

Capturing family recipes for digital sharing across the generations

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Abstract

Family recipes are both functional and nostalgic. They evoke important shared memories and transmit time-tested traditional methods of cooking and eating. However, we can lose the essence of Aunt Dottie and the smell of her apron, if we try to fit her favourite recipe into the kind of formal recipe structure used in cookbooks and computer-based recipe software. This paper describes a research project to design a system to capture the richness of family recipes and their associated stories, and share them digitally across generations, using new technologies that will appeal to younger people but be highly accessible to older people. Initial studies with older adults show they enjoy cooking, collecting recipes and sharing them but the way they collect and share them does not correspond with the recipe structures offered by existing digital systems. Future studies will explore the perspectives of the younger generation. Non keyboard technologies, including digital pen and paper and graphics tablets using both audio and video have been identified as potential technologies to maximise both the richness of content that can be captured and the accessibility of use.

Keywords

Older adults, inclusive design, family nostalgia, intergenerational, accessible technology

Introduction

Older adults, in particular older women, are the “guardians of family objects and rituals” of food and cooking [28 ,p342] that construct and reproduce the family [13]. Scholars of “food, food-related beliefs, and behaviors surrounding food” have shown that “that food is a primary tool of enculturating individuals into the social rules and ethos of a particular culture” [12 ,p235]. The generational continuity of family recipes that are handed down from mother to daughter represent this process in micro, but as more mothers go out to work and have less time to cook with their children, and school cooking lessons are squeezed out of the timetable [25], the family food history and culinary knowledge may be lost from future generations. The sense of comfort and nostalgia associated with family recipes is also strong in young people, although it is at risk of hijack from branded products [11].

Many researchers have sought to design systems to support young people learn to shop and cook meals e.g. [2,21], but few have explored the potential to capture recipes and

knowledge from within the family [10]. A central design approach for systems that support cooks has been to reduce recipes to simple steps [24,14,16] but few have explored how published recipes cause problems for cooks and whether these problems are reproduced when people write down and share recipes among family and friends.

The motivation for this project is threefold: (1) to understand how people, young and old, talk about and share recipes, in particular those with family significance, (2) to identify the gaps in knowledge that prevented earlier systems that support cooks from being more successful, and (3) to transform the knowledge gained in (1) and (2) into design knowledge to capture and share recipes digitally with across generations.

Background

Cooking a meal provides nourishment on physical and emotional levels. Older adults, even when faced with functional difficulties, make great effort to cook meals every day [9]. Cooking for someone else may be a responsibility but also provides a means of expressing love. This is so important that older women who have lost their spouse may lose the will to cook [23]. Frequent remaking of dishes associated with family gatherings forms a family food narrative that grandparents seek to pass onto their daughters and granddaughters [28]. The findings by Wright-St Clair and her colleagues support the patterns of meal described by Mary Douglas [6] that reflect the way we socially structure days, weeks, and annual events like birthdays and Christmas. Cooking is a process that transforms raw foods from natural to cultural artefacts [18]. The meals we eat, the people we eat with and how we eat them represent one of the ways we transmit culture through the generations [22] through the women who prepare them [15].

To investigate the state of cooking in the UK, Caraher et al. [5] analysed responses given to the Health and Lifestyles Survey in England. The survey asks many questions about lifestyle and health, including cooking habits and from whom respondents learned to cook. They found that most people learned to cook from their mothers (women 76%, men 58%). 49% of women also learned from cooking classes at school. Slightly more men learned to cook from their wives or partners (17%) than from school lessons (15%). This latter result probably reflects the gendering of domestic science classes that continually dogged the educational status of these classes [1]. However Caraher et al's results were taken from the last survey taken before the introduction of the National Curriculum to English schools (curriculum.qcda.gov.uk) which mandates the subjects taught at each stage of schooling and the levels each student must achieve. Domestic science is not included in the mandatory list of subjects and many schools do not have spare resources or time in the timetable to provide it. This has raised concerns that children may grow up without any opportunity to learn how to cook [25] because women who work full time have less time at home to cook with their children [17]. Evidence of this loss has been seen in an increase of consumer complaints about food products which have been attributed to lack of cooking confidence and knowledge among young people [4].

