Design for Wellbeing: Ageing & Mobility in the Built Environment

- Understanding the relationship between the built environment, mobility and activity in older populations
- [Providing] Evidence based and user-centred design and engineering approaches, in the context of the whole system, that are driven by a desire to increase and enable mobility and activity, decrease isolation and enable greater independence
- Understanding what environmental designs encourage activity/inactivity and how these can be engineered to facilitate older users to increase their physical activity
Focus

WHO?

240 People aged 50-59 and 60+

CITYSCAPE

CARDIFF
OXFORD
Bristol
READING

Scoping secondary data sources
Urban Design Audit
Life History / Biographical interviews
Mixed methods approach
Mobile methods / Micro-ethnography
International study visits
Ergonomics Cycling & Wellbeing Trial

7/22/2015
LOW LEVEL OF CYCLING AMONG OLDER PEOPLE IN THE UK

The share of journeys made by bicycle is low for all age groups, but particularly low in older age.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Cycling Share</th>
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<tbody>
<tr>
<td>40-49 YRS</td>
<td>1.8%</td>
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<tr>
<td>50-59 YRS</td>
<td>1.2%</td>
</tr>
<tr>
<td>60-69 YRS</td>
<td>1.0%</td>
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<tr>
<td>70+ YRS</td>
<td>0.8%</td>
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</tbody>
</table>
DIFFERENT STORY ELSEWHERE

Cycling is an important method of transport in older age in other parts of Northern Europe.

Share of journeys by people aged 65+

- UK 1%
- Denmark 15%
- Netherlands 23%
- Germany 9%

OLDER PEOPLE MAKE SHORTER, MORE LOCALISED CYCLE JOURNEYS

Older people’s cycle journeys are **shorter** than younger adults’ and are usually for personal business or social purposes (as opposed to commuting).

- 70+ YRS: 1.8 miles
- 40-49 YRS: 4.8 miles
OLDER MEN CYCLE MORE THAN OLDER WOMEN

Older men are twice as likely to cycle as older women, raising concerns over equity.

LACK OF CONFIDENCE TO CYCLE ON ROADS

Nearly half of older people feel it is physically difficult for them to cycle and only one in five are confident cycling on roads.
BUT THERE IS POTENTIAL FOR MANY MORE OLDER PEOPLE TO CYCLE

60-69 yrs

27% of 60-69 year olds own a bicycle but only 1 in 9 regularly use their bike

**Cycle Paths**

42% would cycle (more) if more dedicated cycle paths

**E-Bikes**

e-bikes support older people's cycling. In the Netherlands one third of all distance cycled is by e-bike!
Developing Urban Design understanding

Cycle BOOM responding to call by Ann Forsyth and Kevin Krizek:

“...to take the experience of cycling seriously in urban design. This involves moving beyond a concern with safe and convenient facilities and complete networks to a more substantial interest in the experience of the environment from a cyclist’s point of view.”


Urban Design Audit

Comparing ‘traditional’ urban design approaches (to walking) with ‘forgotten middle’ perspectives (on cycling)

4 locations in Reading

Urban design quality assessment

Community engagement

3 Focus groups | Q-Methodology

Analysis and design guidance

Identifying the attributes, features and principles that influence or contribute to quality urban environments for cyclists

A reimagining and rearticulating of urban design principles from a cyclists perspective
## Urban Design Qualities

<table>
<thead>
<tr>
<th>Quality</th>
<th>Imageability</th>
<th>Coherence</th>
<th>Enclosure</th>
<th>Human Scale</th>
<th>Transparency</th>
<th>Complexity</th>
<th>Legibility</th>
<th>Tidiness</th>
<th>Comfort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variance with</td>
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<td>Same principles?</td>
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<tr>
<td>cycling ‘lense’</td>
<td></td>
<td></td>
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<td>Priorities?</td>
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### Mixed Methods Approach
- Scoping secondary data sources
- Urban Design Audit
- International study visits
- Mixed methods approach
- Life history / biographical interviews
- Mobile methods / micro-ethnography
- (E)Cycling & Wellbeing Trial

![Urban Design Qualities Diagram](image-url)
**Life history interview: Objectives**

Through individual life histories of cycling reveal

- Whole-life view on engagement with cycling
  - Behaviour change and continuity in relation to life events and transitions and evolving social and physical settings
  - Practice of contemporary cycling

- Experience and narratives of cycling and ageing
  - How cycling is affected by later adulthood transitions?
    e.g. changing work patterns, family structure, roles, health
  - Adaptive, restorative and diminishing changes
  - Outlook for future cycling

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**Life History Interviews: Emerging themes**

- **Heterogeneity in past cycling trajectories:**
  - continued | expanded | diminished | rediscovered | discontinued | new | stopped | absent

- **Heterogeneity in future cycling trajectories:**
  - continue | increase | decrease | uncertain | start | behind me

- **Later life:**
  - transitions: retirement | residential moves | family roles | body | motivation

