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Older people's use of unfamiliar space (OPUS)

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In Brief

Older people are increasingly experiencing environments that can be unfamiliar to them. This may be as a consequence of travelling as tourists to new areas; of urban regeneration; or as a result of cognitive decline, where the familiar becomes unfamiliar. This research explored the experiences, mechanisms and strategies used by older people to navigate unfamiliar as well as familiar urban spaces. Forty four participants who took part in a reality cave exercise, focus groups, a questionnaire and a sub group who visited an unfamiliar area as pedestrians describe their use of landmarks, signage and their experience of navigating an unfamiliar town centre. Landmarks and distinctive buildings were more important than signage in navigating unfamiliar areas; however the meaning of space and memories attached to places was significant particularly in familiar spaces. Such experiences can contribute to policy and practice implications for planners in designing for an ageing population.

The Study

The central aim of the project was to determine the mechanisms and strategies used by older people to navigate unfamiliar spaces as drivers, pedestrians and users of public transport. There were five specific objectives:

- To investigate the influences on someone's ability to cope with unfamiliar environments.
- To examine the extent to which unfamiliar environments curtail autonomy and independence, and lead to social (and environmental) exclusion.
- To identify the environmental triggers that older people respond to, for example to determine the characteristics of places that make them threatening or worrisome.
- To explore how technologies can assist in enabling older people to adapt to or ameliorate change in their environment.
- To engage with spatial planners in discussing forms of environmental design that facilitates older people's use of space.

Older people (44) were recruited from U3A, Network 50 + and through snowballing techniques (18 males; 26 females). Films of unfamiliar and familiar spaces and routes in city centres (Swansea and Colchester) were displayed in a virtual reality cave *(figure 1)*. The video filming was of a route undertaken as a pedestrian. A variety of scripts were presented to older people, for example, 'you are walking through a busy town – what is it like to walk here?' We asked participants to comment on specific items during the journey – for example the use of signage, confusing and helpful cues and the general impression of the route. Older people were asked to give a detailed narrative as they navigated a route in an unfamiliar area. This was supplemented by a survey questionnaire collecting demographic, environmental and travel data prior to the cave exercise.

Their heart rate was monitored en route to and while in the reality cave; cardiac indicators were used to assess stress levels and other psychological measures. We calibrated people's physical and perceptual response to using the reality cave with films of familiar spaces within their localities as a pedestrian. A survey and qualitative interview explored the extent to which older people encountered unfamiliar environments, the issues that arise when they do and interventions that might assist them in navigation.

A group of participants (10) were taken to the unfamiliar area (Colchester) to undertake a further 'walk around town' enabling comparisons to be made between the cave and reality. Here they followed the route projected in the cave and made assessments of their urban milieu (using standardized measures such as SWEAT-R and UDQ). Additional qualitative data were collected through participants recording their experiences in notes and through discussions with a group of local residents and planners. Consequently comparisons between familiar and unfamiliar areas were recorded and analyzed using Nvivo software. Subsequent interviews with spatial planners were recorded and analysed to prepare a note on user-friendly inclusive design of the urban environment for older people. The planners commented on the participation of older people in the planning process and their perceptions of older people's use and requirements in respect of different types of public spaces, signage and environmental 'furniture.'

A paper prototype for GIS/GPS navigation was developed, taking into consideration analyses from the reality cave investigation, visit to Colchester and focus group interviews. The prototype was used by older people on actual routes to assess whether it assisted their navigation. This was followed by focus group interviews with the older people involved.

Summary of Key Findings

In Familiar Environments:

The meaning of space is important: Cognitive maps are constructed through more than just physical and built environments. Emotional spaces are pertinent for older people. Familiar places are imbued with memories, histories and identities that enable people to navigate their environments. Memories are often used as 'shortcuts' in giving directions.

