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## OLDER PEOPLE'S EXPERIENCES OF THEIR KITCHENS: 2000 to 2010

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A study in 2010 has investigated the life-long and contemporary experiences of kitchens of 48 people aged over 60 years of age. The research included detailed questionnaire interviews asking people about their experiences of living in their current kitchen. A previous study, conducted in 2000, asked many of the same questions of 22 people in the same age group. This paper presents the quantitative results of people's experiences, needs and wants from their current kitchens, combining and comparing the results obtained in both studies. These include problems experienced with activities of daily life in the current kitchen, changes that have been made or are planned to be made to the current kitchen to increase usability in older age, coping strategies and examples of design that have been found to be really useful to older people, and seeing if the experiences of older people in relation to their kitchens have changed in the last decade.

**Keywords** ageing, kitchens, activities of daily life, independence

### Implications for practice

- Aspects of design that make life easier have become more standard during the decade: dishwashers, microwaves, mid-level ovens, lever taps.
- Natural lighting in the kitchen is an issue for many people.
- Highlighting areas where improvements in design have increased independence in the kitchen, and areas where less progress has been made in that time period.

### Introduction

The population is ageing: in the United Kingdom in 2006, 11 million people were over retirement age (60 years old and over for men, 65 years and over for women) (Office for National Statistics, 2005). It is estimated that, worldwide, by 2050 the number of people aged 60 years and over will be 2 billion (World Health Organisation, 2008). For many people the kitchen is the centre of the home, a place with influence on individual health and well-being. Previous work conducted by members of the research team has allowed some comment on the relationship between space, design and individual behaviour (Kellaher, 2002; Percival, 2002), and how the built environment can form an important aspect of self-identity in older people (Peace *et al.*, 2005). The kitchen is often seen as a focal point within the domestic home. It is a physical/material, social and psychological environment that encompasses both public and private space. It is a place of function and domestic activity that historically has been seen as gendered space associated with the role of women within the family. As a central hub it is a place where food storage, preparation, and cooking are carried out often alongside the washing and drying of clothes, the discarding and re-cycling of rubbish, the feeding of pets, and of access to and from the outside/garden. It is also a place of human social interaction, of gathering and eating, where people come together. Yet the relationship between activity, behaviour and meaning

associated with the kitchen varies and relates both to the location, design and history of housing and to the characteristics of the occupants: their age, gender, social class, marital status, health status, culture and biographical experience of kitchen living.

A research study conducted in 2000 as part of an EPSRC EQUAL project, conducted at Loughborough University, involved collection of data concerning activities of daily life for people over the age of 60 years. As a result of this survey activities in the kitchen were found to be a source of quality of life issues for older and disabled people (Oliver *et al*, 2001; Porter *et al*, 2004). A second study, conducted in 2010 as part of the Transitions in Kitchen Living project (TiKL), funded by the New Dynamics of Ageing Programme (ESRC) aimed to provide a historical understanding of the physical/material, social and psychological environment of the kitchen guided by life events, as well as a contemporary understanding of the current kitchen examining role, function and design (Sims *et al*, 2011; Maguire *et al*, 2011). This research, conducted through collaboration between design ergonomists at Loughborough University and social gerontologists at The Open University, will lead to the development of guidance for older people, occupational therapists, kitchen designers, and other interested parties that provides an understanding of user requirements for inclusive kitchen designs. This paper presents the findings of the second of two interviews conducted with older people, concerning their use of their current kitchen and the changes they have made, plan to make or would like to make to their current kitchen as they get older. The results are compared with relevant findings from the research study conducted in 2000.

## Methods

In the Transitions of Kitchen Living project (TiKL) 48 participants were recruited with the aim of ensuring an even spread of people in 4 age categories (60-69, 70-79, 80-89 and 90+ years of age), with a ratio of 2:1 of women to men to reflect the fact that proportionally women live longer than men (Peace *et al*, 2007).

Ethical approval was sought and obtained from both the Human Participants and Materials Ethics Committee at The Open University and the Ethics Advisory Committee at Loughborough University. All interviews were recorded on a digital recorder, with the participants' permission (or if not given note taking was done). Prior to the main trials pilot trials were conducted with 6 participants in Loughborough, Bristol and London, and the questionnaires and protocols were refined in response to comments and the experience of conducting these pilot trials.

