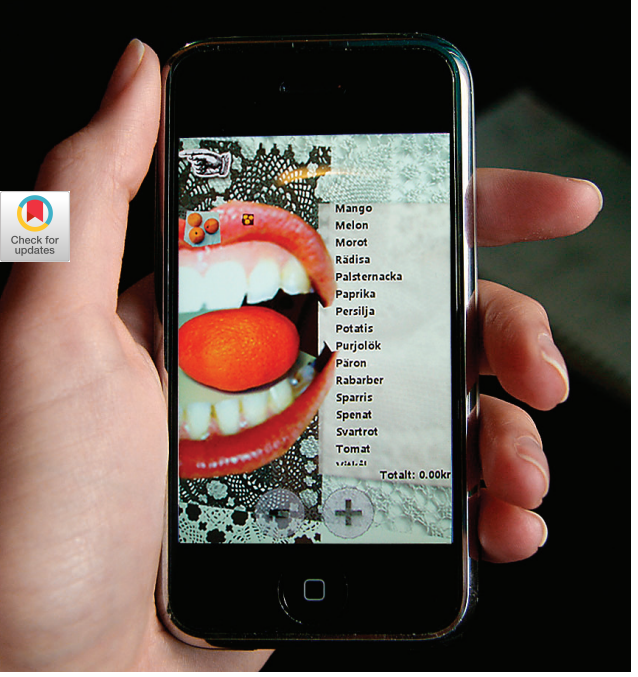

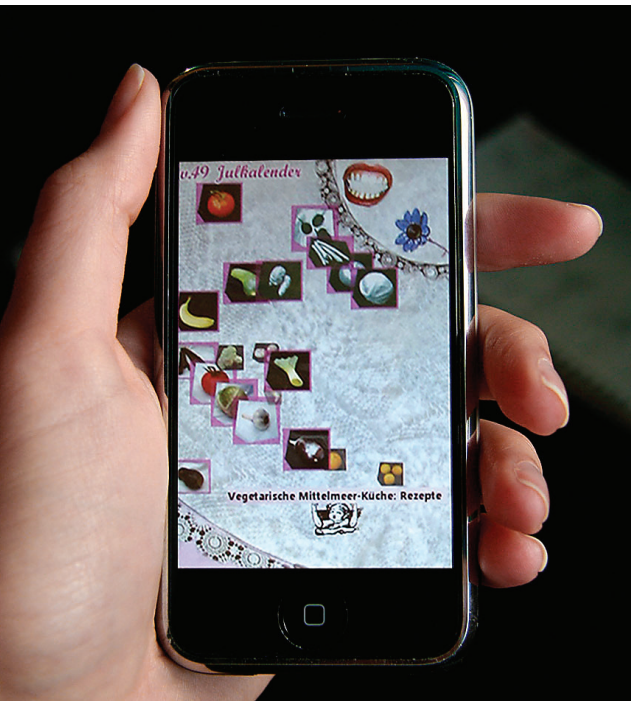

Ecofriends—Designing for Critical Reflection Using Social Voices

Jakob Tholander
Mobile Life@Stockholm University | jakobth@dsv.su.se

Mattias Jacobsson
Mobile Life@SICS | majac@sics.se

As practitioners and researchers in interaction design, we often find that many of the online practices we design for resemble those that existed several hundred years ago, before industrialization. For instance, the collaborative knowledge gathering we today associate with Wikipedia and the like existed in the more basic form of books and writings. One such writing for the common people in northern Europe and Sweden was the so-called *Bondepraktikan* (farmer's almanac), in which people collected knowledge about topics central to pre-industrial agricultural life. Weather forecasting, seasonal changes, agriculture, biology, and food practices were mixed into an "open-sourced" handbook with rules of thumb for the farmers' regular chores and instructions on how to adapt to seasonal changes, such as when to sow and harvest. The booklet also served as a textbook in school, in particular for learning weather forecasting and strategies for harvesting crops, common topics of discussion. This is in principle how many concepts such as *seasonality* got their shared meaning during that time.

Today, seasonality is getting renewed attention as people strive for more sustainable living and seek to optimize their food's flavor, smell, and nutritional value, as emphasized by the Slow Food movement. With the expectation in the wealthy parts of the world that all products should be available at more or less all times of the year, some of our awareness of a product's natural growth conditions and season has been lost. The social relationships and discussions that people once had with the local butcher, fisherman, and farmer around, for example, the handling of food, food quality, and cooking trends have today in many cases moved onto social media. Moreover, shopping for groceries is nowadays characterized by an even larger variety of considerations, such as price, taste, health, habits, social context, availability and—to an increasing extent—ethi-

▸ Figure 1 (top). Scanning groceries through a big red mouth. Figure 2 (middle). Visualization of groceries in season. Figure 3 (bottom). Product-related information.

cal aspects such as environmental effects and fair trade. In reaction to this, many of us aspire to buy food that is in season and locally produced. With the Ecofriends project, we wanted to explore the design of a mobile application that would portray a rich and discursive notion of seasonality that picks up on this richness of values. Rather than attempting to influence people to make "the right choice," we wanted to inspire people to reflect on the choices that were right for them. Thus, the application portrays the subjectivity of season and seasonal purchases.