The hidden 'unseen' landscape beyond the immediate vision forms part of people's perception of the area. When viewing images of the local, familiar area in the reality cave, participants conveyed a sense of history behind the scenes, describing the former and current usage and history of a building and consequently providing greater detail of the image. In a similar way the hidden 'unseen' landscape beyond the immediate vision formed part of people's perception of the area. Older people were taking a much wider spatial lens describing the view beyond the scene. When questioned on what landmarks people used in navigating and orientating in a familiar landscape through the series of still images they talked of the 'dangers of the street behind,' the difficulty of walking down the road because of the (unseen) bollards or described the ambience of the setting as 'a popular leisure area.' Even areas that are familiar can potentially have unseen 'dangers' behind what appears on view.

Neighbourhood environment walkability (how pedestrian friendly the environment) is a significant determinant of 'Ageing in Place'. Street connectivity, residential density, accessibility and diversity of land use mix, infrastructure and safety for walking were all significant factors that contributed to ageing in place. Sense of direction and orientation and spatial anxiety are also important but the older person's level of physical activity is not. The importance of the familiar environment, home and a support network increases for those older people with lower levels of neighbourhood walkability.

In Unfamiliar Environments:

Buildings and landmarks were important and helpful markers in unfamiliar environments. Participants relied on landmarks to avoid getting lost in both familiar and unfamiliar towns; this however was a more prominent strategy in navigating unfamiliar than familiar places. In unfamiliar towns this was supplemented by the use of signs (one fifth rather than one tenth of respondents) and by using a town map. Participants were less likely to rely on remembering a route and very few (3 per cent) took notes to assist them avoiding losing their way. Participants who experienced no difficulty with following directions used landmarks in the built environment and asked local people for directions. The types of landmark found most useful in both familiar and unfamiliar settings were mostly architectural, historic buildings, particularly churches and church spires. Shops provided useful cues both in terms of their colours and branding in unfamiliar areas.

Landmarks were important navigational aids but people had difficulty keeping them in view, particularly if these were upward cues, requiring constant adjustment between looking at higher elevations to keep the landmark in sight and at street level to negotiate their immediate environment and attend to lower level cues such as broken pavements and street furniture.

'It's interesting to look up but you can't when you've got all this furniture and you have to be watching where you are walking…If you start by looking up at all this beautiful decoration on the town hall or looking ahead towards the water tower you could walk into something, there is too much cluttering the pavements that you can't walk straight.' *(Jean, 69)*

Signs are an explicit attempt by the local authority and other organisations to guide people through spaces and participants in the study generally perceived the utility of such devices. Half of respondents said that street signs and a third reported that sign posts were useful directional aids in unfamiliar areas.

Participants who evidenced difficulty in following directions stayed in populated areas and relied on street signage.

Signs however were seen as of limited use even in unfamiliar new areas – they were often too high, positioned incorrectly in the street and without any indication of distance to the feature they were signposting. The issue of distance between locations within an unfamiliar environment is crucially connected with people's willingness to venture 'into the unknown'. Signs may guide people towards an objective, but if information about distance is not included there remains some uncertainty over the length of walk to which a person is committing themselves. Some participants made a connection between signage for pedestrians and drivers and commented on the inappropriateness of signs intended for the former being used by the latter.

'You could be driving for hours looking for a toilet and you would have no chance of reading those signs' *(Brian, 76)*

'It's not easy to find tourist information offices, even though there is a sign post and I walk in the direction of the sign post, very often the sign post is out of date and the tourist office has moved to a different location – I then get quite cross as I have wasted time as I am on a time limit as I have to catch a bus to get back home.' *(Janice, 68)*

Looking out for landmarks and signs was also difficult for our older drivers in the study.

'If driving complicated one-way systems and roads with several lanes with traffic moving at high speeds it's difficult for the newcomer to make split-second decisions.' *(Brian, 76)*

Preparation is important to overcome such confusion for visits to unfamiliar areas and most respondents spent time 'googling' or accessing atlases and maps, scoping guide books and checking out places of interest. In many ways our respondents described themselves as 'tourists' or visitors when in unfamiliar areas. In a social network analysis, participants who followed directions (to the cave without difficulty) were more 'adventurous' travelling to more unfamiliar towns using different modes of transport and travel arrangements. This group had a larger radius of movement and travelled for a variety of reasons.