Prior to meeting with participants, each was sent an information sheet detailing the aims of the project and their role in it, a short 'tick box' questionnaire to collect demographic data, and a 'housing history' form, in which they were asked to write down brief details (house type, house age if known, year moved in) for each home they had lived in during their life. If participants were unable or unwilling to complete these prior to the trials taking place, they were completed by the interviewer during the course of the first interview. All participants were interviewed twice, in their own homes, with each interview lasting between an hour and an hour and a half. The first interview consisted of an oral history investigation into the person's experiences of kitchens through their life course, from the first kitchen they could remember (typically as a young child) through to their current kitchen. This interview consisted of open-ended prompts from the interviewer, with the participant encouraged to talk about any and all aspects of each kitchen that were of interest to them.

The second interview, which this paper concentrates on, was conducted subsequently to the first or on a return visit, depending on the preference of the participant. If the second interview was to be conducted on a return visit, participants were asked if they would like to use a provided digital camera to take photographs of any particular aspects of their current kitchen that they liked or disliked, or incidents that occurred before the second interview. If the second interview immediately followed the first or the person was unable or unwilling to take photographs themselves, then these were taken during the second interview by the interviewer, with the participant suggesting what should be photographed. A note was made for all photographs of what the picture contained, and why it had been taken. Either after or during the second interview the interviewer also drew a rough sketch

diagram of the current kitchen, including taking measurements of room dimensions and also dimensions of any non-standard apparatus (e.g., non-standard work-surface heights). Light meter readings were taken, both with lights off and lights on, in the kitchen at the surface most commonly used for preparing food, at the edge of the sink, and in the kitchen eating area (if one was present). A measure of the external light levels was also recorded.

The second interview was conducted in a semi-structured format, with the interviewer having a recording sheet on which they could tick the relevant boxes and jot notes if required, although the interview was recorded as well for further detail if needed. Questions concerned the current kitchen, the physical abilities of the participant and any issues that caused problems for the participant currently, anything they had changed in the kitchen as they have grown older, and any changes they would like to make or imagine they may want to make as they get older. Trials were conducted in 2010, after piloting in 2009.

Previous work was conducted under the EPSRC ‘EQUAL’ initiative in 2000. The aim of this study was to ascertain problems that older and disabled people had with activities of daily life, which in turn fed into the design of data collection trials, to collect physical and behavioural data for input into a computer-based design tool that was being developed. To understand the problems that older and disabled people had with activities of daily life face-to-face or telephone interviews were carried out which included a section on kitchen use. The structure of the questionnaire reflected the need to consider activities of daily life generally, with sections on general mobility, kitchens, bathrooms, out-and-about, work-related issues (where relevant), leisure, and general issues in the home. Piloting of the questionnaire design was carried out prior to the main interviews being conducted. A total of 50 people were interviewed, and of these people 22 participants were over 60 years of age. Within this group, again the proportion of woman to men was approximately 2 to 1 (15 women to 7 men). These data were revisited for this paper, for comparison with the new data from the TiKL project.

### Results from both studies

Table 1 indicates the ages and genders of the TiKL sample of 48 people and the previous EQUAL sample of 22 people aged 60 years and over (completed in 2000). In both trials the majority of participants were of white British ethnic origin.

	TiKL sample (2010)			EQUAL sample (2000)		
	Men	Women	TOTAL	Men	Women	TOTAL
60-69 years of age	10	6	<b>16</b>	1	1	<b>2</b>
70-79 years of age	4	12	<b>16</b>	3	9	<b>12</b>
80-89 years of age	3	11	<b>15</b>	1	5	<b>6</b>
90+ years of age	1	1	<b>2</b>	2	0	<b>2</b>
<b>TOTAL</b>	<b>17</b>	<b>31</b>	<b>48</b>	<b>7</b>	<b>15</b>	<b>22</b>

Table 1: Age and gender of TiKL sample (n=48) and EQUAL sample (n=22)

Table 2 presents the types of housing which participants in the two studies were living in. Information on whether the housing was rented or privately owned was not collected, however those living in sheltered and extra care housing were tenants. In the EQUAL sample, less detail was obtained regarding the type of housing, limited to ‘house’, ‘bungalow’ and ‘sheltered housing’. It can be seen that proportionally more of the EQUAL sample were living in bungalows and sheltered housing than in the TiKL sample (being out of 41 for this comparison as 7 people were living in flats where none were living in flats in the EQUAL sample). The EQUAL sample was purposive and opportunistic, whereas the TiKL sample aimed to contact people over the age of 60 living in a variety of different housing types, which may explain the difference in proportions between the two samples.

