrate their capability of capturing the subjective typicality experience. We validate the proposed measures in the context of automobile designs with ratings of aesthetic liking, processing fluency, and cumulative sales data by analysing 77 car models from four segments ranging from subcompact cars to SUVs. Our findings endorse the general notion that objective measures should be included in product design research; and the proposed objective approaches provide convenient means to easily assess design typicality.

Thurs 30th June

11:15-12:45

Grand Parade
Sallis Benney

Stefan Mayer
Jan Landwehr

Goethe University
Frankfurt, DEU

Find this paper online at www.drs2016.org/183

Most Advanced Yet Acceptable: A case of Referential Form-driven Meaning Innovation

Thurs 30th June
11:15-12:45

Grand Parade
Sallis Benney

James Self
Seong-geun Lee
Ekaterina Andrietc
Ulsan National
Institute of Science
and Technology,
KOR

Adopting a research-through-design approach we report a study to examine how radical departures from archetypal product form influence product meaning. We then consider implications for product acceptability. To achieve this we employ form theory to drive the design of three conceptual products. The three concepts were then prototyped and used as stimuli to gather participant responses to radical departures in product form from a dominant archetype. Results indicated the necessity of balance between typicality and novelty of form to achieve more acceptable meaning innovations. Specifically, results showed a requirement for maintaining inherent archetypal form characteristics and qualities, while at the same time providing opportunities for meaning change through radically novel form compositions, axis and balance. This approach to form-driven meaning change we tentatively term Referential Form-driven Meaning Innovation (RFMI). Implications for the application of the RFMI approach both in practice and as conceptual departure point for further studies are finally discussed.

Theme Session: Aesthetic Pleasure in Design

Extracting Design Aesthetic Heuristics from Scientific Literature

Product aesthetics is affected by around 50 variables. These variables interact to shape the user's aesthetic feeling. During the aesthetic design (AED), the designer only use their intuition and is not aware of most of these variables, taking into account some Gestalt laws and absolute standards of beauty (Golden Proportion). Due to the complex nature of AED, a heuristic approach seems the most appropriate to support this task.

This paper describes a method for Aesthetic heuristics extraction from Scientific Literature comprising a protocol for literature selection, extraction and classification of the heuristics. The extraction method is in turn based on modern heuristics. We applied the protocol to extract the aesthetic heuristics of the aesthetic variables 'Peak-shift' and 'unexpected'. The heuristics were translated to an understandable language for the designers and subsequently used in re-designing a pepper mill.