We designed the application as an "object to think with" that would let us further understand how mobile interactive technology could play a role in exploring such modern-day trends. The design was thus not primarily intended to be an optimal system to support people in buying products that are in season. Rather, the system was supposed to help us as researchers and practitioners tease out core factors involved in this kind of technology design, and to explore broader issues in the tradition of critical design.

Design Approach: Seasons as a Social Construction

Our work emphasizes the subjective and value-based dimensions of experience, and how these are socially constructed phenomena. The question under scrutiny is: Are values merely defined in a system, or are they to be understood as constructed, maintained, and communicated by the users themselves? Critical and interpretationist approaches explore how values in design can be accounted for as something constructed by users' own actions and interpretations, rather than as something contained in, and delivered by, a computer system [2]. Values are looked upon as something to be *discovered* by users, rather than communicated by a system [3]. Overall, we wanted to model the notion of season as precisely that—a *social construction* that arises out of people's situated actions with each other and with their environment. What is "in season" then emerges from interactions around aspects such as cooking trends, personal preferences, political values, local weather, and growing conditions, rather than from a stipulated set of facts. In designing for such a notion, we have attempted to give people access to socially and contextually rich material that can create novel reactions and spur reflection. In summary, we tried to situate and embody users around a socially constructed notion of the season of fruits and vegetables.

To allow for interaction around the values that constitute seasonality, the Ecofriends application was designed to mirror the seasons of fruits and vegetables, their places of origin, and the context around them. First, based on data captured from social media such as Twitter and blogs, the system continuously constructs and portrays *three social voices* of products that are in season: the voices of your friends, food experts and chefs, and the general public. Second, the system dynamically gathers information about the origin and context of the different products users are buying. Local news and weather, together with a tweet and a blog paragraph relating to the product, support users in making *contextually rich interpretations* of products and their origins. This data is presented in a style of interaction intended to be aesthetically inspiring. As such, the design provides users with a socially grounded system for inspiration and reflection around their everyday food consumption.

In addition, the Ecofriends application connects users to friends and also works as a scanning device to be used when grocery shopping. A user's "ecofriends" are other users of the application who are connected using existing social networks such as Facebook.

The application has three visualization views: the scanning of groceries (Figure 1), the seasonal changes (Figure 2), and product-related information and visualizations (Figure 3). Groceries are scanned by taking a picture of the barcode of a product through a big mouth. The scanned groceries are displayed in a list, including the total cost. Seasonal changes are displayed on a round tablecloth with the products that are biologically in season during a particular week distributed over it. The more a product is in season, the bigger the picture. The voices of ecofriends, the public, and experts are displayed in three visualizations (color, black and white, and light green). The top five products in each of the three categories have a pink border. When a product is selected, specific information about its origin is displayed (Figure 3), including the current weather, a news clip, and a map of its location.

The voice of your friends is based on their purchases of fruits and vegetables. This is used to calculate when a product is popular or "in season" according to their purchases. The voice of food experts and chefs uses occurrences of particular groceries in social media to calculate when a product is "in season." The voice of ordinary people is based on Twitter feeds in your area to cal-

culate when various products are popular. These three categories have their own visual expressions to let the user distinguish between them. Groceries that are less "in season" are gradually faded out in the interface. The user can scroll back and forth in time to see how seasons dynamically change from week to week over the past year. Groceries that are "in season" or that have recently been scanned may trigger product-related messages. These contain information with local news and weather from the origin of the product, together with a tweet and a blog excerpt relating to that product.

Discussion of User Experiences

As any contemporary HCI research handbook would suggest, we carefully put the system into use by inviting three groups of people to organize a dinner party that would include planning, shopping for, and cooking a three-course dinner for six or seven people. During the dinner, they would use the application in all three stages. Two researchers acted as participant observers throughout the evening. The topics of discussion that emerged throughout the study were interesting, not because the users expressed the "correct" opinions fostered by the system, but rather because the users reflected on the system in a number of quite different directions [4]. Here, we discuss three interrelated themes that we find particularly relevant both at the specific level of design of interactive systems for critical reflection around everyday food practices, and at the level of system design in general.

Accountability of action. One theme that engaged users was *accountability of action* as a phenomenon that emerges in the matrix of users, the application, designers, and the information assembled and portrayed through the system. Several participants repeatedly claimed that "it would be irresponsible" for a system to portray information that could potentially play a role in users making "unethical" choices and that they would become misinformed about what *actually* constituted the season for a particular product. This was not because they would not make such choices otherwise, but because they believed a system that influences users should, in a sense, do that in the most *correct* manner possible. Some who expressed the idea that the system would be irresponsible were concerned that it would determine the actions of users in inappropriate ways. This points to the question of what role designers play in the accountability of users' actions, and how we should design systems that provide a sense of responsibility from the points of view of users as well as designers. At the same time, we and our users felt strongly that we should not design applications to which we can hand over the responsibility of acting environmentally friendly—neither ones that are "corrective" nor ones that make you feel guilty. Instead, users very much appreciated the idea that the application gives the user the chance to participate in the construction of what seasonality actually is, and to tie it to the very practical activity of buying and consuming groceries.

