Nudging the Trolley in the Supermarket: How to Deliver the Right Information to Shoppers

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ABSTRACT

The amount of information available to help decide what foods to buy and eat is increasing rapidly with the advent of concerns about, and data on, health impacts, environmental effects, and economic consequences. This glut of information can be overwhelming when presented within the context of a high time-pressure, low involvement activity such as supermarket shopping. How can we nudge people’s food shopping behavior in desired directions through targeted delivery of appropriate information? This paper investigates whether augmented reality can deliver relevant ‘instant information’ that can be interpreted and acted upon in situ, enabling people to make informed choices. The challenge is to balance the need to simplify and streamline the information presented with the need to provide enough information that shoppers can adjust their behavior toward meeting their goals. This paper discusses some of the challenges involved in designing such information displays and indicate some possible ways to meet those challenges.

Keywords: Ambient Information Interfaces, Food Information Displays, Simple Heuristics, Supermarket Shopping

INTRODUCTION

Increasingly we are told about the risks, costs, and benefits of particular food choices. A flood of information is becoming available from a variety of sources, online, on food labels, in information leaflets and books, aimed at informing the consumer so that better decisions can be made while shopping. But all this information risks overwhelming and overloading the shopper trying to navigate the complex store environment in a hurry, leading to the opposite outcome: poor decisions made without the proper input. How can all this information be consolidated, pruned, and presented to supermarket shoppers in an easy to understand and meaningful form that will actually help them make better choices in terms of the values they care about?

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Technology pundits and researchers are beginning to promote ‘augmented reality’ that uses Smartphones and other ubiquitous technologies as the latest solution to this problem. Kuang (2009), for example, marvels at the possibility: “What if all the food in your grocery store was marked with a QR code—you could compare the carbon footprints of two batches of produce… without having to spend any time or effort looking it up…” He continues by claiming it is “The best chance we have to speed crucial information about our world to the people living in it”. This vision, however, begs the research questions: Will people be able to read and act upon such ‘instant information’? Will just throwing more information at people have the desired galvanizing effect of encouraging and empowering people to act upon various social causes (e.g., reducing carbon emissions) or improve their well-being (e.g., changing their diet)? Or do we need to tailor that information glut into simple nudges that make behavior change easy to achieve? And if so, what kind of nudges will work?

Having instant information at one’s fingertips is certainly a promising technological approach, but for it to succeed in changing people’s behavior we need to understand how new forms of augmented reality are interpreted and used, especially when in situ. While the capabilities of the emerging technologies are impressive in how they can project contextualised information, there is a paucity of research into whether people can process and exploit that extra information profitably. It is easy to imagine soda drinkers enjoying the surprise of being presented with a new branded game or a funny website on their mobile phone, but it is less clear whether people will make greener and healthier choices while keeping to their weekly budget when presented with extra information of one form or another in the middle of their busy shopping trip. Thus, research is needed, first, to determine whether instant information will enable people to make better-informed choices when shopping, and second, to ascertain whether and how such information is able to change people’s behavior in the longer term.

Technology for ubiquitous information delivery must balance giving people enough new information to improve their decisions against overwhelming them with new things to consider. Ambient information displays, as already used in homes and offices to provide feedback about energy consumption and nudge users toward greater conservation, may strike the right balance in food purchase and consumption as well—for instance, lighting up a shopping trolley (cart) handle in a color representing the fat content of the products a consumer has chosen so far. However, as we discuss in this paper, moving beyond momentary nudges toward long-term behavior change requires providing detailed-enough feedback to enable learning what to do in the future, for instance on the next shopping trip. We argue that we must improve our (currently limited) understanding of whether and how people attend to and learn from visualizations of multi-dimensional information while engaged in an ongoing activity such as food shopping. This can be done using cognitive science models of decision-making and learning together with design principles for information visualization and interaction design.

BACKGROUND

Research on Decision Making Strategies

Technology designed to deliver an ever-increasing amount of information to consumers is intended to help them make better decisions or otherwise influence their behavior. But without knowing how people actually process the information they are presented with in service of decisions and actions, we cannot say how to help decision makers make better decisions, nor what and how much information would best accomplish this goal. While it is obvious that we must take human psychology into account in figuring out what and how to communicate to consumers, we first have to settle on an appropriate view of that psychology, which means
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