Thurs 30th June

11:15-12:45

Grand Parade

Sallis Benney

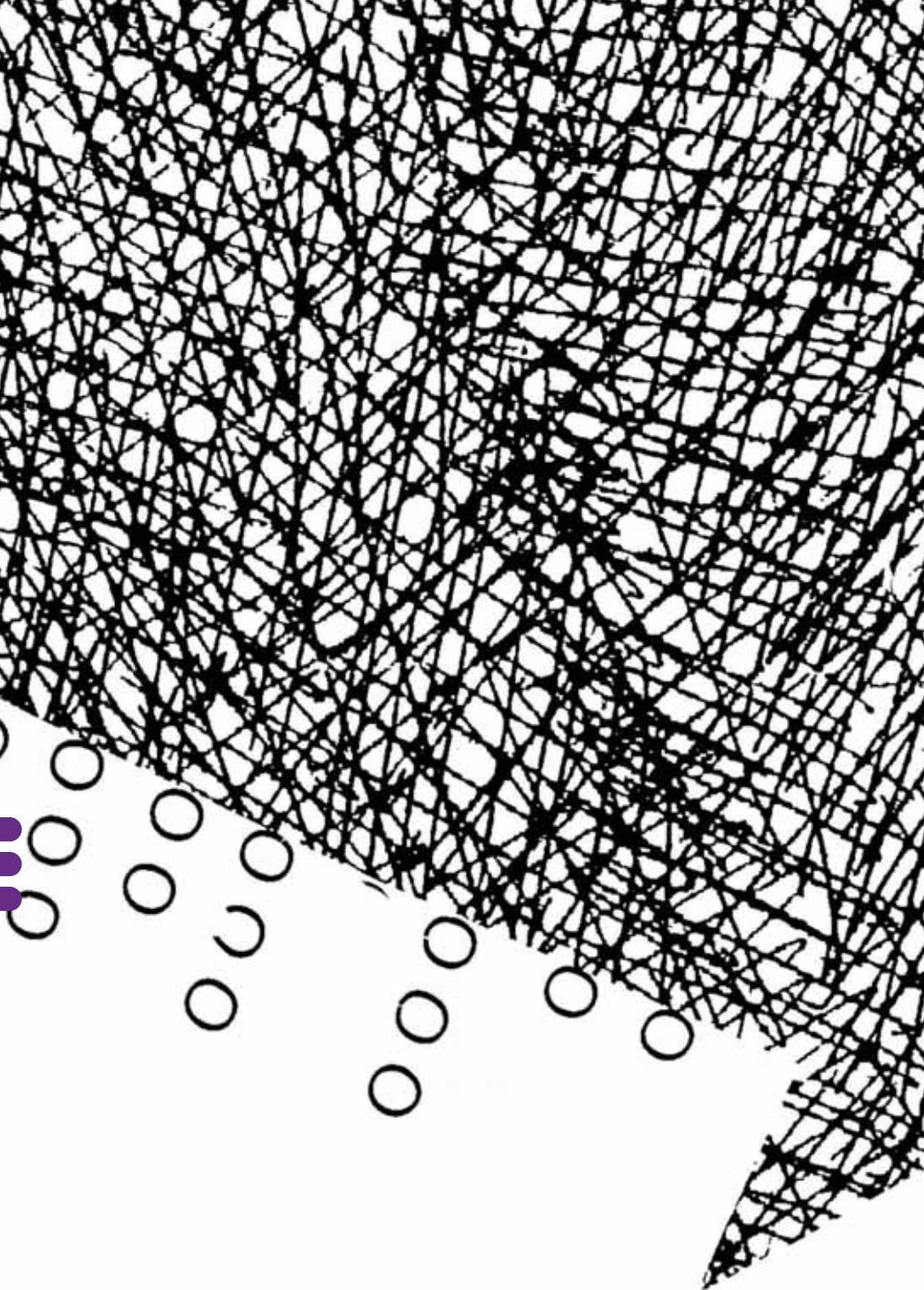
Ana Cadavid

Stefany Ruiz-Córdoba

Jorge Maya

EAFIT University, COL

Find this paper online at www.drs2016.org/504



Design-ing and Creative Philosophies

This session engages with creative philosophy and design by focusing upon the processual nature of design through issues of temporality, duration and future-capture, and their reverberations on experience. The first paper examines 19th and 20th century history of science – Wilhelm Dilthey in particular – in order to extract a model for a phenomenology of experience that informs a reflection on contemporary design. By examining ‘experience’ as both process and event, Uhlmann et al’s model suggests ways of mobilizing and interpreting current approaches to user experience design on the ground of the intersection of cognition, volition and affect, and temporality. The second paper examines the notion of anticipation as a particular type of future-focused thinking that foregrounds designing as processual sense making. Here openness, indeterminacy and imagination are deployed to probe possible futures. De Smet and Janssens develop their interrogation of the fluidity of time and the unpredictability of duration, by examining urbanity as a context where new forms of sensing actualizing the future, and perceiving and capturing the present are made most tangible. We then move with the third paper to Gilbert Simondon’s concept of ‘technical mentality’ to investigate the ethics and responsibility involved with the labour of designing. Mulder’s design case study of a portable artificial kidney is deployed to interrogate ethical issues that emerge from its encounter with Simondon’s notion of ‘transductive reasoning’. Further examination of temporalities occurs in the final paper that turns to materiality to examine the ways in which experimental making are entangled with time. By examining practical experiences of making informed by notions of non-linear time, speculative realist notions of matter and digital aerial viewpoints, Norris maps the polychromic, materially becoming objects that emerge as embodiments of time-mapping, crumpling, pleating. The short papers interrogate space as a topology of emergence and digitalization to articulate contemporary animated and morphing architectural spatiality; and immersive and interactive 3D installations where hybrid elements of motion graphic languages interact like foam bubbles.

Thurs 30th June

11:15-12:45

Grand Parade

M2

Chair: Betti Marenko

University of the Arts

London, GBR

Experience: A Central Concept in Design and its Roots in the History of Science

Thurs 30th June
11:15-12:45

Grand Parade
M2

Johannes Uhlmann
Christian Wölfel
Jens Krzywinski
TU Dresden,
DEU

This paper traces the roots of theories on experience and experiencing in the history of science of the 19th and 20th century. From the concepts of Wilhelm Dilthey (1833–1911) and others, a phenomenological model of experiencing has been derived for industrial design around 1990, which is to be published internationally for the first time in this paper. From a current view, this model does not provide new opportunities on designing or evaluating user experience. However, it can be used to bridge theories and findings from the late 19th and early 20th century with current models of user experience, which are more comprehensive and can be used beyond the description of experiencing. These models also offer methods for designing, evaluating and even quantitatively measuring user experience, or have a stronger focus on emotions.

Find this paper online at www.drs2016.org/365

Probing the Future by Anticipative Design Acts

We discuss anticipation as a particular type of future focused thinking. Based on our own design and research practices we position the anticipative mode of thinking and acting in relation to design approaches that are oriented towards qualities of becoming and sense-making. We argue that the act of anticipation in a design context holds the aspect of making artefacts that create openings in the fuzzy reality and act a imaginative probing instruments in the complexity of continuously evolving transformation processes as they occur in our research field: the field of urbanity. In this context, we feel that developing tactics of attentiveness and the competence to anticipate can enhance both the capacity of 'seeing' (as a creative, imaginative act) so-called Kairotic moments and grasping the opportunities to construct and actualise possible futures.

Thurs 30th June

11:15-12:45

Grand Parade

M2

Annelies De Smet

Nel Janssens

KU Leuven, BEL

Responsibility in Design: Applying the Philosophy of Gilbert Simondon

Thurs 30th June
11:15-12:45

Grand Parade
M2

Sander Mulder
Eindhoven University
of Technology, NLD

The notion of technical mentality and transductive reasoning described by the French philosopher Gilbert Simondon is applied on a concrete design case in order to investigate responsibility and design. The design case relates to the development of a portable artificial kidney. The historic invention of the artificial kidney is woven into the philosophy of Simondon in order to mobilize his work. For designers, the risk of reduction is at stake when applying the technical mentality to domains beyond the technical such as the psycho-social. This risk can be avoided by transductive reasoning, i.e. reasoning by means of analogy, but this is not sufficient as additional research is needed on responsibility and taking action. Correlating machines remains a human responsibility. Designers cannot hide behind the borders of their task or project when it comes to responsibility. Suggestions for further research are shared a.o. on aesthetics, ways of reasoning in design and design education.

Find this paper online at www.drs2016.org/266

Making Polychronic Objects for a Networked Society

In the light of current debates on materials and the future of making, the polychronic object research combines temporal theories with material experimentation to identify possible paradigm shifts in making for a networked society. The research interrogates a triangulation of concepts. Firstly, digital aerial viewpoints proposed by theorists such as Amelia Groom and James Bridle. Secondly, the application of non-linear time in making through the act of mapping and crumpling as defined by Giles Deleuze, Félix Guattari and Michel Serres. Thirdly, a practical translation of speculative realist approaches to materiality through the writing of Jane Bennett, Levi Bryant and Timothy Morton. The knowledge gained from these three positions aids navigation through the practical experience of making, producing pleated material history as polychronic objects. This is then contextualized through a polychronic re-reading of the history of technology and an exploration of different design approaches that offer appropriate models for this practice.

