Collective Spaces and Collected Action: Towards Reconnecting Food, Consumers and Nature

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Abstract
Disconnection between food production, its consumers and in turn between consumers and nature is increasingly seen as problematic for both producers and society at large. Consumers now know very little about where their food has come from, leading potentially to less sustainable practices and less engagement with what they eat and drink.

We present the concept of reconnecting food (in this particular example, coffee) and consumers through design interventions in the High Street, employing digital innovations based on concepts from the Internet of Things and pervasive public displays. Two interventions carried out within the setting of J. Atkinson & Co. coffee and tea merchants in Lancaster City are discussed. We document the research processes, interaction design and their implementation in relation to notions of reconnecting products and consumers. Future interventions within the setting are also presented in order to demonstrate the on-going dialogue between researchers and retailers. We show that through exploring reconnection through storytelling within a retail environment there is potential to tackle the issues raised in the paper and engage with retailers and consumers.

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Introduction

The need for a sustainable food and farming sector is clearly recognized [1], but at present its development is inhibited by dysfunctional relationships, attributed in part to disconnection [2]. Many consumers know little about where and how their food is produced. Kneafsey argues for a framework of care for close and distant ‘others’ in order to “radically realign producer and consumer relationships” and rebuild connections. Learning about food production and producers’ lives is part of revaluing that contributes to a framework of care.

Care is also at the heart of the philosophy behind the Third Wave of Coffee, which Skeie [3] describes as a reconnection with artisan values and a thoughtfulness about relationships; with coffee beans, coffee producers and coffee consumers. Our paper describes a holistic approach to reconnection with our drink (and food); its histories, its production and distribution systems, in a move toward increased sustainability.

The subject of environmentally sustainable food may be complicated by the looseness and changing nature of the term sustainability [4], which has evolved since its definition in the Brundtland Report [5] to encompass aspects of environmental, social and economic sustainability.

The hierarchy and relationship between these elements continues to change. This is significant because our work sits within this space of interconnectedness between communities of production and consumption and their environments. Consequently we address the environmental sustainability of food within a wider sphere to include social and economic sustainability, acknowledging the need to make progress on all three of these axes.

In this paper we present two design interventions that address the interconnectedness of environment, customers, producers, retailers and community. These interventions, which were undertaken consecutively, complement each other sharing similar characteristics and similar motivations. They are part of an ongoing collaboration with local High Street merchant, J. Atkinson & Co, (known as Atkinsons), a coffee and tea supplier based in the city of Lancaster, UK. Both interventions explore the use of ubiquitous computing as a conduit for building connections within and across communities, employing multimedia content to hyperlink physical objects to digital narratives. However the interventions differ in their use of media, interaction and space.

Atkinsons has been part of the city landscape since 1837. The retail business has extended to incorporate a café, and in 2012 a Tea and Coffee Heritage and Innovation Centre known locally as The Hall, which have been refurbished by the Atkinsons team. The company has a vision for The Hall to become “more than a café” and “more than a museum”; a place where the community can “be communal” and where visitors can connect to the provenance of tea and coffee.
Economic, environmental and social sustainability are core company values that form part of a vision for a more sustainable retail sector, with a thriving High Street at the heart of a community. The company subscribes to the philosophy of Small Giants [7], a global community which brings together companies who actively choose to be “great” rather than “big”. Small Giants define success in relation to their contribution to community, great customer service and workplace cultures of excellence, in addition to the bottom line. They support a culture of experimentation and creativity, within a frame of traditional values, aesthetics and processes. Atkinsons are part of the Third Wave Coffee movement. They have established and maintain direct and on-going relationships with Single Estate Coffee Growers and other independent coffee roasters. The company participates in local and global networks and seeks to engage their customers and visitors in these networks.

The interventions fall broadly within the genre of ‘sustainable interaction design’ identified by DiSalvo et al [6] as a type of critical design that draw attention to particular aspects of food and drink related practices. They are also both situated in what might be called a community space, a space being developed by J. Atkinson & Co through the notion of ‘Terroir’. This space is important because it can become a focus for community action and an anchor for supporting wider connections. Dourish [8] shows that focusing on individual behaviour change can “downgrade political participation”. However he notes that encouraging alignments between people may be a first step towards political mobilization. These interventions explore development of a community space, in which to engage individuals and nurture alignments.

We reflect upon how our experience may inform design criteria for future work and open up the possibility of a new action-space for sustainability related research. This paper contributes to the theme of technologies for sustainable human-food interaction through demonstration of ubiquitous computing applications in a retail setting. It also contributes to discussion of opportunities for food retailers, suppliers and beyond.

