Start Playing with Your Food: Fun Food Experiences with Mobile Social Media

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Abstract
Healthy and sustainable food is gaining more attention from consumers, industry, and researchers. Yet many approaches to date are limited to information dissemination, advertisement or education. We have embarked on a three year collaborative research project (2011 – 2013) to explore urban food practices – eating, cooking, growing food – to support the well-being of people and the environment. Our overall goal is to employ a user-centred interaction design research approach to inform the development of entertaining, real-time, mobile and networked applications, engaging playful feedback to build motivation. Our aspiration for this study is to deliver usable and useful mobile and situated interaction prototypes that employ individual and group strategies to foster food cultures that provide new pathways to produce, share and enjoy food that is green, healthy, and fun.

Keywords
Urban informatics, food, eating, cooking, growing, mobile interaction, mobile social media, play, playful experiences, sustainability, urban agriculture, health, green HCI, fun

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms
Design, Experimentation, Human Factors

Introduction

Many interactions with food create a culture of imagining, producing, preparing, and consuming food – a 'food culture' of the community at a collective level. Conversely, food culture influences behaviours of both the community and the individual. Accordingly, changing individuals' dispositions to food in day-to-day life towards more sustainable values presents opportunities for bringing about improvements in the sustainability of food cultures at a broader level. Food is a particularly challenging issue in urban contexts in which everyday food interaction for many citizens simply involve consuming ready-made meals and processed food. The problem continues to intensify with the unprecedented scale of urban growth in recent years. Now over half of the global population is living in urban areas. The UN Population Fund [23] predicts that the urban population will grow further to reach 60% of the entire global population by 2030.

Eat, Cook, Grow: Ubiquitous Technology for Sustainable Food Culture in the City is a three year collaborative research grant funded by the Australian Research Council's Linkage scheme (http://www.urbaninformatics.net/projects/ food). Our aim is to research, design and develop digital media and ubiquitous technologies as an experiment in cultivating sustainable food cultures in urban environments. Our main research locale is Brisbane, Australia, with additional reference work carried out in three cities with divergent geographic, socio-cultural, and technological backgrounds: Seoul, South Korea, for its global leadership in ubiquitous technology; Lincoln, UK, for the regional and peri-urban dimension it provides, and Portland, Oregon, U.S., for its international standing as a hub of the sustainable food movement. Brisbane will be the core site with the other cities acting as reference and reflection sites. Our team brings together experts in urban informatics, cultural studies, media and communication, and human-computer interaction (HCI) with a strong focus on sustainability to deliver actionable knowledge about the ways ubiquitous technology can make a significant contribution to creating a sustainable food culture.

With its experimental pragmatic focus, the study seeks ways to utilise ubiquitous technology's flexibility in scale of application (for example, on the continuum of individual / collective, private / public, and local / global) to improve the social, health and environmental bottom-lines of everyday human-food interaction. Put simply, we aim to contribute to better eating, cooking, and growing food in urban contexts through the use of ubiquitous technology. The specific aims of our study:

1. Examine the context of urban food culture as perceived and experienced by citizens, and analyse social, cultural, and technological challenges for active participation in sustainable food culture.
2. Explore playful interactions with both mobile and situated technologies that motivate food practices that are healthy, environmentally friendly, and fun.
3. Utilising social networking, context awareness, and locative media; design, develop and trial digital applications that encourage and support

> sustainable practices of eating, cooking, and growing food based on both personal and collective desires and needs.

The study employs user-centred design methods such as interviews, visual diaries, personas, and scenarios, to better understand contemporary shopping, cooking, and eating habits. Typologies of different food practices will inform iterative cycles of agile design and development to build and test entertaining, real-time, mobile, and networked applications that engage playful feedback to sustain user motivation. These prototypes will employ individual and group strategies to raise awareness and share knowledge in order to support the well-being of people and the environment. Our vision is to utilise ubiquitous technology in a way to engender a culture that supports people in producing, sharing, and enjoying food that is green, healthy, and fun.

Why Food and HCI?