Thurs 30th June

11:15-12:45

Grand Parade

M2

Jane Norris

Royal College of Art,

GBR



Beyond Impact: Understanding and Communicating the Value of Collaborative Design Research

How can the value of design research programmes be understood and communicated beyond the immediate economic measures of impact often requested by funders? This has been a central concern for four UK Knowledge Exchange Hubs for the Creative Economy, and representatives from each Hub will illustrate how their research programmes have approached this challenge to open a discussion and elicit the experiences of others. Through a dialogue between catalyst speakers' and participants' perspectives, the conversation will explore and propose complementary descriptions of design research value ('beyond impact') and practical considerations for its demonstration.

Thurs 30th June
11:15-12:45

Grand Parade
G4

Simon Bowen
Newcastle University,
GBR

Roger Whitham
Lancaster University,
GBR

Chris Speed
Edinburgh University,
GBR

Simon Moreton
University of West
England, GBR

Mariza Dima
Queen Mary
University of London,
GBR



Effective Information Design

Information design seeks to make complex information clear. It embraces approaches and methods that go beyond purely visual design. Successful information design means people can understand and respond quickly to information they receive (sometimes in critical situations), select options that are right for them, follow instructions in complex tasks, fill out forms appropriately and so on. It underpins people's engagement and participation in civic society and, although it sounds simple it's surprising how often it goes wrong, with consequences and costs, both for the public and for organisations. Information design as a specialist academic discipline has been developing since the 1960s and 1970s, with a growing research literature and critical tradition. This creates a context for the papers in our Information Design Matters theme.

Thurs 30th June

11:15-12:45

Grand Parade

Studio 101

Chair: Sue Walker

Reading University,

GBR

Chair: Alison Black

Reading University,

GBR

Expectations and Prejudices Usurp Judgements of Schematic Map Effectiveness

Thurs 30th June
11:15-12:45

Grand Parade
Studio 101

Maxwell Roberts
Ida Vaeng
University of Essex,
GBR

A usability study is reported in which objective measures of performance were compared with subjective ratings of design effectiveness for two novel schematic London Underground maps. One of these was designed conventionally, but was deliberately intended to have complex line trajectories. The other was a novel curvilinear design, prioritised similarly. The selection of designs was motivated by a previous usability rating study in which the curvilinear map had received the lowest scores. For the current study, people planned a series of journeys using both designs. The curvilinear map yielded superior performance in terms of time to plan each journey. Despite experience with both designs, the curvilinear map still received poor usability ratings. It is suggested that expectations and prejudices about design prevent people from making accurate subjective evaluations of usability.

Informing the Design of Mobile Device-Based Patient Instructions Leaflets: The Case of Fentanyl Patches

Patient Information Leaflets accompanying medicine are heavily regulated by European and individual national legislation in the way they need to be designed, written, and produced. Further, the design of these leaflets is still firmly anchored in a printed document-based paradigm. This means that transposing them for use by mobile devices, such as smart phones or tablets is a process that is not well understood. This paper shows how Information Designers can offer insights to a problem that will become increasingly prevalent, as the demands on the 'message' surpass the medium of the paper-based document and seek to harvest the potential of mobile devices to offer hypertext, multimedia and tailored information.

This paper investigates the problem via a case study examining pain relieving (Fentanyl) transdermal patches and offers some lessons learnt from this experience, in order to open up and shed light on this emerging aspect of information design practice.

Thurs 30th June
11:15-12:45
Grand Parade
Studio 101

Myrto
Koumoundourou
Panayiotis
Koutsabasis
Jenny Darzentas
University of the
Aegean, GRC

A User Centred Approach to Developing an Actionable Visualisation for 'Balance Health'

Thurs 30th June
11:15-12:45

Grand Parade
Studio 101

Shruti Grover
Chris McGinley
Ross Atkin

Helen Hamlyn Centre
for Design, GBR

Simon Johnson
British Red Cross,
GBR

More than a third of people over the age of 65 fall every year in the UK (Department of Health, 2009). General gait problems and weakness are amongst the most common specific precipitating causes for falls. (Rubenstein, 2006). Qualitative research conducted by the investigators (Jan - May 2014) indicates that people do not consider balance health to be an actionable component of their overall health. This is because they do not have the vocabularies or tools to objectively define it on an everyday basis.

We designed an application which can be used to quantify postural sway in the home setting, and conducted a drawing study to explore visual perceptions of balance. The emerging forms were used as inspiration to develop three categories, which communicate four core attributes in different ways. The aim is to distill an elegant information strategy, which can lead to balance health being considered as actionable rather than unalterable.

Data Visualisation Does Political Things

In this paper I advance the theory of critical communication design by exploring the politics of data, information and knowledge visualisation in three bodies of work. Data reflects power relations, special interests and ideologies that determine which data is collected, what data is used and how it is used. In a review of Max Roser's *Our World in Data*, I develop the concepts of digital positivism, datawash and darkdata. Looking at the *Climaps by Emaps* project, I describe how knowledge visualisation can support integrated learning on complex problems and nurture relational perception. Finally, I present my own *Mapping Climate Communication* project and explain how I used discourse mapping to develop the concept of discursive confusion and illustrate contradictions in this politicised area. Critical approaches to information visualisation reject reductive methods in favour of more nuanced ways of presenting information that acknowledge complexity and the political dimension on issues of controversy.

Thurs 30th June

11:15-12:45

**Grand Parade
Studio 101**

Joanna Boehnert
University of
Westminster, GBR

Theme Session: Effective Information Design

The Information Designer Through the Lens of Design for Learning

Thurs 30th June
11:15-12:45

**Grand Parade
Studio 101**

Eden Potter

Auckland University
of Technology, NZL

All effective information design helps people to access, understand, and use information, but not all information design is intended to help people learn. This paper examines instructional design—the activity of creating and developing learning experiences that meet learners’ needs—and places it as a lens through which to identify the key skills and personal attributes that information designers need to succeed in their field.