**INTERVENTION 1 – “Hyperlinking The Hall”**

The fundamental motivations underpinning this intervention were the concepts of “hyperlinking The Hall” and bringing the physical and digital components of a small heritage business together. Key to this piece of work were the aims of the stakeholder who expressed the desire to communicate the history of the building, business and products through employing different modes of interpretation other than printed material. The aim of communicating the heritage of the business, the space itself and the artefacts within could be met through alternatives to traditional media such as printed text and artefacts in display cases. Through adopting new methods of interpretation we could create a dynamic narrative with the potential to surprise and engage visitors during their visit, connecting them with their surroundings, the history of the business and the context of the products consumed.

**Background**

The challenge of this intervention lay in how to communicate Burlingham’s concept of Small Giants alongside the stories of the company, products and the building of The Hall in new and engaging ways.
As a newly opened city venue, The Hall offers a space in which interventions can take place without impacting negatively upon the experience of the customer or the staff of Atkinsons.

Motivation
The motivation for this project was in essence to examine how The Hall might become a physical embodiment of stories relating to coffee and its consumption, the story of Atkinsons and history of the building itself that currently exist but are not made explicit to customers.

Atkinsons also wished to make visible their values that are entrenched within the company through engaging with and supporting small producers and by making explicit their particular stance on ethical trading. At this stage the intervention aimed to add to the layers of consumption present within Atkinsons, from the production of the raw materials, through the production and delivery process, to its delivery to Lancaster and processing into the finished product customers then consumed. Adding media and stories to this process has the potential to enrich the consumption itself through engaging with the journey and process of the products and the environment in which they are ultimately consumed.

In its first iteration there was a high degree of creativity and experimentation. This set the groundwork for further research to take place in the summer of 2013 to gauge public interaction and engagement with the experiments.

Description
Content existed already in the form of films and images from their suppliers around the world, recent films made within The Hall and the array of artefacts present within the building itself. The challenge lay in communicating the stories through the objects by employing technology and media.

Exploration of alternatives to traditional interpretation materials included augmented reality, traditional projection techniques and research focusing largely around The Hall. The use of storytelling through primarily visual techniques such as film and still imagery was the preferred approach by the client. Research into visual methods that might support this approach largely revolved around 3D projection mapping, currently popular in urban environments predominantly on buildings to create visually stunning pieces. This approach was taken due to the nature of the place itself, engagement with physical objects would be made possible through creating images upon them.

Troika’s “Isadora”\(^1\) was identified as a suitable medium through which to work. This is a 3D mapping tool enabling multiple inputs and outputs, manipulation of media streams in real time and input of data from social media such as Twitter.

It has been employed in live theatre to great success and on large buildings, but there were no examples of it being used on very small, domestic objects. The concept of experimenting with Isadora on small objects provided the opportunity to tell stories relevant to the

\(^1\) http://troikatronix.com/
environment of Atkinsons on objects central to the function of the space as a café.

Live feeds, films made of the café featuring its staff and images of roasting coffee were fed into Isadora and 3D mapped onto a variety of objects within the cafe space, with live tweets added from Atkinsons to scroll over the images. The intention was to set up a variety of interactive areas within the cafe, such as the lifting of a cup triggered a film to be played on the table, walking past a wall would trigger a film of the coffee being prepared. Creating an interaction that was triggered unexpectedly had the intention of surprising the visitor, thereby triggering interest through playfulness. This tied into the notion of The Hall becoming “more than a museum”, where the interactions were inextricably linked to the action of drinking and experiencing the products directly. Atkinsons have a strong social media presence, meaning that this was a way in which people who weren't present in the space but engaged with the business might be involved in telling their own stories, mediated through the Twitter feed.

Images were manipulated through Isadora by adding live tweets, adding live streams and playing with the images. These were then projected onto a wall creating beautiful and often abstract effects, again triggered by movement, providing a moment of surprise and engagement for visitors. Use of movement sensors provide the triggers for the films or live feed to begin and provide the flexibility to produce a number of different interactions within the space.

**Reflection and developments**
This intervention was an opportunity to engage with new technologies within a retail space. Using projected, interactive imagery using artefacts related to the story of the product can enable the story of the company, the coffee and the customers to be told in an innovative manner. Creative involvement and story telling is a key element of the business in communicating the value of the business locally and engaging in the global process of coffee production and consumption. It has the potential to reconnect consumers with the products, telling not only the story but enabling them to have different experiences during visits that offer different levels of interaction related to consumption.

Future development might deal with areas relating to social, economic and environmental effects that consuming coffee has. Dealing with these issues within the site of consumption through employing the techniques used in this experiment might lead to engaging debates within the space, rather than the potentially passive experience that the intervention may have without the introduction of these issues.

Small, intimate and surprising projections enable customers to encounter something new and to have a real sensory experience through interacting with coffee and tea artefacts linked to the process of coffee and tea making.

**INTERVENTION 2 – “Coffee Companions”**

**Overview**
The second intervention shares similarities with the first in that it is also driven by the aim of reconnecting people to food and communities of production and retail. It also uses the Internet of Things to facilitate connections through a community action space. However this intervention differs in that it also reaches
beyond the shared community space to engage individuals in other physical locations.

