

Introduction

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Introduction: Food and Eating Design

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1. Introduction

Although almost all products in developed countries have been designed to some extent, the role of designers in determining what people eat and how they eat it has been relatively small. Until recently, the development of food products has remained primarily in the hands of breeders and farmers (agriculture), food technologists and marketers (food industry), and chefs and hospitality experts (restaurants). However, most of these professionals have not been explicitly trained to conceive and create new products for consumers and it seems likely that the food innovation process can benefit from the creative skills and tools that designers have acquired during their training and practice (Schifferstein, 2016).

Currently, the role of designers in the food realm is often focused on products or services associated with food, such as packaging and branding, tableware and flatware, cooking utensils, restaurant interiors or retail displays, but not so much on the food itself.

Fortunately, in the past 10 years we have seen a growing interest for the design discipline among culinary innovators, industrial partners, and scientific researchers in the food domain.

2. The potential of designers for food industry

Recently, I identified four ways in which designers can expand their role and provide added value to large food companies, over and above the tasks that are already carried out by the professionals industry currently employs (Schifferstein, 2016). First, designers tend to approach design challenges holistically, which broadens the scope of the project. As a consequence, designers will provide more innovative solutions that can guide multiple project aspects simultaneously (production, packaging, marketing). Second, designers shape their own tools that engage others who are involved in the project. Third, designers are equipped to manage the product development process and can facilitate cooperation between disciplinary experts. Fourth, designers can bring together and integrate the



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knowledge from different disciplines. By strengthening these roles, large food companies can deliver innovations that address actual consumer needs, provide a positive contribution to society, and consolidate long-term profitability and growth.

Figure 1 depicts the designer as the main integrator between information from the different disciplines. The broadened scope of the innovation project is visualized by including various fields of interest surrounding the focal topics related to consumer, business, and technology. This collection of adjoining fields is by no means complete, and may be expanded. The arrows emphasize that the designer is dependent on the expertise from the different basic disciplines. Designers tend to see themselves as gatherers and integrators of information (Bohemia, 2002) and by continuously developing and updating proposals on the basis of the feedback received during meetings, they play a crucial role in integrating the demands of different stakeholders and in achieving balance between potentially conflicting demands (Beardsley, 1994; Calabretta, Gemser, & Hekkert, 2014; Valencia, Person, & Snelders, 2013).