Find this paper online at www.drs2016.org/490

Theme Session: Effective Information Design

Design Methods for Meaning Discovery: A Patient-Oriented Health Research Case Study

Communication designers encode messages into verbo-visual presentations to be decoded later by message receivers. This demands that designers choose what meanings to encode. Various tools enabling the exploration and understanding of meaning have been developed through the disciplines of psychology and semiotics, but generally have been used as meaning-analysis tools to analyse texts, and not primarily for meaning creation. Do tools exist to empower a designer to determine the meaning of a message they are tasked to create? Are these tools scalable, able to be used iteratively, and are they efficient? We explore various meaning-analysis tools and apply one of these tools to create meaning, within a real-world design project, within a limited timeframe, for the Canadian Institutes of Health Research (CIHR).

Thurs 30th June

11:15-12:45

**Grand Parade
Studio 101**

David Craib

Carleton University,
USA

Lorenzo Imbesi

Sapienza University
of Rome, ITA

Find this paper online at www.drs2016.org/249

The Making of Sustainable Cultural and Creative Cluster in Hong Kong

Thurs 30th June
14:00-15:30

**Brighton Dome
Concert Hall**

**Kaman Tsang
Kin Wai Michael Siu**

The Hong Kong
Polytechnic
University, CHN

The setup of cultural and creative cluster became a trendy practice for generating economic revenue in the post-industrial era. Many state governments imitates those successful prescription in the setup of cluster, however, it could not guarantee the sustainable development of the cluster. This paper endeavors to identify the fundamental factors in developing a sustainable cluster in a densely populated city. Rather than considering the spatial setting as the most important factor for cluster, this paper argues that the formation of community and happening of creativity are the integral factors for creative production. A three factors model has been generated for the evaluation of a sustainable cluster. The applicability of model was examined through an empirical case, Easy-Pack Creative Precinct, in Hong Kong. Data were drawn through direct observation and semi-structured interviews. The result reviews the meaning of cultural and creative cluster in the highly condensed city.

Emerging Trends of Design Policy in the UK

This paper reviews design policy in the UK. As the UK does not currently have any written and acknowledged statement of cross-governmental design strategy, this article investigates the key organisations involved in developing and delivering policies that impact on design in the UK by reviewing their missions and strategies, thereby identifying opportunities, challenges and trends in British design policy.

Thurs 30th June
14:00-15:30

**Brighton Dome
Concert Hall**

Qian Sun

Royal College of Art,
GBR

An Exploration of Service Design Jam and its Ability to Foster Social Enterprise

Thurs 30th June
14:00-15:30

**Brighton Dome
Concert Hall**

Ksenija Kuzmina

Loughborough
University London,
GBR

Chris Parker

The University of
Manchester, GBR

Martin Maguire

**Gyuchan Thomas Jun
Val Mitchell**

Samantha Porter

Loughborough
University, GBR

Mariale Moreno

Cranfield University,
GBR

Social enterprises (SE) are valued as innovative solutions to complex problems but require conditions to nurture and support them. Most support systems rely on individuals who already have an SE idea, and there is very little research on understanding what conditions can support to cultivate the willingness and motivation to engage individuals in this activity. An exploratory study was led to understand whether a particular event, Service Design Jam, can provide such conditions. The paper introduces the study of the Lufbra Jam, organised at Loughborough University, from which two social enterprises, Crop Club in 2013, and FrenPals in 2014 emerged. Through literature review desirability and feasibility were extrapolated as key variables to the formation process of social enterprises. A focus group with three Lufbra Jam organisers was led to identify important organisational elements of the Jam that were perceived to have an impact on the formation of the successful SE thus influencing the perception of desirability and feasibility of SE in individuals. The integration of the two created a thematic matrix that was used to analyse findings from the research with the participants of the two successful SE Cases.

The research findings suggest that Lufbra Jam enabled individuals to identify socially and environmentally focused issues and formulate service solutions that they deemed to be desirable and feasible. It also provided an insight that winning and an enterprising workshop were important SDJ elements that helped teams to recognise their service ideas not only as feasible solutions but as SE opportunity for the team to take forward.

Fiction as a Resource in Participatory Prototyping

In this paper we are exploring the relation between participation and fiction with the aim of investigating how fiction can be a resource for participatory design and can shed more light on the participatory value of fiction. We describe how fiction has been taken up and conceptualized in contemporary design research and argue that different strategies for applying fiction may be seen as a resource for evoking various forms of participation. Furthermore this paper present three case examples of participatory prototyping, that makes use of play or games as a way to engage participants with a particular use of *make-believe*. We discuss these cases with the purpose of identifying how participatory design can benefit from a more articulate notion of fiction.

Thurs 30th June
14:00-15:30

**Brighton Dome
Concert Hall**

**Eva Knutz
Tau Lenskjold
Thomas Markussen**
University of
Southern Denmark,
DNK

Coordinating Product Design with Production and Consumption Processes

Thurs 30th June
14:00-15:30

Brighton Dome
Concert Hall

Anders Haug

University of
Southern Denmark,
DNK

The effectiveness of design management depends on how well it is coordinated with other managerial functions. In relation to this topic, this paper focuses on the importance of coordinating product design with production and marketing processes. To this end, it offers a framework that connects product design to four central processes related to the production and consumption of products and their communication.

The relevance of the framework is demonstrated through sixteen empirical examples. The framework provides a means for understanding the reasons for consumer product failures caused by a lack of design coordination — and the product failure types associated with the framework may serve as a checklist for design managers in design projects. For future research, the framework provides a link between different research areas to facilitate a clearer understanding of the role of design management.



Towards more Culturally Inclusive Communication Design Practices: Exploring Creative Participation between Non-Indigenous and Indigenous People in Australia

Thurs 30th June
14:00-15:30

**Brighton Dome
Studio Theatre**

Nicola St John

Swinburne University
of Technology, AUS

Currently, Aboriginal and Torres Strait Islander narratives and participation within communication design practices in Australia are scarce. The Australian communication design industry, currently reinforcing Eurocentric practices, needs to develop a better understanding of the social and cultural dimensions of design and to provide more inclusive practices for designers from underrepresented or marginalised groups. Through case study analysis, this paper explores and discusses a more inclusive way of working with Indigenous people and content within communication design. It draws from and applies principals of Transformative Participatory Action research to communication design practice – a more inclusive model for Indigenous creative practice within Australia. This approach moves away from co-design and participatory design models to focus more on participatory action, active engagement and empowering Indigenous communities through design.