**Motivation**
The motivation for this initial collaboration was to increase the visibility and strength of food networks, to confront the disconnection from practices of food production that have caused food to be devalued [9]. An aim was to explore how The Hall, which was being restored at the time of the intervention, might be used to connect visitors to the coffee network. The intended outcome was to propose and prototype potential ways to build a community of 'Coffee Companions', formed around coffee practices. The designs grew from conversations with coffee drinkers and non-coffee drinkers, as well as those involved in coffee production, roasting and sale. Atkinsons employees tested and gave feedback on prototype designs.

**Description**
The first strand in a multi-strand approach involved designing coffee cards that drew on the collectable sets of tea cards that were popular in the last century, but also incorporated a digital aspect. The cards provide a multilayered media channel to share information about coffee production, roasting, tasting and provenance. Graphics on the card itself combined with a Quick Response (QR) link to webpages hosting changing multimedia content captured from visiting growers, like Tadesse Meskele of the Ethiopian Coffee Growers Union or on visits to coffee producing communities. Videos, images and twitter content introduced individuals working in different parts of the network to reveal the wider culture and local particularities of production.

When combined with embedded Radio Frequency Identification (RFID) tags the cards had the potential to share location-specific information about events, such as a tasting evening or a coffee artefact 'hack and build' in The Hall. The cards sought to connect people to open information, to prompt reflection and conversation. Network transparency and visibility was introduced to stimulate trust and strengthen the perceived value of artisan processes and direct relationships. The cards were designed to bring people to activities that connect a local community of 'Coffee Companions'.

Another prototype focused on the power of sharing stories, combined with emotional engagement of tactile interaction with artefacts, old and new. Digital plinths incorporating RFID readers were designed for use in The Hall. Tagged artefacts from Atkinsons could be brought to the plinths. When placed on the plinth they could tell stories that revealed relationships, processes and culture. The power of such stories of things is well documented [10].

**Reflection and developments**
The Atkinsons team liked the tangibility and magical quality of the interactions, and valued the potential to make the direct connections they have with growers more immediate and visible. The QR codes have since been introduced to packaging to reveal provenance.

The design of the digital plinth provides a structure to explore different kinds of narratives and media, and engage a range of story tellers with different sets of values. While some might recount facts or suggest taste combinations, others might offer more open, fluid and ambiguous narratives that allow for multiple...
interpretations [11] and personal engagement [12]. This intervention aimed to create a space for community involvement and collective action. The Hall has been a venue for community events and developments of innovative digital technologies for use within the space are ongoing. Foregrounding the inter-connections of people, planet and profit remains central.

**Beyond the city**

The experimental interventions made visible hidden networks, such as the interactive projection onto a saucer to show the provenance of the tea being drunk. They also highlighted opportunities to bring together communities in collective action, for example showing how coffee cards could be used to call people together to a dialogue with a representative from the Ethiopian Coffee Growers Union. These interventions draw attention to particular food and drink practices within a wider interconnected context of environmental, economic and social sustainability.

We view our interventions as part of a continuum moving from individual action to collective action. Our interventions speak to individuals as part of a consciousness-raising and awakening process, but we also intend them to be part of a wider process to open up participation spaces for building alignments towards collective action, at a global and community level. Our interventions address disconnection and lack of care in the food network, and are part of a movement to challenge received wisdom of what the High Street should be. Supporting multiple voices throughout the global food chain has the potential to reveal practices and values to be critiqued in various ways at different scales.

**Future research and related work**

The initial interventions were followed by an intensive sprint, which was extended to include additional participants. From this sprint an ongoing research group has emerged to address the needs of an environmentally, economically and socially sustainable High Street. Future work may explore the politics and application of ubiquitous computing through a living lab of action spaces in the city and beyond. This will include wider testing of the interventions described above in order to gain public feedback on the experiences and to engage other voices in the development process.

We have been inspired by news of coffee community-producers overcoming literacy barriers, by using live video to self-document production in order to gain certification, whilst using the video streams to improve the timing of the harvesting. The power of live feeds, interactive video and social networks offers further avenues for future research to change the structure of the food and drink chains. We are aware that our interventions to date have relied on mediated communication and that the flow of information has been predominantly one way. A potential direction for further development might seek to build a multi-directional flow within the production network. We seek to realign dysfunctional relationships with food and its production that have led to food being devalued and taken for granted. Establishing connections that contribute to a framework of care is a way to reveal dominant values and initiate alignments to tackle environmental, social and economic issues locally and globally.
Conclusion
In this paper we have presented two design interventions that use ubiquitous computing to reveal the interconnectedness of environment, customers, producers, retailers and community. They use the Internet of Things to draw people into a community space, from which individual and collective action can be initiated to reconnect people to the food and drink they buy and to the political debates that surround their production. The range of affordances offered by the multimedia, narrative approach support integrated social and commercial practices and act as an alternative to other strategies focused on measurement, efficiency and optimization.

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References