Sensory overload in an unfamiliar area is a barrier to navigation and positive appreciation of the environment. Similarity existed in what people experienced as troublesome or worrying in both familiar and unfamiliar areas. Whether people could follow directions or not both groups expressed concern with visiting town centres, and in particular, poorly-lit areas in the evening. During the day poorly-lit areas, derelict, dirty and run-down streets, alleyways, underpasses and crowded areas, particularly where there were numbers of youths, led to anxiety and avoidance. For some participants sensory overload particularly in an unfamiliar area was difficult. Such sensory and informational overload can provoke negative appreciation of the physical setting.

Interviewer: Was there anything that surprised you?

Pam: 'I think the first thing is the noise. When you come out of the station it was quite noisy and walk up past all the buses and all that way, it was very busy. It looked on the film a quiet town but when you actually come into that area and there are buses coming from everywhere….buses seem to have priority'.

Sensory overload goes beyond just sight, noise and colour; it extends to ambience, perception and smell. These became barriers to some people, but were easier to avoid in familiar rather than unfamiliar areas.

Participants expressed mixed views when asked about what they thought about other obstacles in both familiar and unfamiliar areas. Most commented on such barriers from a pedestrian perspective.

'I noticed particularly the seats, tables, sticking out in the pavement, making it so narrow to get by – their swinging signs, so any blind person would be lucky if they hit those studs. They are more likely to walk straight into the tables or that swinging sign'. *(Alice, 70)*

Shared space is often not segregated and for the visitor is seen as negotiated space. The 'taken for granted' in the familiar had to be negotiated and 'guessed at' in the unfamiliar environment. Assumed 'rules' applied in the familiar, such as the priority given to traffic over pedestrians or safe places to cross, but there is uncertainty over whether these assumptions can be transferred to an unfamiliar space. In unfamiliar areas such 'shared space' is often not segregated between car and pedestrian and for the visitor is seen as negotiated space. This can however be seen as difficult with street design being the same in two areas yet operating in different ways for example raised 'humps' in the road taken as 'informal' pedestrian crossings in one area and seen as speed humps with priorities for bus use in another unfamiliar town.

Designing outdoor spaces that are pleasant and easily walkable as well as routes that are navigable is important in making the environment less worrisome. Older people's observation of environmental images was associated with significantly more stress than during adjacent rest periods. Our results prompt us to tentatively suggest that **potentially worrisome environmental triggers do have a measurable influence on an individual's cardiac function.** This information might be useful in future assessments of optimal strategies for environmental planning when considering the needs of older people. These results were found irrespective of gender.

Figure 1: Reality cave exercise

In a piece of work additional to the main study (but linked to navigational tools use; see below) 29 older people were compared with 40 younger people for their ability to navigate using either a map or a hand-held navigation device. In healthy older people, **age *per se* is clearly not a barrier to navigation;** indeed, after a 10 minute walk along a predefined route in a nondescript residential environment, when asked to point back to the starting location, older individuals (both male and female, using a map or navigation device) could do so with greater accuracy than the younger age group.

Planners' perspectives: Older people's participation in the planning process

To what extent are older people's voices heard and taken into account when planning and regenerating areas? What processes are necessary to engage older people in a meaningful way? Are specific areas of the town planned with older people in mind? Are there older people spaces and do planners factor age into the design, spatial layout, signage etc? How can space be redesigned to make them more older person friendly? How can we improve the ambience of spaces and the experiences of older people?

The process of consultation is relatively recent and carried out through older people's forums or groups such as Age Concern. In some cases consultations were tailored to specific groups; older people were not generally felt to be a 'hard to reach' group and appeared as a group under the UK Equality Impact Assessment, a requirement placed on local authorities. Planners considered older people today had greater political awareness and power and were able to engage with the process.

Efforts were made to make public spaces 'older person friendly' following lifetime places guidelines; this specifically related to the location of bus shelters, seats, pavement clutter and number and location of public toilets. They did consider older people in relation to housing issues - around the land use requirements of specialist housing, such as bungalows and care homes and the mechanisms of how to encourage older people to downsize into smaller property. Planners were also conscious of intergenerational issues for example the citing of a play area next to specialist housing. The special consideration of age and older people also extended to the location of special housing, particularly the growing space requirements of retirement communities. Some consideration was factored in regarding community facilities but few planners mentioned land use planning and the design of areas with 'ageing' in mind.