A number of computer based solutions have been proposed to support people in shopping [21,3] and cooking [8,24,16]. The Happy Cooking system [8] was set up in a kitchen laid out along a wall. Multiple screens on the wall displayed recipe instructions in front of the work surface, the cooker and the sink so the cook could read the recipe and watch cooking videos wherever they were in the kitchen. The researchers set up two of these kitchens with web cameras and connected them over the internet so a master cook could cook in one and her actions be played live to a novice cook in the other kitchen for him to cook along [24]. The Personal Chef system [16] was set up in a similar kitchen, with one screen embedded in the work surface and another behind the stove top. The researchers recorded a professional chef preparing several dishes and edited the video to provide optional support to cooks following the recipe. Both Happy Cooking and Personal Chef systems presented recipes in simple step by step formats and incorporated videos of master cooks providing instruction and guidance, but neither performed user research with novice cooks to discover what problems they had when they tried to follow recipes and what kind of information would help them overcome these problems. In addition, the design of both systems made assumptions of available wall and work surface space that may not generalise within or across cultures.

The first Happy Cooking implementation [8] aimed to capture recipes by webcam, as they were being cooked, to share them on the internet. In a survey in Scotland, McKie [15] found the majority of people shared recipes with friends and family and enjoyed reading them for pleasure. The Su Chef system [19] tapped into these behaviours. The researchers collected and shared recipes between members of a loose social group, providing each member with a recipe board displaying several to choose from each day. The participants enjoyed browsing the recipes and particularly liked those that included stories about what the dish meant to the contributor and when they cooked it. Adding background to a recipe is often used by professional recipe writers to give a “collection of recipes a personality” [7] but to be truly personal it has to be shared between people who know each other.

The Living Cookbook system [26,27] used a touch screen tablet and cameras around the kitchen to record recipes to share with friends. Their friend could later replay the video, projected onto the kitchen wall, and follow along. Terrenghi found the recording caused some cooks to experience performance anxiety but those who replayed and followed a recipe enjoyed the experience. Recording a recipe without video may reduce this anxiety without reducing the experience of the person who receives it. Largomarsino [10] asked participants to record a significant recipe in video or voice only, in pairs or alone, for sharing with a friend or family member. She found that voice recordings were received most positively, forming a sense of the person in the room.

These few studies show the potential to enhance experience of recipes and cooking through personal and family stories. As yet, none have explored sharing recipes from older members of the family, those members who carry the longest history of family stories and have strong desire to pass on their cooking traditions to younger generations [28]. In the rest of this paper we describe our initial studies of the cooking and recipe

habits of older adults and propose a technology for a prototype to capture family recipes and share them digitally.

Cooking habits and recipe use among older adults

Initial research with potential older users of our proposed system was in two forms: focus groups to explore the attitudes of older adults to cooking, and a 7 day food and shopping diary study with older adults to delve deeper into cooking and meal planning behaviours.

Method

Participants

15 older adults took part in the focus groups. They were made up of 4 men, 11 women. 8 were living alone and 7 with a spouse. 6 participants were between 60 and 69, 7 between 70 and 79, 2 were over 80 years old. They were recruited from the local University of Third Age (U3A) group & York Older People's Assembly (YOPA). 12 older adults took part in the food and shopping diary, 6 of these had previously taken part in a focus group, others were recruited from U3A, YOPA and Vegetarian Society of UK. Of the 12 participants, 2 were men, 10 women. 7 were living alone, 5 with a spouse. The mean age was 69 with an age range of 62-88 years.