- **Cycling niches:**
  - enduring: knowledge | skills
  - adapting: bike | kit | timing | skills | company | routes
  - explorative: geography | mentors
Naturalistic ride: background

- ‘New mobilities paradigm’ exploring mobile bodies in mobile contexts
- Approaches that diverge from traditional methods – research ‘on the move’. (Sheller and Urry, 2006)
- Mobility not just movement between point A and B (Cresswell, 2006)
- Interest in affect, place, meaning, culture and representation
Naturalistic ride: Routes

Participant chooses route: familiar journey, similar timing, everyday experience

Sheryl: Shopping

Cecil: Social visit

James: Exercise

Experiences

Multi-sensory - sound | surfaces | surroundings
Pleasure | anxiety | accomplishment
Connection - place | people | environment
Exploration
Monotony
Naturalistic rides – emerging themes

Challenges
Traffic – type | proximity
Storage and access
Infrastructure - design, maintenance, use
Topography
Social / technical support

Adaptations
cycles
routes
timing
manoeuvres
social
Resilience | resignation | reduction
(E)cycling - eight week trial: background

Objective: to test the impact of (re)discovering cycling on physical activity, mental health and wellbeing in older adults.

“work on well-being and mobility should consider both the objective and the subjective and the hedonic and eudaimonic dimensions of well-being, and should pay detailed attention to the multiple ways in which well-being and its linkages to mobility are context-dependent and shaped by the particularities of time and place” (Nordbakke & Schwanen 2014)
(E)cycling - eight week trial

Life History Interview Cycling assessment
Pre-tests
Diary
GPS/Odometer verification
Post-tests
Focus group
Follow-up (?)

Initial test results

- Both groups of participants - enjoyed the trial, feel physically fitter and better more generally

- Improvement on accuracy in the cognitive tests measuring executive function
  - 92% E-bike; 72% Pedal

- Reaction times reduced for most (responding quicker)
  - 67% E-bike; 57% Pedal
  - When reaction times increased, higher accuracy

- Practice effects? Very little change (positive or negative) in control group
# E-bike opportunities

*"same amount of exercise but more pleasure because going further than my usual boundaries"

*"Instead of 'closing down' at our ages we’re thinking of exciting and challenging things to do”*

**Mobility practices**
- Geographies - rediscovered | extended | deepened
- Additional journeys | replacing car
- Learning effect > novelty (Fyrhi & Feamley 2015)

**Health and wellbeing**
- Greater (cycling) confidence
- Spatial awareness and control
- Social contact
- Engagement with the unknown: ‘mobility of the self’ (Schwanen & Ziegler 2011)

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# E-bike challenges

*"how is that going to help?... I imagined a little scooter that you switch on and it goes”*

*"Oxford is a dangerous city to cycle round”*

**E-bikes: image/nature**
- weight | cost | security | stranding | technical support

**Unsupportive environments**
- roads | traffic | cycle tracks
European case study visits

- 2 x 3 day study visits to Munich in Germany and Seville in Spain, May and June 2014 to explore good practice in inclusive cycling

- Interviews with key stakeholders, cycle tours/visits (e.g. testing infrastructure), filming and audio recording

- Decision to focus on ‘atypical’ cycling cities and also to invite a northern/southern European comparison
European case study visits - findings

- Comprehensive cycling network
- Infrastructure and space reallocation to cycling and walking
- Creative communication and marketing
- Engage local stakeholders and ensure wide participation
- Cycle training to build capacity and diversity

www.cycleboom.org/outputs/videos/

Age Friendly?

Scoping secondary data sources
International study visits
Urban Design Audit
Life history / Biographical interviews
Mobile methods / Micro-ethnography

(E)Cycling & Wellbeing Trial
### Age friendly communities?

**Current resilience**
- enduring | adapting

**Opportunities**
- engagement | exploration | exercise

**Constraints**
- body | gender | geography

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### Age friendly cycling communities?

<table>
<thead>
<tr>
<th>(E)-cycling as a viable transport option</th>
<th>Cycle storage and access to street / network</th>
</tr>
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<tbody>
<tr>
<td>Community / hire / purchase integration of modes</td>
<td>Social cycling and access integration</td>
</tr>
<tr>
<td>Infrastructure and space reallocation</td>
<td>Knowledge of older peoples’ cycling needs: Government&gt;shop</td>
</tr>
<tr>
<td>Comprehensive network: social / direct / enjoyable</td>
<td>Volunteering / buddies</td>
</tr>
<tr>
<td>Advice on benefits</td>
<td>Training</td>
</tr>
<tr>
<td>Cycling on prescription</td>
<td></td>
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<tr>
<td>Creative communication and marketing of cycling</td>
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References


Fyhri, A. & Fearnley, N. 2015 Effects of e-bikes on bicycle use and mode share. Transportation Research Part D: Transport and Environment 36, 45-52


Schwanen,T. & Ziegler, F. 2011. ‘I like to go out to be energised by different people’: an exploratory analysis of mobility and wellbeing in later life. Ageing and Society, 31, 758-781