Trusting the technology. Common in participants' descriptions of the application was that they got engaged in the *trustworthiness* of the system. The way the notion of season was portrayed was perceived as frustrating and challenging, as well as inspiring, which led to discussions about the sources of information that were used and their reliability. The system spurred discussions among participants about recipes, environmental issues, and what *in season* actually means. They found that the appli-

cation turned the notion of season, often experienced abstractly, into something to deal with concretely in particular moments and situations. The users also emphasized that they appreciated the subjectivity of the application, but still felt that it could provide simplified hints for positive or negative choices. Moreover, several participants elaborated on the kinds of sources they would consider reliable. Most of them agreed it is interesting to know and see what products friends buy and the meals they cook. However, some still claimed this does not imply that their friends' purchases and cooking would yield trustworthy information about seasonal shopping. In discussing the sources they would

trust, they brought up a weekly delivery service of groceries for pre-specified recipes as an example. When asked for the reason for this, they had no other argument apart from "they should know." On the issue of trusting the "voices of the experts," they claimed that they did not know enough about who the experts were and that they wanted to know the exact sources. The variety of ways in which participants talked about these issues points to how the application engaged them in a tension between wanting to know what was the best choice—or *the truth*, like someone said—and dealing with the complexity of real-life situations. This relates to issues of how individuals and communities handle uncertainties, and to how we must adapt and act without perfect knowledge in everyday life—for example, how we must adapt to changing environmental conditions and the role of technology in such processes.

Information fragments as catalysts. We saw a variety of reactions to and reflections on the information provided about the products. Being rather fragmentary in character, this information is only loosely coupled to the specific products at hand. It is not presented because of its immediate relevance, but rather because it provided potential seeds for surprise, reflection, and the challenging of ideas. Some participants regarded it as irrelevant nonsense that they could not see the point of, while others found that the information spoke to their previous experiences or interests, and was amusing, inspiring, or challenging. For instance, two participants got deeply engaged in the question of buying mango, having read about laws restricting women's rights in the area where the mango was from, saying that "this is the kind of reason that makes it so hard" to make informed choices. These ways of interpreting and relating to fragmentary product-related information point to how unexpectedness and unpredictability can provide ground for surprise, playfulness, and challenge. Through the users' own contextualization and meaning making, this selection of partially unfiltered assemblies of information became catalysts for a variety of social interactions. It worked as sources for deeply political issues, as springboards for novel topics of discussion, and as inspirations for cooking.

Final Reflections

Through this work we have come to believe that certain key concepts such as season carry values that to some extent have become disconnected from our everyday reality. Such concepts need to be more deeply reflected upon on an individual and social level to rediscover their socially constructed nature. The three voices in the application are seemingly incompatible and thus create a deliberate contrast to one another, intended to push the user toward critical reflection on the governing topic of eco-friendly seasonal shopping. For instance, the voices of experts and the general public are based on their expressed opinions, while the voice of ecofriends are based on their concrete shopping actions. This is modeled by tying into an ongoing—but at the same time partially disconnected—dialog that has moved away from the actual social event of small talk during grocery shopping and that contains important information about origin, practices, and a broader context related to the product. In a way, this is the very opposite of any kind of ecological labeling in that it does not try to encapsulate and disconnect consumers from producers via such value-dense singular labels.

By construing season as a socially constructed phenomenon, we have, to some extent, brought users back from a disembodied relationship to food and groceries. We can see other, more articulated ongoing discourses—for example, violence in computer games or how beauty is portrayed in our modern society—that surely would benefit from this type of reflective perspective. At the end of the day, we still ponder the question: How can we inform and design information triggers that make people reflect ethically without telling them what to do or how to think?

ENDNOTES:

1. http://sv.wikipedia.org/wiki/Bondepraktikan

2. Sengers, P. and Gaver, W. Staying open to interpretation: Engaging multiple meanings in design and evaluation. *Proc. DIS '06.* ACM, 2006, 99-108.

3. Le Dantec, C., Shehan Poole, E., and Wyche. S. Values as lived experience: Evolving value sensitive design in support of value discovery. *Proc. CHI '09.* ACM, 2009, 1141-1150.

4. Tholander, J., Ståhl, A., Jacobsson, M., Schultz, L., Borgström, S., Normark, M., and Kosmack-Vaara, E. But i don't trust my friends: Ecofriends—an application for reflective grocery shopping. *Proc. MobileHCI '12.* ACM, 2012, 143-146.

ABOUT THE AUTHORS

Jakob Tholander is an associate professor at the Mobile Life Research Centre at Stockholm University focusing on tangible and embodied interaction. He studies ways of understanding processes of interaction design and how novel technologies challenge our conceptualizations of interaction and technology.

Mattias Jacobsson is a research assistant at the Mobile Life Research Centre focusing on the intersection between interaction design and human-robot interaction. He looks at everyday robotics as a way to articulate complex problems in interaction design and critically reflect upon emerging challenges regarding research practices in HCI.

DOI: 10.1145/2405716.2405730