Focus group protocol

The focus groups were planned to be comfortable social events with tea and home-made cake with no more than 6 participants at each one. To stimulate the participants thinking about their cooking, we asked them to bring along a couple of kitchen utensils, one that they could not live without and another they rarely used or found difficult to use. During the session we asked them to talk about what they cooked with these utensils and how they helped or hindered their cooking.

Food and shopping diary protocol

Participants were asked to keep a diary of their food and shopping for 7 consecutive days. Each day they wrote down everything they ate, how they made their main meal and, if they went food shopping that day, where they shopped and what they bought. Participants were given a single use camera to photograph their main meal preparation on three of the days. Following the diary, a semi-structured interview took place either in the participant's home or on the phone with questions based on the diary and interview questions to get a richer understanding of their cooking and shopping habits.

Analysis

Data from the two studies comprised (1) contents of food diaries (described above), (2) photographs of meals and cooking accessories, (3) transcripts from the focus groups and (4) transcript and notes from post food diary interviews. Factual data from these was summarised. Transcripts were further analysed for emergent themes around recipes and cooking.

Results

Kitchen utensils at focus groups

33 different kitchen utensils were brought along to the focus groups including three which were brought along by more than a third of all participants: stick (immersion) blenders, vegetable peelers and jar openers. Many of the participants said they like to make fresh soup from assorted vegetables and they used their stick blender to blend the soup smooth. Only one participant complained about this utensil and this was because she lived alone and made only small quantities of soup so the blender would splash the soup out of the saucepan. Vegetable peelers proved more controversial; two distinct styles were brought along and participants either loved or loathed them. If they loved one style for peeling potatoes but owned the other style they loathed it. All participants used their vegetable peeler regularly reflecting the dominant tradition of eating potatoes with a main meal. Discussion of peelers highlighted challenges faced by older people who develop arthritis which can reduce hand dexterity and make the process of peeling potatoes difficult and painful. These difficulties were also highlighted with the jar openers brought along by participants. Nobody liked their jar opener or found them easy to use but for some they were an essential tool because they lived on their own and had no one else to help. All sorts of packages proved at times problematic to the participants; milk bottle seals, wine bottle foils, canned tomatoes and jars of jam. Tricky packaging had not yet forced any of the participants to give up eating their favourite foods but some anticipated a time when they might have to choose between the risk of using a sharp knife to get into a packet of digestives or not eating them at all.

Main meal preparation

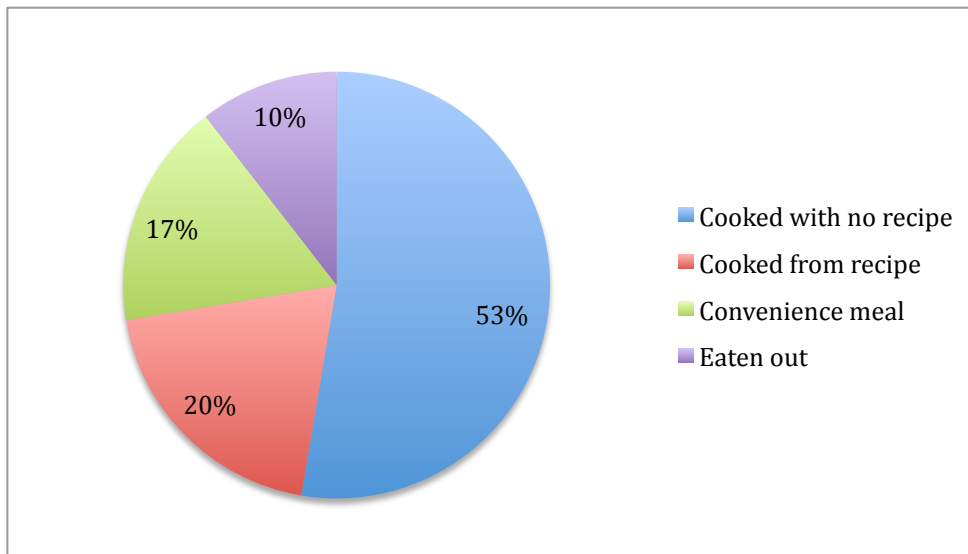


Figure 1 : Main meal preparation

Figure 1 shows how each participant in the food and shopping diary prepared their main meal of the day. Meals consisting only of leftovers from a previous meal were not counted. It shows that nearly 20% of meals were created from recipes. About half of

these recipes were clipped from magazine articles or handwritten recipe cards sourced from friends or cookery books, the others were from the cook's memory.