The study seeks to identify, test, and build on technical opportunities that can be amplified, augmented, and realised to cultivate sustainable food culture for people's health and well-being in urban environments. As evident in many grassroots initiatives such as the *Local Food Movement* [collaborative effort to build more locally based, self-reliant food economies – cf. 11] and *Slow Food International* [non-profit group focusing on preservation of the cultural, culinary, and artistic local traditions – cf. 16], significant transformations arise from large-scale consensual participation of individuals identifying with the value of a sustainable lifestyle both conceptually and pragmatically.

Motivating citizens to think and act with sustainable values starts at an individual level, according to the context of the individual, *in situ*, and at the moment of concern. This is particularly significant as we make decisions about food many times a day, everyday. Effective persuasion does not easily happen through 'control and punishment' – e.g., legal systems or policy recommendations that may not be in accordance with the user's own beliefs [3, 4] – but rather by providing 'attractiveness and support' for the user to think and act in a way that is more sustainable than their current practices. The effectiveness of persuasion is increased by lowering the user's defensive levels, and this approach relies on social and playful interactions. Play theories confirm that humans are innately playful and that playful activities engage them in a fundamentally voluntary manner [cf. 5, 15]. Play thus evokes greater user motivation to interact with an application by continually presenting new opportunities for pleasurable experience and transformation [cf. 9, 22]. This study builds on Choi's PhD findings about the power of contemporary forms of urban play as an essential process of transformation for the self and the city as a technosocial network [6]. We aim to find ethical and tactical methods to influence and sustain food practices with playful interactive features that will persuade users to continuously grow into a better-informed and more active participant in shaping a food culture that is more ecological, healthy and fun. In doing so, we will take advantage of the scale-making capabilities of social networking engines to enable users to align their actions with other individuals who share similar beliefs and goals.

Recently HCI researchers have begun to examine the opportunities to use information and communication technology to promote sustainability and consciousness in environment and health on the part of technology users. Such efforts build upon and extend recent

explorations of the use of computers as persuasive technologies [12], yet the majority of studies remained within specific disciplines – environment [cf. 2, 8], health [cf. 7, 20, 21], and social [cf. 19] – despite the innate interconnection amongst them. Newly emerging movements such as *Take a Bite Out of Climate Change* (www.takeabite.cc) highlight the confluence of sustainability domains.

Simply providing people with environmental data and educational information – via mass media such as print and TV, or micro communications such as sensor networks – does not necessarily trigger sufficient motivation for behavioural change towards an ongoing health- and earth-friendly lifestyle. We want to develop a better understanding about how to go beyond just informing and into motivating and encouraging positive changes in action and perception. The study's research and development will continue and advance the research trajectory of persuasive technology and motivational design [1, 10, 12, 17]. Our focus on the locally specific contexts of Brisbane, Seoul, Lincoln, and Portland, as well as the ideological impetus to enhance societal values, will allow us to study the role of the self as an active agent for change and participant in civic activities – or 'live democracy' [18] – for sustainability through playful and fun techno-social interactions. Maintaining a food practice that upholds health, environmental, and social ideals is a demanding full-time job. It currently requires an advanced understanding of a variety of sometimes conflicting information sources and a determination to commit the necessary time and effort to always know where to buy nutrition-rich produce from local markets, according to seasonality, that is diverse and caters for differing tastes and lifestyle needs.

Research Approach

Our approach is guided by action research cycles [14] that allow us to examine context; explore playful interaction with technology, and design and evaluate applications. This process is applied to each of three different domains of food culture, which we label here 'Eat,' 'Cook,' and 'Grow.' We define eating as the direct interaction with food including purchasing produce; cooking as a process of combining ingredients to a new form to be eaten; and growing as a process of producing and harvesting food.

