Co-Motion

Summary: Co-designing mobile applications for older people to promote mobility and well-being

Background

Co-Motion was a three year project that investigated the links between mobility and wellbeing amongst older people. The project aimed to explore mobility and well-being for older people going through critical but common life transitions. There are many advantages to remaining mobile and physically active in later life. Technologies such as smartphones and tablet computers can be help support older people to take part in physical activities and maintain their wellbeing. However, to make sure that such technologies are usable and acceptable by older people, it is crucial they are involved in all stages of their design.

As a first step in this part of the Co-Motion Project we invited older people to participate in a photo diary study to explore their mobility and well-being needs and wishes. 26 people, aged 55 to 84, volunteered and were given disposable cameras. We asked them to take the cameras on any trips they made for approximately two weeks and to take photos of things that affect their travel and well-being, in both negative and positive ways. We then interviewed the volunteers, talking through why they had taken particular photos.

The volunteers took a total of 653 photos, meaning about 25 photos per person. Analysis of the photos and interview material revealed 6 themes of importance to the volunteers:

- **Stability and consistency of the built environment**: negative issues include broken and slippery pavements, protruding gratings and drains
- **Clarity and visibility of the built environment**: positive issues include clearly marked cycle lanes and pedestrian zones, good signage for public transport, particularly real time information at bus stops

- **Safety and security in the built environment:** negative include busy roads that are dangerous to cross, badly planned roundabout and crossings where visibility is poor; positive issues include traffic calming measures and speed restrictions
- **Beauty and upkeep of the built environment:** negative issues include litter and animal mess; positive issues include flowerbeds, gardens, trees and shrubs
- **Propriety and thoughtfulness in the built environment:** negative issues include cars parking on pavements, cyclists riding on pavements or parking their bikes in inappropriate places, bin bags left out, A-boards obstructing the pavement; positive issues were benches and other places to sit, assistance provided by public transport companies
- **Freedom and flexibility in the built environment:** positive issues here included good public transport (although lack of public transport was also often a negative issue) and free parking for residents

Using the results of the photo diary study, we developed a number of ideas for mobile applications which might help older people negotiate the built environment and promote their physical activity and wellbeing. To explore these ideas with older people we held a number of workshops involving fun and interesting activities.

33 people, aged 55 to 85, took part in the workshops. Each workshop lasted about 2½ hours and included presentations of the ideas, discussions and extensive use of Post-Its, to make comments and rate different ideas.

The workshops showed that older people definitely recognised the value of technology for supporting mobility. They rated four of our ideas highly. The complexity of possible apps appeared to affect their popularity, with participants favouring ideas that were relatively simple. More sophisticated ideas were rated less useful. Participants felt mobile phone and tablet computer applications were effective in ensuring they would be confident, safe and secure when out and about. However, participants emphasised that the information applications provide must be trustworthy, reliable and safe.

On the basis of the workshops, we developed a "Walking for Wellbeing" application for smartphone. The Walking for Wellbeing application allows older adults to plan walking routes in their local area. The routes calculated by the application are tailored to suit the needs, preferences, and interests of the individual user. We then organized demonstrations of the application with four groups of older people, aged 56 to 82, a total of 14 people. Participants used the

app to a find a route from their current location at the University of York to York Minster, via a local pharmacy. For each screen of the app, we discussed the design of the screen with the participants who raised issues and suggestions.

Participants were very positive about the app, and made a number of very useful suggestions on how to improve it. For example, including photos to highlight the correct route. A number of methods were discussed about how to describe directions and distances, so users will be able to choose which method they would prefer. After refinement of the app, additional feedback was collected from older people at Co-Motion events in Leeds, Hexham and York. Some examples of comments include:

> *"The map of the walk looks very good. Route clearly labelled and well presented. Hazards noted."*

> *"Very Good, Great Idea. Just need some decent weather and I'm off!!"*

> *"Keeping active is very important but I am no longer a spring chicken. I do a lot of walking but I also like to walk while being informed, […] either by appreciating the scenery, architecture, or landscape."*

> *"This could be a really useful memory aid e.g. For shopping, tasks to do. So for example, it could remind people that they need to post a letter, call at the pharmacy, and get some milk."*

> *"I believe it is important to keep active. We all have some form of mobility and by stopping activities we would soon become very inactive lethargic and develop a 'can't be bothered' attitude".*

About this Study
Led by the Centre for Housing Policy, the research Consortium includes the Departments of Computer Science and Health Sciences and the Stockholm Environment Institute at the University of York, as well as partners at the University of Leeds; Newcastle University; Northumbria University; and the Bradford Institute for Health Research. The Co-Motion project commenced in 2013 and finished in January 2017.