Table 1: Meals cooked with and without recipes

| Meals cooked with no recipes | Meals cooked from recipes |
|-----------------------------------|---|
| Lambs liver with bacon and onions | Salmon with crème fraiche, garlic, ginger sauce |
| Mushroom risotto | Marinated lamb steaks |
| Waldorf salad | Tortilla with salad |
| Poached chicken breasts | Vegetable crumble |
| Yorkshire puddings | Carrot and lentil soup |

Table 1 shows a selection of meals cooked by food diary participants, identified as either cooked with or without the aid of a recipe. During the post diary interviews, it became clear that participants often identified a meal as having been cooked without a recipe because whereas they had prepared the dish(es) from recipes in the past they had become so familiar with the preparation the recipe had become second nature. We had expected under these circumstances that participants would tick 'cooked from recipe in memory' but the preparation had become so familiar to them they no longer thought of it as a recipe.

Recipe collections

During the focus groups, several participants said they had a collection of cookery books and used them for inspiration in their cooking, but in general they did not cook from recipes. They noted that recipes often called for ingredients they were unfamiliar with or they did not have in the kitchen; as they would not use such an ingredient for other recipes, it would prove uneconomical to make a special purchase just for one dish.

Figure 1 above shows that recipes were used for nearly one fifth of all the main meals prepared by the food diary participants.



Figure 2: Clear plastic recipe holder containing magazine clippings



Figure 3: Recipe basket containing hand written recipes and magazine clipping

Figures 2 & 3 show recipe collections of magazine clippings and hand written recipes submitted by food diary participants. The clear plastic holder in Figure 2 was stored in the kitchen and placed on top of the toaster when in use. At the time of the interview the holder contained recipes used over the previous few weeks. The recipe basket shown in

Figure 2 was used to collect together another participant's clipped and hand written recipes. When she cooked from one of these recipes she also propped it up on the toaster. At the time of the interview, 5 recipes were stacked up behind the toaster having been used to cook from, but not yet returned to the recipe collection basket. Another participant showed a recipe collection made in a loose leaf A4 binder. The binder contained several divider cards representing common recipe categories (meat, poultry, fish, desserts, soup) but the majority of recipes were held, uncategorised, in the front of the binder.

Handwritten recipes

Sunflower Hotpot 150°C 2 hours

3 large potatoes. Slice (par boil while oven warming up - not in original recipe to par boil but I do)

4 oz Sunflower seeds }
 4 oz bread } grind in processor to make breadcrumbs + to finely chop seeds.

(Also works with gluten free bread)

1 large chopped onion } Add to breadcrumb seed mix.
 2 teaspoons mixed herbs }

3 oz marg (I use a little olive oil instead to cut down on fat).
 1/2 pint milk

I heat these in microwave till fat melted. Find it's easier & speeds cooking.

Layer potatoes & mixture in greased Casserole dish ending with layer of potatoes. Pour milk & fat mixture over top. Bake 2 hours till cooked - speeds should go crispy on top but not essential.

Figure 4: Sunflower hotpot recipe hand written recipe

Liz's Biscuits

Cream 6ozs marg
 3ozs caster sugar
 (or icing)

and work in 6ozs S.R. flour
 2oz cornflour
 (or custard powder)

Roll in small balls, then
 flatten & mark with fork
 Bake in moderate oven
 until pale golden brown
 (about 10-15 mins).