'Difficult' Packaging for Older Chinese Adults

The ageing of the global population highlights the need to understand the implications of declining user capabilities and to help elders live full, autonomous lives. One of the poorly understood issues is that of packaging openability. The aim of this study is to develop an understanding of packaging openability from older Chinese people's perspectives, so that packaging designers and manufacturers can address this issue effectively. A survey was conducted to rate the types of household packaging that consumers in the 60+ age group struggle with, covering opening gestures, coping strategies, attitudes towards packaging design and other related issues. The extent to which this group has difficulties when opening household products and packaging in connection with daily purchases was also discussed.

Thurs 30th June
14:00-15:30

**Brighton Dome
Studio Theatre**

**Xuezi Ma
Hua Dong**

Tongji University,
CHN

Measuring Product-Related Stigma in Design

Thurs 30th June
14:00-15:30

Brighton Dome
Studio Theatre

Kristof Vaes
Achiel Standaert

University of Antwerp,
BEL

Pieter Jan Stappers
TU Delft, NLD

Many medical and assistive devices are experienced as unpleasant and uncomfortable. On top of their discomfort, product users may also experience social unease. We label this process 'product-related stigma' (PRS).

This paper presents two measuring techniques that aim to objectively assess the 'degree' of PRS that is 'attached' to products. Both experiments focus on the behavioral deviations in the walking path of passers-by during a public and unprepared encounter with a user of a stigma-sensitive product (dust mask).

The 'Dyadic Distance Experiment' measures exact interpersonal distances, whereas the 'Stain Dilemma Experiment' presents the passer-by with a choice in his walking path.

Both experimental techniques are predominantly suited as comparison tools, able to compare products on their PRS-eliciting potential.

Designers and developers can use these results to justify design decisions with quantitative data, to assess which product properties have influenced certain reactions, and to what extent subsequent improvements have been successful.

Towards Innovative and Inclusive Architecture

Acknowledging that the Danish Buildings Regulations is having an impact on the design of inclusive architecture, a Danish government agency focuses on new models for the accessibility requirements in the future Building Regulations supporting an innovative and inclusive architecture. In order to establish empirical material for the analysis and development of new models, architectural firms have been invited to workshops and group interviews to present their own experience of the challenges and the opportunities that they meet in their everyday practice as users of the Buildings Regulations. The prescriptive accessibility requirements were criticised for being too homogenous. A majority of the firms suggest a performance-based model in order to work with 'accessibility zoning' achieving flexibility because of different levels of accessibility in a building due to its performance. Paradoxically a minimum level is required in order not to lose accessibility.

Thurs 30th June
14:00-15:30

**Brighton Dome
Studio Theatre**

Sidse Grangaard
Aalborg University,
DNK

Hidden Public Spaces: When a University Campus Becomes a Place for Communities

Thurs 30th June
14:00-15:30

Brighton Dome
Studio Theatre

Davide Fassi

Tongji University, CHN
/ Politecnico di
Milano, ITA

Laura Galluzzo

Liat Rogel

Politecnico di
Milano, ITA

'C'è spazio per tutti/There's room for one more' is an event that took place in November 2011 at the Milano Bovisa Durando campus of Politecnico di Milano, Italy with the purpose of opening up the public spaces of the university to the inhabitants of that area through a series of design actions to offer opportunities for understanding, observation and enjoyment of a public space. That was the beginning of a series of design for social innovation projects connected to the Bovisa neighbourhood organized over the following years. In this paper we will describe the need to open-up hidden (unknown) public spaces like the Milano Bovisa Durando campus and the idea that through small rapid design experiments we can immediately test the efficacy of tools made to enable people's and communities' use of the public space.

Designing Meaningful Vehicles for Older Users: Culture, Technology, and Experience

This study aimed to achieve understanding from the middle-aged vehicle users and from older vehicle users about differences between their current travel experience and future travel needs. A methodological triangulation consisting of interviews, logbook and co-discovery was used to collect multiple forms of data and explore the older vehicle users travel-needs-influencing factors within the Chinese cultural frameworks. This paper built a concept model to integrate these travel-needs-influencing elements that might give designers new knowledge to assist their innovations. It is envisaged that the proposed model can play an important role in the design process to help designers to better understand the relationship between culture, technology, older users' experience and design.

The application of the model will focus on designing meaningful concept vehicle for the older Chinese users as a representative example.

Thurs 30th June
14:00-15:30

**Brighton Dome
Studio Theatre**

**Xiaobo Lu
Chao Zhao**

Tsinghua University,
CHN

Vesna Popovic

Queensland
University of
Technology, AUS

Blockchain, Smart Contracts and the Design of Everyday Transactions

Thurs 30th June
14:00-15:30

Brighton Dome
Founders Room A

Larissa Pschetz
Chris Speed

University of
Edinburgh, GBR

Debbie Maxwell

University of York,
GBR

While it is clear that digital technologies enable us to carry out transactions quickly, anywhere, and through various media, the decisions behind these transactions and possible outcomes of practices that they mediate are less clear. Issues of data acquisition and access have been largely discussed, and it is known that algorithms can tailor searches and purchase recommendations, but designers have given little attention to the potential of digital protocols to enable new social and economical models. In this conversation we will discuss the role of design in defining and communicating these protocols asking what is the potential and what are the challenges for designers of interactive systems in this context?

Making, Mending and Growing in Feminist Speculative Fabulations: Design's Unfaithful Daughters

This conversation seeks to consider design research practices around critical and speculative design which have been criticised for their lack of public engagement and awareness of their political and normative positions. In particular, we are interested in the ways in which feminist speculative fabulation offer alternative approaches through attention to core feminist arguments around corporeality, materiality, embodiment, affectivity and experientiality. Our conversation will imagine new ways of practicing design by examining relationships between speculative futures and reimaginings of the past; the role of a feminist perspective in problem-making and questioning; speculative design and fabulation as participatory practice; the role of practices around mending, growing, maintaining and repairing; and, the posthuman design and the anthropocene.