	TiKL sample (2010)	EQUAL sample (2000)
Detached bungalow	8	9
Semi-detached bungalow	2	
Detached house	7	8
Semi-detached house	8	
Town house	1	
Mid-terraced house	5	
Flat (converted house or purpose built)	7	0
Sheltered housing	4	5
Extra care housing	3	
<b>TOTAL</b>	<b>48</b>	<b>22</b>

Table 2: Housing type frequency within TiKL sample (n=48) and EQUAL sample (n=22)

For the TiKL study, one participant needed help with most tasks, eight participants said that they needed help with ‘some tasks’, and three participants had an occasional helper (typically a family member or friend) who was on call when help was needed. This was similar to the findings of the EQUAL project, where 11 participants reported needing help with ‘some daily tasks’.

In both studies participants were asked if they had any problems reaching (up or down) to items in the kitchen:

- 26 participants (54%) in the TiKL study reported ‘yes’ to this question; in the EQUAL study 7 participants (32%) were unable to reach items in wall cupboards in their kitchen.
- 3 participants in the TiKL study (including some who responded that they had ‘no problems’ with reaching) mentioned using a grabber or ‘hooking’ items that were out of reach; in the EQUAL study 1 person mentioned using a grabber.
- 6 participants (13%) in the TiKL study said they use a step or stool to reach high items; in the EQUAL study 2 people (9%) stated that they used a step/stool grabber’ to reach items.

In the TiKL study participants were also asked if they had any problems with dexterity. Problems included reduced dexterity, reduced strength/weakness of grip, numbness in the hands and fingers, and arthritis:

- 19 participants reported having problems with dexterity;
  - opening jars, cans and bottles (7 participants),
  - lifting pans or dishes (1 participant),
  - turning knobs/taps (1 participant).
- Eight participants mentioned using a ‘gadget’ or strategy such as running the jar under hot water, to assist them in opening jars, cans and bottles.

In the TiKL study three participants reported having problems with preparing food. One participant reported pain when peeling and chopping while another stated that their hands were not strong enough for lots of food preparation. A further individual had frozen meals delivered and used a microwave oven to cook/reheat them. Thirty-two participants stated that they did not have problems preparing food and cooking meals. However of those 32 participants, 3 participants also stated that although they did not have problems, they did engage in different strategies to make the task easier. These included using ready meals if they were particularly tired, and sitting to prepare food and other kitchen tasks. A total of five participants mentioned using ready meals on a regular basis, and another said that they cooked large batches of food so they could freeze the rest in meal-sized containers and then just use them as required. In comparison, in the EQUAL study it was found that four participants had “some problems” moving a pan onto the back of the hob, with two stating that they slid the pan rather than lifted it. Four participants were unable to lift a pan onto the back of the hob at all. When asked about lifting a baking tray into the oven, six participants were unable to do this (one person had meals delivered to them, and another used the microwave instead whilst a third person grilled their

food rather than use the oven). Of the remaining 16 participants who did use their ovens, 7 mentioned that they found bending to place things in the (low-level) oven difficult, and they could only use it with light items on the tray. One participant specifically mentioned wanting a mid-level oven so that they would be able to use the oven again

Of the 41 participants in the TiKL study who had a microwave, ten reported using the microwave mainly for defrosting or reheating meals or simply rarely at all. Three participants reported having problems using the microwave, problems with the height of the microwave, transporting hot food out of the microwave, or getting the cooking time wrong and over-cooking food.