Planners were conscious of different stakeholders and interests in taking forward an ageing agenda in the planning process. This was expressed through the trade-off between designing for an eco-friendly environment versus building bungalows with large land footprints; or the question of how to preserve a historic city with narrow streets while accommodating the use of mobility scooters and wheelchairs.

Planners need to recognise the diversity of older people. There is no well-defined boundary to older people's spatial experience. One of the concentrations in the planning literature, mirrored in the interviews with planners, has been a focus on problem-based issues, for example designing for initiatives to combat problem drinking or youth crime in certain areas. In relation to older people one such issue has been to focus on mobility needs. However, increasingly as older people travel the world as tourists and experience unfamiliar areas, there is a need to view older people and their diverse needs in a variety of different ways. Similarly cognitive decline in some older people may make previously identifiable places unrecognisable and hence their use and

experience of spaces and places will be different from those older people with no cognitive impairment; they will need different cues in their environment.

Those who could not follow directions were more likely to use public transport or walk, hence assessing walkability is crucial. Treating 'age' as a single category therefore can be unhelpful for planners in designing urban space. The immediate town environment needs to be as accommodating as possible if older people are to 'age in place' and retain independence.

A navigational tool

The research aimed to demonstrate how geographic information, tailored to older people, can facilitate personalised GPS navigation and exploration in built environments. This involved linking disparate data sets – physiological and narrative data, and built environment data using two assessment tools of the environment.

In designing the navigational tool through the use of a paper prototype, older people preferred a landscape screen orientation; the need for an on/off facility; submenus minimised to travel information only; the need for a chain to attach to the PDA stylus and icons kept to a minimum. However, a range of user views were evident in relation to zooming in and out, which was problematic for some; vocal recognition was useful for those with limited manual dexterity; customised facilities were suggested but there was concern about data confidentiality in relation to personal travel and leisure preferences. There was clear evidence of the utility of the OPUS walker tool.

Key implications for policy & Practice:

- **Barriers exist in using landmarks to navigate in unfamiliar places.** A variety of appropriate cues are necessary to assist navigation and provide a pleasant experience for older people. Historical and distinctive buildings appeared to be pivotal aspects of the built environment placing an emphasis on the need to conserve built environment heritage.

- **Walking routes as well as areas need spatial planning attention.** As independence and mobility become important features in later life, walking routes as well as areas need the attention of spatial planners. It is important to take a 'travel chain perspective' *(Iwarsson et al., 2000)* to ensure a smooth transition between walking, driving and using public transport. Rules are different in different places and people need to have an appreciation and understanding of transition points, i.e. where it is safe to cross without any ambiguity through design.

- **The meaning (as well as use) of space may change as people age.** Preserving memories of spaces and places is important in relation to regeneration of towns and city areas; creating character and ambience can be difficult in new areas. Preserving or recreating meaning can be appropriate in some areas. Older people can add to the planning process through their collective memories and experiences.

OPUS Meeting

Reference

Iwarsson, S., Jensen, G. and Ståhl, A. (2000) Travel Chain Enabler: Development of a pilot instrument for assessment of urban public bus transport accessibility, *Technology and Disability,* IOS Press, 12, 1, 3-12.

Conclusion

There are a number of barriers in relation to physical safety that are a concern for older people, particularly when they experience new environments. Many of these apply to all age groups and a focus on inclusive design is a key issue. However older people can add considerably more to the experience and ambience of a place through recording their collective memories of spaces and places enabling the unfamiliar to some to become 'familiar'.

Background

The research study, Older People's Use of Unfamiliar Space (OPUS), was undertaken as part of the New Dynamics of Ageing research programme, funded by five UK Research Councils. The central aim of the OPUS study was to determine the mechanisms and strategies used by older people to navigate unfamiliar spaces.

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