Thurs 30th June
14:00-15:30

Brighton Dome
Founders Room B

Laura Forlano
Illinois Institute of
Technology, USA

Kristina Lindström
Åsa Ståhl
Umeå University,
SWE

Li Jönsson
The Royal Danish
Academy of Fine Arts,
DNK

Ramía Mazé
Aalto University, FIN

On Presenting a Rich Picture for Stakeholder Dialogue

Thurs 30th June
14:00-15:30

Old Courthouse

Abigail Durrant

David Kirk

Diego Pisanty

Newcastle University,
GBR

Wendy Moncur

Kathryn Orzech

University of Dundee,
GBR

In this paper we describe the design and use of a polyphonic picture book for engaging public sector and industry stakeholders with findings from an academic research project. The project combined interdisciplinary expertise to investigate how UK citizens create and manage online digital identities at three significant life transitions, aiming to deliver social, cultural and technical findings to inform policy-making and service innovation for enhancing digital literacy in online self-representation. The picture book communicated empirical insights through the presentation of multi-perspectival, fictional scenarios about individuals' experiences at the life transitions studied. We deployed the book with our project stakeholders in two workshop settings to explore the efficacy of a novel visual format for fostering stakeholder dialogue around the findings and their transferability. By offering an account of this exploration, the paper aims to contribute methodological insights about using visual storytelling to scaffold interpretative, dialogical contexts of research engagement.

Involving Stakeholders in Cross-border Regional Design

Regional design is a means to develop integrated spatial plans with a long term perspective in close collaboration with stakeholders. In doing so, regional design shows similarities to participatory design. In this paper, a regional design process is compared to the basic principles and values of participatory design. The regional design process showed strong signs of *mutual learning*, *embeddedness in actual situations*, *using participatory tools and techniques*, and *opening up to alternative visions*. The democracy oriented principles *equalizing power relations* and *committing to democratic practices* were also present in the regional design case, but not in an emancipatory or empowering way. The regional design case showed the signs of a fraternalistic approach to participatory design, in which multiple voices and perspectives grapple with each other. Regional design can learn from participatory design theory and practice, as it resonates with the principles and values of participatory design.

Thurs 30th June
14:00-15:30

Old Courthouse

Annet Kempenaar

Wageningen University,
NLD

Appreciative Co-design: From Problem Solving to Strength-Based Re-authoring in Social Design

Thurs 30th June
14:00-15:30

Old Courthouse

Tasman Munro
University of
Technology Sydney,
AUS

This paper outlines an approach to Social Design that departs the practice of design as 'problem solving' and advocates for Appreciative Co-design, an approach that seeks to nurture strengths and co-construct empowering stories that give life to living systems. As Social Designers we're working with increasingly vulnerable people in immensely difficult circumstances, and sometimes their lives become constructed around a 'problem story'. These participants can be difficult to engage in the co-design process, they can be resistant to change or find it difficult to envision positive future alternatives. And as Social Designers it's now our role to shift their perspective. This involves facilitating a process of social transformation within the design process itself, which is a new task for our practice. For guidance this paper explores Psychotherapy and Organisational Development which are other transformative practices that offer valuable strategies on shifting problem oriented mindsets and motivating people to construct new empowering narratives.

Design and the Creation of Representational Artefacts for Interactive Social Problem Solving

This paper highlights the role of design and designers in the creation of visual artefacts as boundary objects to be used to facilitate social problem solving. Many problems in human service systems can only be solved by purposive action amongst the stakeholders of the system but each stakeholder has only a partial view of the system. Boundary objects that present a multi-stakeholder perspective can facilitate problem solving by creating representations of the system that are meaningful to all stakeholders.

In this study we used sensemaking (often a textual practice) and visualisation to create a high complexity representational artefact to enable shared understandings of an occupational rehabilitation system.

Thurs 30th June
14:00-15:30

Old Courthouse

Richard Cooney
Monash University,
AUS

Tania Ivanka
Nifeli Sewart
Neal Haslem
RMIT University, AUS

Design Tools for Enhanced New Product Development in Low Income Economies

Thurs 30th June
14:00-15:30

Old Courthouse

Timothy Whitehead

De Montfort
University, GBR

Mark Evans

Guy Bingham
Loughborough
University, GBR

In order to alleviate poverty throughout the World government and non-government organisations provide aid in the form of essential household products. These products typically include cook stoves, water filters and LED lights. However, evidence suggests that these products are not always suitable for Low Income Economies (LIEs) which has resulted in a number of high profile product failures. In response to the growing need for appropriate New Product Development (NPD), this paper presents the development of a tool to assist industrial designers create appropriate and long lasting solutions for those in poverty. Data was collected from the analysis of existing products, a survey, interviews with NGOs & industrial designers and a field trip to Myanmar. The results were used to identify attributes required for effective, long-lasting product design. This was used to create a tool for designers which was found to enhance understanding of appropriate NPD for LIEs.



Putting Product Design in Context: Consumer Responses to Design Fluency as a Function of Presentation Context

Thurs 30th June
14:00-15:30

Grand Parade
Sallis Benney

Laura Graf
Jan Landwehr
Goethe University
Frankfurt, DEU

Existing research has well established that the fluency of mentally processing a design is an important determinant of consumers' aesthetic liking. Yet, to date, most studies have assessed consumers' reactions to design fluency in isolation, i.e., irrespective of the context in which the design is presented. In reality, however, consumers usually perceive a design in a context. Against this background, this research examines how a design's fluency and the visual context in which it is presented interact to affect aesthetic liking of bikes, chairs and lamps. To this end, we experimentally manipulate design typicality as an operationalization of design fluency and the usualness of an advertisement's background as an operationalization of presentation context. The pattern of results suggests that the effect of design fluency on aesthetic liking differs in unusual versus usual presentation contexts, which is in accordance with a dual process model of fluency-based aesthetic preferences.