Figure 5: Liz's Biscuits hand written recipe

Figures 4 & 5 show hand written recipes from participants' recipe collections. Both show a structure presenting ingredients within the instructions for the recipe. In addition, the sunflower hotpot recipe shows annotations intended to help someone new to the recipe. The structure of these recipes is different from the common format found in cookery books which presents a list of ingredients followed by a paragraph or list of textual instructions. In these hand written recipes, the structure is transformed and directly relates sub-lists of ingredients with relevant instructions.

Family recipes

Several participants talked about recipes they had developed and had become family favourites. From a 30 years old Marks and Spencer cookbook, one participant described how she has made many variations of a recipe for lemon cheesecake because she knows that everyone always enjoys it and they rarely get homemade dessert at home. Another has adapted a Delia Smith recipe for baked chicken. With the addition of lime, she and her sister-in-law have made it a family recipe. The source of some family

recipes were lost in time and recorded in notebook style recipe books. To share them with grown children the recipes have been re-written or typed out and sent.

Discussion

Initial studies for this project have explored the cooking habits and attitudes of older adults. A series of focus groups, followed by detailed 7 day food and shopping diaries and interviews have explored the attitudes and behaviours of older adults to cooking in their daily lives and found that older people enjoy and value home cooking. Most of their meals are prepared without explicit reference to a recipe using knowledge learned from experience. Some dipped into recipes in their personal recipe collections once or twice a week, others only referred to recipes when they entertained guests.

Although some participants occasionally searched the internet for recipes, none stored recipes on their computer which would make them easy to share digitally. Most participants had their computer in the living room so it was not accessible to the kitchen, and there was no room in the kitchen for a laptop. The practice of balancing a recipe on top of the toaster would not prove safe for a laptop. Another reason may exist in the structure and organisation of commercial recipe software, for example MasterCook, BigOven, Living Cooking (for Windows) and MacGourmet, Connoisseur, YummySoup (for Mac). They all require recipes to be entered in a standard format with a list of ingredients followed by a list or paragraph of instructions. Figures 4 & 5 show this does not represent the way many recipes are written down for sharing. In addition the organisation of recipes within these software applications requires individual recipes to be tagged or placed in a virtual cookbook. This degree of organisation was not seen in the personal recipe collections.

The systems designed by Hamada [8,24] and Mennicken [16] focused on delivery of recipe information in the kitchen, the system by Terrenghi [27] also sought to record cooks preparing the recipe in the kitchen. All required substantial space in the kitchen, on the work surface or wall areas, that was not seen to be available for any of the participants in these studies.

Further research with younger people is required to explore how they prefer to read and use recipes from friends and family and published sources, but a potential candidate technology to capture recipes from older adults is the digital pen. One form of digital pen contains a camera that tracks the movement of the pen across specially printed paper. The pen position can be uploaded to a computer and the pen marks reproduced in digital form. This digital pen and paper technology was used by Plaisant [20] to integrate paper diaries used by grandparents with a digital diary on Microsoft Outlook that was used by the younger generations. Yeh [29] implemented a biology field notebook with digital pens and paper that enabled users to integrate digital pictures with notes taken in the field. A commercially available digital pen (LiveScribe) integrates audio recordings with digital notes, keeping recordings in synch with the time stamps information of the digital notes. If digital pen and paper were used to capture recipes, older adults would be

able to write down recipes in the format they were most comfortable with and retain the paper copy while the digital copy was shared. Supplementary audio, video or photo information could be recorded to capture the family stories associated with recipes to provide a rich experience for those receiving the recipe.

Conclusion and future work

Home cooking is important to older adults and they value the cooking knowledge they have gained over the years. Those who have raised families have personal recipes they prepare for family occasions that have become markers of that family identity and provide comfort, nostalgia and comfort to all who share eating them. These recipes are stored in the heads of older adults or on paper and are not easy to share across generations. Future research will explore how younger people prefer to access and use recipes in digital formats. This will be used to inform design of a prototype using digital pen and paper to capture family recipes to share digitally across generations.

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