Thirty-four participants in the TiKL study stated that they cooked meals for themselves ‘everyday’ or their partner cooked. The large majority of these ‘cook everyday’ participants described themselves as able to get about their houses independently without the use of aids (27 participants) and six reported having to use a stick, frame or hold onto furniture. The 34th participant who cooked everyday was a wheelchair user. Nine participants reported cooking their own meals ‘some days or occasionally’. All nine described themselves as able to get about their house independently without the use of aids. Of the five who never cooked for themselves, two were independent and three used stick, frame or held on to furniture. Table 3 summarises the number of participants and the meal times that participants cooked for ‘Everyday or Some days/Occasionally’.

Meal time	Number of participants that cooked a hot meal
Breakfast	5
Lunch time	16
Late afternoon	3
Evening	36

Table 3: Number of participants in TiKL study that cooked a meal at different meal times (n exceeds 48 as some participants cooked more than once a day).

Participants in the TiKL study were asked where they ate their meals:

- 19 participants ate at least some of their meals in the kitchen  
25 ate in other rooms (11 of these said that they ate off a tray on their knees or on the arm of a chair)
- 4 did not answer this question

The majority of participants (in both studies) had no problems with washing up or loading/unloading the dishwasher. Twenty-one participants in the TiKL study had a dishwasher and a further 3 explicitly mentioned that their spouse did most of the washing up. However five participants did report problems with washing up, with one reporting that their dishwasher was a bit too low for comfort, and another two participants stating that they could only do small amounts of (hand) washing up at a time and had to be careful. In the EQUAL study, only two of the 22 participants reported “some problems” with washing up, and three participants did not do the washing up (they had a spouse/other helper to do it for them).

In the TiKL study only two participants reported having problems with making hot drinks. They reported having difficulties lifting the kettle and so had adopted a strategy of sliding the kettle to and fro because it was too dangerous for them to lift it (risk of dropping it). However, other participants did mention other coping strategies for making hot drinks, including one person who used a small light-weight kettle, another participant used a microwave instead of a kettle, and a third person had bought a cordless kettle to avoid the risk of getting tangled in the cord. This again reflects the findings of the EQUAL study, where participants were specifically asked about problems with lifting a kettle. Of the 22 participants in that study:

- one person used a kettle tipper,
- two people said they could lift the kettle only if it was not filled too much (not too heavy),
- one person had a cordless kettle (for the same reasons as in the TiKL study),

- one person said they had a small kettle to keep the weight down.

In the TiKL study participants were asked about disposal of waste. All had a bin for general waste somewhere in the kitchen, with only two participants reporting problems with disposing of rubbish. Three participants mentioned having a bin for compostable materials in the kitchen, and all participants except one said they recycled rubbish (the one that did not said it was due to lack of facilities locally). Different local authorities have different schemes for what is recycled and whether this is done with provided bags, boxes or bins, so responses varied accordingly. However, participants seemed generally enthusiastic about recycling, with three participants taking items that the local authority did not offer a collection service for to local recycling areas themselves. Three participants did mention some confusion over what to put in which bags, which might not be that surprising given the variety of schemes available.

The kitchens in the TiKL study (46 kitchens) were assessed using a light meter, both with the lights on and lights off in the kitchen. Measurements were taken at the sink, at the place where participants specified that they usually prepared food, and at the area in the kitchen where participants ate (if applicable). Recommendations for light levels in the kitchen were obtained from Adams (2010). The light meter readings showed that, even with the available lights switched on:

- Food preparation area: 577 lux average, the recommended threshold is 750 lux which only 20% were above.
- Sink: 880 lux average, the recommended threshold is 300 lux, which 61% were above.
- Kitchen eating area (where applicable): 479 lux average, the recommended threshold is 300 lux, of which 30% were above.

Participants had increased lighting levels themselves in several instances, by having under-cupboard lights installed when the kitchen was replaced, by placing mirrors eg above the sink to reflect natural light when the window was to the rear of the kitchen, and by placing lamps on top of work surfaces or wall units to provide additional task lighting as required.

When asked what aspects of their current kitchen they particularly liked, twenty-seven participants in the TiKL study commented. These included:

- enjoying natural light in the kitchen (6 participants),
- appropriate space in the kitchen (not too big, everything easy to reach, 5 participants),
- good storage space (6 participants),
- ease of cleaning tiled/lino floor (2 participants),
- mid-level appliances (4 appliances).
- plenty of work surfaces (1 participant),
- having a self-defrosting fridge (1 participant),
- the general layout (1 participant),
- having a double sink (1 participant).