A Comparison Between Colour Preference and Colour Harmony: Taking Athletic Shoe Design as an Example

A psychophysical experiment was conducted using athletic shoes as an example to study colour preference and colour harmony. A total of 404 test images were generated from two original shoe images, one from Nike and the other from Adidas, each manipulated by varying the two-colour combination of the shoe design, including the main colour of the shoe and the logo colour. Twenty observers participated in the experiment. Each observer was asked to rate the shoe images using two semantic scales: like/dislike and harmonious/disharmonious. The experimental results show that the colour preference rating relied strongly on the main colour of the shoe regardless of the logo colour, while the colour harmony rating was affected not only by hue similarity but also lightness difference between the main colour and the logo colour.

Thurs 30th June

14:00-15:30

Grand Parade
Sallis Benney

Li-Chen Ou

National Taiwan
University of Science
and Technology,
Taiwan, CHN

The Value of Transparency for Designing Product Innovations

Thurs 30th June
14:00-15:30

Grand Parade
Sallis Benney

Peiyao Cheng
Hong Kong
Polytechnic
University, CHN

Ruth Mugge
TU Delft, NLD

Transparency is frequently used in product innovations for its special visual impacts and unique characteristic of providing more information. Providing effective information is crucial for consumers' adoptions of product innovations. Yet, how the information provided through transparency influences consumer response has not been investigated so far. This study aims to fill in this gap by investigating the application of transparency in product innovations from designers' and consumers' perspectives. Through in-depth interviews with experienced designers (N=6), five design intentions of using transparency in product innovations are identified: *influence look and feel, communicate information regarding product operations, demonstrate technology, show working process, and influence consumer experience.*

To validate these findings and explore consumer response, in-depth consumer interviews were conducted (N=13). Results revealed that these design intentions are fulfilled. Moreover, consumers mentioned more specific experience triggered by transparency: *a sense of achievement, engagement, control, relief and discomfort.*

Paper Session: Aesthetic Pleasure in Design

Creating Novel Encounters with Nature: Approaches and Design Explorations

Nature has been a source of inspiration in many ways, ranging from conceptualizations of nature as a source of aesthetic delight to nature as a 'healing force'. So far, however, insights into which characteristics underlie these diverse effects are lacking, and consequently, nature-inspired design approaches are often limited to 'copying' visual aspects of nature in either a concrete or more abstract manner. Recently however, insights from (environmental and health) psychology, fuelled by developments in (multi-sensory) technology, have paved the way for nature-based design approaches which go beyond (merely visual) imitation. In this paper, we will report on these insights and propose three nature based design approaches with accompanying design cases.

Thurs 30th June

14:00-15:30

Grand Parade

Sallis Benney

Thomas Van Rompay

Geke Ludden

The University of

Twente, NLD

Find this paper online at www.drs2016.org/308

Introducing Experience Goals into Packaging Design

Thurs 30th June
14:00-15:30

Grand Parade
Sallis Benney

Markus Joutsela
Virpi Roto
Aalto University, FIN

Consumer experiences are an increasingly important driving force for commerce, affecting also packaging design. Yet, experience design for packages is rarely studied. Specifically, there is a gap in research regarding the integration of experiential goals, Xgoals, into the packaging design process. Open questions include how to describe Xgoals in design briefs when package design is outsourced, how to deal with changes during the design process, and how to evaluate whether the delivered design evokes the intended experience in the target audience.

In this explorative paper we present three package design cases in which Xgoals were integrated into the design briefs. The cases cover the process from brief formation to design and experience evaluation of the resulting packages. We analyse the process of integrating experience goals into the package design process, and provide topics for future research.



Knowledgeability Culture: Co-creation in Practice

Thurs 30th June
14:00-15:30

Grand Parade
M2

Alicen Coddington
Colin Giang
Alexander Graham
Anne Prince
Pauliina Mattila
Christine Thong
Anita Kocsis

Swinburne University
of Technology, AUS

Co-creation is a term that traverses a philosophy, method and mindset of collective creativity. It is an evolving construct used by diverse disciplines, but as yet is imperfectly defined (Sanders & Stappers, 2012). This paper explores co-creation within a community of practice in Design Factory Melbourne (DFM) at Swinburne University of Technology. This community of practice includes researchers, academics, industry and external collaborators working towards shared meaning, which is the collective understanding of the industry problem-context. We understand co-creation as negotiation through which solutions are optimised rather than compromised. The community of practice is guided by five principles; safety, exploration, responsibility, communication and collaboration. This paper is a case study that applies these five principles to demonstrate how shared meaning is negotiated and achieved in practice. The paper is an artefact co-created by seven individual voices working together within the community of practice in an industry-integrated doctoral program.

Project Contribution of Junior Designers: Exploring the What and the How of Values in Collaborative Practice

This research investigates the extensive explored field of personal values: what do they mean for junior designers, are they exchangeable with other persons, and what will be exchanged? The paper contains an explorative grounded theory methodology on the exchange of personal values between stakeholders and junior designers during projects. Five interviews with junior designers gave insight in collaboration and interaction with stakeholders, and value exchanges by the junior designer within a project. The authors present two conceptual models: one for personal stakeholder mapping, and one for exchanging personal values. The first model enables junior designers to position stakeholders relatively to their personal capabilities and professional capabilities. The second model shows the value-exchange between the junior designer and his client, his employer and his personal contacts. Both models may help to add perception to personal values and an insight in the exchangeable values between stakeholders.

Thurs 30th June
14:00-15:30

Grand Parade
M2

Lennart Kaland
Annelijn Vernooij
TU Delft NLD

Lenny van Onselen
The Hague University
of Applied Sciences,
NLD

The Future of Product Design Utilising Printed Electronics

Thurs 30th June
14:00-15:30

**Grand Parade
M2**

**Nicola York
Darren Southee
Mark Evans**
Loughborough
University, GBR

This paper addresses the teaching of emerging technologies to design students, using 'printed electronics' as an example as it recently became viable to mass manufacture and is ready for use in designs. Printed electronics is introduced as a disruptive technology, and approaches employed in knowledge transfer to industrial product designers is reviewed. An overview of the technology is provided; the printing processes; material properties; a comparison with conventional electronics; and product examples are identified. Two case studies illustrate approaches for knowledge transfer to student designers. The assessment criteria and design outcomes from the case study projects are reviewed and future/new approaches proposed.