	2011	**2012**	**2013**
EAT	**Focus**	**Iteration**	**Iteration**
COOK	Context	**Focus**	**Iteration**
GROW	Context	Context	**Focus**

Fun Food Diaries with Mobile Social Media

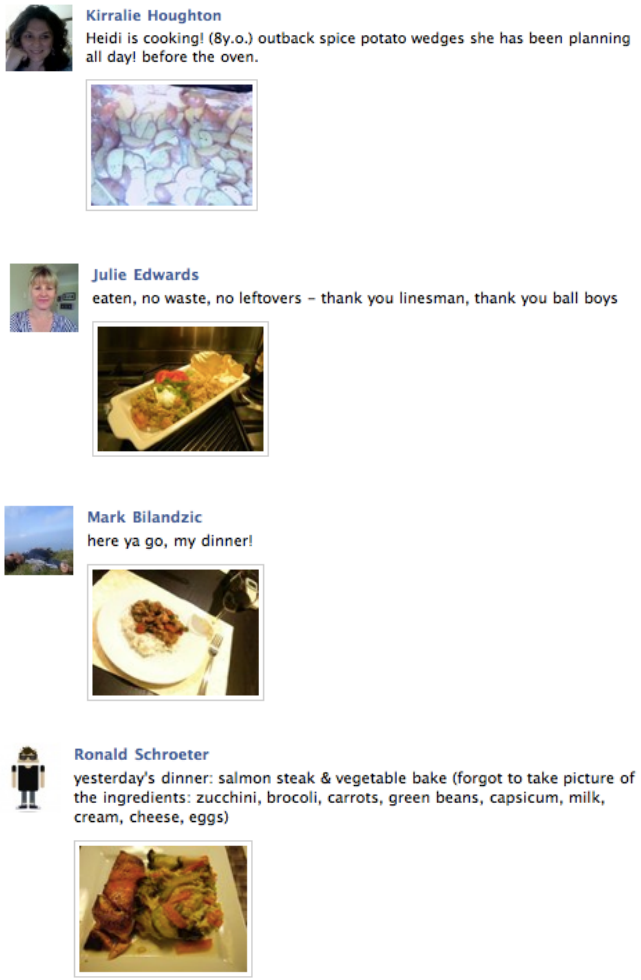
We are in the process of experimenting with employign mobile social media to create visual food diaries. They are private or semi-public blog entries detailing the food that our study participants eat – including meals and snacks – consisting of a snapshot of the food and personal notes such as whether the food is ready-made, price, and their reflection. In Goffman's [13] discussion of gender disparities in visual advertisements, he notes how en massed images depict the overarching message that may be concealed in individual photographs. Similarly, diaries are used to elicit common themes from the participants' shared

food culture by analysing the pool of all collected photographs while personal notes function as complementary descriptive data. For the participants, this allows them to reflect on their eating habits. Our aim is to examine and raise awareness of the current contexts that influence individual dispositions towards and practices of eating, then analyse social, cultural, and technological challenges for active participation in creating sustainable eating culture.

In the "Please Enjoy! Studying playful experiences with mobile technologies" workshop at MobileHCI 2011, we want to showcase and discuss our research study and the *I8Dat* (pronounced 'I ate that') mobile social media prototype application. We asked our initial pool of internal test users to upload photographs of each meal they eat over a two-day period of their choice, capturing the following three stages:

1. The ingredients and/or preparation area;
2. The prepared uneaten meal – depending on how many people the dish was prepared for, this may be a photo of the table with the meal laid out and prepared;
3. The leftovers and/or scraps – includes any food waste, scraps or food from the meal or meal preparation that was not consumed.

Early results follow – more to be shown at the workshop ☺



Jan Seeburger
Ok I'm happy that I can show off my Hokkaido Soup Curry here :-D

Ingredients for Soup:
chicken stock, carrot, celery stick, onions, apple, tomatoes, chunk dark chocolate, bay leaf, 5 large cloves garlic, ginger, dried chili pepper, cumin, turmeric, coriander, black pepper corn, garam masala, curry powder, oil, salt/pepper

Soup Toppings:
Carrot, Chicken, Green beans, lotus root, mushrooms, eggplant, broccoli

Absolutely delicious...

Conclusion

We employ a critical design approach for developing and deploying technologies, followed by design criticism that takes place at the end of each action research cycle. Evaluation from design criticism is subsequently integrated into the next cycle. The underlying design concept is based on the play theory developed by Choi [6]: playful interaction allows the user to be aware of sustainability issues germane to the current context, help them find ways to overcome problems, pursue positive actions, and share the experience in ways that are pleasurable to them.

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