Fifteen participants in the TiKL study said they had already made adaptations to their kitchens to make life easier for them. Changes made included having a dishwasher installed, automatic kettles, lighter irons, increasing lighting, having more plug sockets installed, having a water filter tap fitted, having lever taps fitted, having a fan fitted in the window, and pull-out shelves in cupboards. When asked if there were any changes they would like to make in the future to make life easier as they become older, participants mentioned replacing the flooring to make it easier to clean, getting a dishwasher, getting a self-cleaning oven, having shallower drawers, knocking down the wall to convert current space to include a wet room with laundry facilities (next to the kitchen), having more plug sockets fitted, moving items/appliances lower to make reach easier, and fitting revolving units in corner cupboards for easier access.

Participants in both studies were asked about specific aspects of their kitchen that they disliked or that caused them problems. The results are detailed in Table 4. Twelve participants in the TiKL trial also mentioned disliking the size of their kitchen and/or the amount of storage space.



	EQUAL (n=22)	TiKL (n=48)
Opening/closing/cleaning kitchen windows	2	6
Poor lighting	0	5
Access to appliances, cupboards, sink	5	6
Defrosting freezer	0	1
Lack of plug sockets	0	1
Need mid-level oven	3	0

Table 4: Number of participants in EQUAL and TiKL studies that expressed a specific dislike of their kitchen / something that needed to change to make life easier for them.

In terms of changes made or wanted to make life easier in the kitchen, and the use of a range of assistive devices, including stools/steps, grabbers, lever taps, and ‘gadgets’ to help with opening jars and bottles:

- in the EQUAL study four participants mentioned wanting a mid-level oven; in the TiKL study, 12 participants already had mid-level ovens.
- in the EQUAL study two people said they used a step/stool to reach high items; In the TiKL study 7 participants had a step/stool.
- in the EQUAL study one person mentioned using a grabber; In the TiKL study 3 participants said they used a grabber to pick items up.
- in the EQUAL study one person mentioned having a ‘gadget’ of some kind to assist with opening jars/bottles; In the TiKL study 11 participants mentioned such gadgets.
- in the EQUAL study one person mentioned having lever taps fitted; In the TiKL study 19 participants had such taps fitted in the kitchen.

## Discussion

It was not possible to compare and contrast the results from both studies fully as not all of the same questions were replicated. However, many of the issues causing problems in the kitchen for older people were evident in both studies, so it was felt that comparison was relevant and applicable, to see what, if anything, had changed with peoples’ experiences over the decade. The average age of the twenty-two EQUAL participants was 76 years of age and for the forty-eight TiKL participants was 74 years of age.

Due to the small sizes of the samples, it is not possible to compare the figures statistically or present them as fully representative of the British older population but while the two samples are limited, both had similar characteristics of age and gender, so differences do show potential trends over time.

With regard to reaching, roughly half (26 out of 48) of the participants in the TiKL study reported ‘yes’ to having problems with reaching (up or down) to items in the kitchen, whereas in the EQUAL study, roughly a third (7 of the 22) of participants reported similar problems. It can be seen that proportionately more people experienced problems with reaching in the 2010 study than in the 2000. This may simply be that the participants for the TiKL study just had more problems with upper limb mobility than the EQUAL participants had. However it also suggests that changes in kitchen design have not alleviated the problems experienced with reaching by the people in the first sample. As the number of participants in the TiKL study aged 80-89 years was over twice as many as in the EQUAL study, the increase in problems with reaching could also be due to the increased age of participants, with mobility problems becoming more prevalent and apparent as people age.

The increase in prevalence of lever taps in the range of plumbing companies and mid-level ovens in new houses suggest that there has been a general move within kitchen design to consider ease-of-use, with these items now being offered almost as standard, regardless of the age or abilities of the person purchasing the kitchen. Mid-level ovens were desired by participants in both studies and present in 10

of the current kitchens seen in the TiKL project, suggesting that people are aware of the benefits of having the oven raised (and/or that this type of design is suggested to people by kitchen designers when having a kitchen refitted). A mid-level oven does remove the need to bend that is a frequent problem cited with traditional ovens but the separate hob takes up more work surface area. Microwaves seem to be more commonly used than previously, which may be due to their having been available for an additional decade and more acceptable to the older generations than previously might have been the case. However, it was found that microwaves can create their own problems with regard to the handling of very hot foods and the positioning of the appliance within the kitchen and relative to the work surface.