The paper concludes that there is a need to develop a thorough knowledge transfer strategy for printed electronics to designers, informed by case studies and extending beyond simply showing examples of existing technology. This is necessary for future proofing both in technological advances and designing for the future.

Junior Designers' Awareness of Personal Values and Their Employment Choices

For junior designers, friction between personal and organizational values can lead to frustration. This paper addresses job selection choices of junior designers, and how they are affected by an awareness of personal values. An experiment (n=106) shows how an explicit awareness of personal values (based on the Schwartz Value Survey) affects the choices and motivations of junior designers. Results show that, overall, junior designers select vacancies that express values that are congruent with their own values. In addition, a greater awareness of personal values is found to lead to more confidence in one's choice, and to a greater tendency to look for a match between personal and organizational values based on complementarity (rather than congruence). These findings are to help junior designers to make professional choices based on personal values and ambitions, promoting the best fit for their first job.

Thurs 30th June

14:00-15:30

Grand Parade

M2

Anna Jonkmans

Julia Wurl

Dirk Snelders

TU Delft, NLD

Lenny van Onselen

The Hague University

of Applied Sciences,

NLD

Visual Thinking Styles and Idea Generation Strategies Employed in Visual Brainstorming Sessions

Thurs 30th June
14:00-15:30

**Grand Parade
M2**

Naz Börekçi

Middle East Technical
University, TUR

This paper presents the findings of visual analyses conducted on 369 sketch ideas generated in three 6-3-5 visual brainstorming sessions by a total of 25 participants, following the same design brief. The motivation for the study was an interest in the thematic content of the ideas generated as groups, and the individual representation styles used for the sketches. The analyses revealed the determinants of individual visual thinking styles as: idea types, sketching patterns, sketching styles, annotation styles, and performances in producing design solutions. The idea generation strategies of the participants were: using analogies, diversifying the design solutions, determining the usage context, and working with themes. The effects of group dynamics on the performances of the participants were: management of the idea generation effort, reflections of the idea contents explored within groups, and reflections of the representation styles of peers. The paper finally identifies four profiles of idea generators and discusses the implications of the findings.

New Technologies – New Design Research?

New technologies and social media have gained increasing interest in science and mainly in quantitative research. The possibilities to collect large amounts of data have led to a new empiricism which already announced 'the end of theory in science' (Anderson, 2008). With the notion 'Big Data' we follow the definition of Boyd and Crawford (2012) as 'capacity to search, aggregate, and cross-reference large data sets'. Big Data practices can be found nowadays in many different contexts and any kind of limitations or benefits may be different in each context or field. The goal of this conversation session is twofold: 1) to present an overview of existing technologies and demonstrate selected tools to the audience in order to provide them with ideas about how to utilize such technologies for their own research. And 2) to discuss the usefulness of the presented technologies and to identify possible pitfalls.

Thurs 30th June

14:00-15:30

Grand Parade

G4

Katja Thoring

Petra Badke-Schaub

TU Delft, NLD

Roland Mueller

Berlin School of
Economics and Law,
DEU

**Alexander Müller-
Rakow**

University of The Arts
Berlin, DEU

Erik Bohemia

Loughborough
University, GBR

Concluding Debate: Reflections and Directions

In the final debate of DRS2016 we ask five participants, from a wide variety of Design Research backgrounds and experience, to tell us about how they found the conference. What inspired, frustrated or delighted them? Where are the areas of strength to build on and weakness to fix? And what themes and formats should we be exploring as a research field and in future conferences?



Ezio Manzini For more than two decades Ezio Manzini has been working in the field of design for sustainability. He coordinates DESIS: an international network of schools of design and other design-related organisations for social innovation and sustainability. He collaborates with the Politecnico di Milano and he is Honorary Guest Professor at Tongji University, Jiangnan University, and the University of the Arts London. Throughout his professional life he has taught and carried out research at the Politecnico di Milano. He has also been director and vice-president of the Domus Academy, Professor of Design at the Hong Kong Polytechnic University and Distinguished Visiting Professor, at Parsons, the New School for Design, in New York.



Alison Thomson is a doctoral researcher who started her studies in the Department of Design at Goldsmiths in October 2012. Her practice-based PhD explores how design-research can re-do 'the patient experience' considering the multiple realities of Multiple Sclerosis and its ontological politics. A core empirical part of this involves working as a Visiting Researcher at the Centre for Neuroscience and Trauma at the Blizard Institute, Queen Mary, University of London. Together with Bianca Elzenbaumer and Maria Portugal Alison set up PhD by Design a regular forum for practice-based PhD researchers.



Adam de Eyto lectures in Product Design and is the co-coordinator for the Design Factors research group at University of Limerick. He has a specific research expertise and interest in Design for Sustainability and also works in the areas of New Product Development, Sustainable Product Service Systems, Transdisciplinary education, Humanising Medical Devices, Behavioural Change and Soft Product Design.



Anna Valtonen is Dean of Aalto University School of Arts, Design and Architecture as well as Vice President for Art and Creative Practices at Aalto University. Prior to 2014, she was Rector of the Umeå Institute of Design and a founding Board member of Aalto. Her research has primarily focused on Finnish design history and on how design is used in organisations. She has also been a visiting researcher and professor at the ESSEC Business School in Paris, France and has served in a variety of positions at Nokia between 1997 and 2009, most recently as Head of Design, Research & Foresight.



Chris Hammond is a Design Research Leader for IBM Design. He leads with courage, integrity and empathy. At IBM, he is member of the design practices team, which is responsible for enabling all of IBM to think like designers. While leading cross-functional teams at the consultant Kaleidoscope, Chris honed his love for the opportunity space between research and design to deliver user-centered outcomes. One of his most prized experiences as a designer was the creation of an innovation partnership between a pediatric hospital and the consultant to bring design thinking to improve patient care.

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