On the whole, the coping strategies used by the participants in the two studies were very similar (use of grabbers for reaching items, sliding or not filling a kettle very much if lifting is a problem, having lever taps fitted, 'gadgets' for opening jars and cans). The numbers are different but when asking people about their coping strategies the qualitative data of participants' experiences is interesting in its own right. It highlights that the problems that participants experience with reaching and dexterity in the kitchen are largely the same in 2010 to those discussed in 2000.

Whilst it was not discussed in the EQUAL study, participants in the TiKL study provided a huge amount of data on their experiences of kitchens through their life course, including discussion of kitchens remembered from early childhood. Analysis of these data has revealed some interesting 'circles' of kitchen design and the way that people use their kitchens, historically and today. Typically the earliest kitchens people remembered consisted of more than one room, with the 'kitchen' being the place where food preparation and cooking was done, with storage in the pantry or larder, and washing and washing up being done in the scullery. This is reflected today by new-build houses having a utility room (which typically contains the washing machine, and often has a separate sink). Another example is in recycling: today recycling and environmental considerations are encouraged by local councils collecting different recyclable items on a weekly or fortnightly basis. At first glance, it might seem that this 'new, eco-aware' age might cause additional problems to older people: with more storage being needed, having to sort items that can be recycled separately from general household waste, more bags and boxes to put out for the bin men each week. However, as was quickly realised, these are the generations who lived through or were born just after the Second World War, when 'make do and mend' was the norm. For these people, recycling is second nature and all TiKL participants were enthusiastic about recycling as much as they were able to sometimes within the confines of a small kitchen.

Natural lighting and lighting levels generally were an important issue for participants in the TiKL study. Levels of light in the kitchen were found to be low, especially in areas where people were preparing food, increasing the risk of accidents such as a person cutting themselves when chopping or peeling vegetables, or mis-reading the instructions or quantities on ingredients due to being unable to see clearly.

## **Conclusions**

The kitchen is an area of the home that carries great significance for a number of people, especially older people, and can be seen as the 'hub' or heart of a home. As people age their abilities and needs can change, and their kitchen may no longer be as accessible or appropriate to their needs. Previous work and the current study has shown that older people experience difficulties performing basic activities of daily life in their kitchens, such as making a hot drink or cooking their own dinner. Whilst there will always be some people who will need some assistances in these daily tasks, for others it is possible that adaptations to the design and layout of their kitchen or the appliances within it could make life easier for them on a daily basis. The TiKL study combines the findings of the review of people's current kitchens with information gained in the oral history interviews into people's memories and experiences of kitchens through their life course. Deliverables from this project will include a 'life-long kitchen guide' of advice and recommendations for older people to make their kitchens easier to use, as well as archive materials on the changing nature of kitchen usage during the life course. The EQUAL project resulted in the development of HADRIAN (Porter *et al*,

2004), a computer-based design tool, and the development of a website of the data collected, to be made available to all interested people in 2011.

By combining and comparing the two sets of data it seems that only limited progress has been made in terms of kitchen design meeting the needs of older people between 2000 and 2010. People are still experiencing problems with accessing appliances, particularly cookers, and reaching to needed items in cupboards. Recent innovations in drawer and cupboard design, including 'larder' shelving units, extending corner cupboard racks and drawer-fridges / freezers and pan drawers are increasing the options available to older people when having their kitchen refitted or redesigned, although it is not known how many older people know about these options or the cost implications of having such items within their kitchens. The levels of lighting in the kitchen are an issue for consideration, with eyesight generally worsening with age and levels of light in the kitchen typically being low which increases the risk of injury and accidents. The prevalence of items such as mid-level ovens, microwaves, lever taps and dishwashers has increased through the decade and new technologies are being developed such as fridges that can tell you what items are inside and whether they are out-of-date or not, without having to bend down to look inside, etc. Whether ultimately fitted kitchens meet the changing needs of people through their life course and into old age is a discussion we would like to investigate in future work.

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