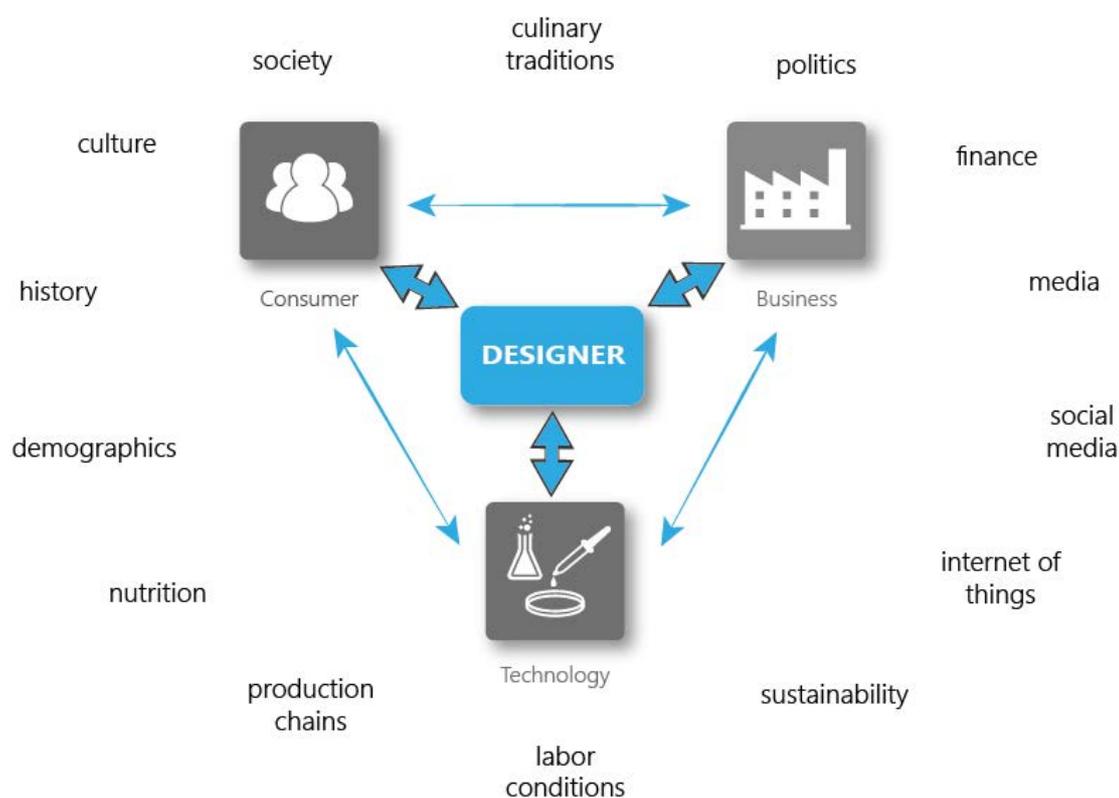


Figure 1. Potential role of the designer in food innovation processes in large food companies (from Schifferstein, 2016).

In addition to the food industry, designers might also increase their role in the restaurant and hospitality business. Several authors have already pointed out the large similarities between the competencies required for an innovative chef and for a designer (Bruns Alonso, Klooster, Stoffelsen, & Potuzáková, 2013; Kudrowitz, Oxborough, Choi, & Stover, 2014). Hence, it is likely that designers can successfully team up with culinary chefs to create new

and surprising dishes. They share a desire for creation, but also have their own fields of expertise that are complementary, such as the specialist knowledge of food ingredients, cooking methods, and preparation processes from the chef and the expertise on materials, 3D prototyping, and design methods from the designer.

3. What designers may learn from the food & eating realm

The domain of food and eating offers designers a number of interesting possibilities and challenges. I will give an overview of possible topics below, roughly divided into material properties, unique and food-specific properties, and challenges for food in society (from Schifferstein, 2016).

Food aesthetics

What makes foods remarkable as aesthetic objects is that people use all the different sensory modalities in the interaction with food products (Schifferstein, 2006). Each sensory modality employs a different perceptual mechanism and responds to a different type of stimulus (Schifferstein & Cleiren, 2005), but each modality also has its own mode of aesthetic experience. The laws that govern these aesthetic responses may be partly shared over modalities and are partly modality-specific (Schifferstein & Hekkert, 2011), but they all contribute to the overall product evaluation. Hence, food products offer the unique possibility to engage with all the senses in creating aesthetic responses. And the more senses are involved in creating a unified impression, the more engaging that experience is likely to be (Bahrick & Lickliter, 2000).

Prototyping material

Foods give designers access to an incredible amount of prototyping materials. They provide an enormous wealth in textures, consistencies, shapes, and colours that show interesting transformations when they are cut, heated, and moulded. Foods allow for a rapid, iterative process of developing concepts through preparing, cooking, testing, evaluating and adjusting (Bruns Alonso et al., 2013). In addition, food processing in a kitchen environment has been used successfully as a model to explore and experiment with complex and less accessible industrial processes, such as casting, extrusion, and contact moulding (Ayala, 2015). The familiarity of the material, the widespread availability, and the possibilities to adjust its properties through shaping, processing and cooking help to stimulate an embodied, hands-on approach in experimenting. In addition, by evaluating the sensory qualities of the end products, designers receive direct feedback on their manipulations. For instance, the shape of bread depends on the way the dough is shaped, following the baker's movements. Hence, this food product offers the possibility to relate movements of making to movements of eating. The familiarity of food as an everyday product allows designers to connect easily to their momentary and remembered personal experiences and to relate personally to the design topic at hand (Bruns Alonso et al., 2013). Because food preparation is always

embedded in specific cultural practices, foods help in developing designers' socio-cultural awareness, both of the designer's own culture and of unfamiliar cultures.

Do-It-Yourself materials

Food products and its waste can serve as the basis for new materials that designers can create themselves (Rognoli, Bianchini, Maffei, & Karana, 2015). These DIY materials allow designers to go beyond industrial and mass customized materials in creating new materials with unique experiential qualities. Such autonomous and independent production of materials enables designers to develop their own personal fabrication strategies, resulting in unique, custom-made products.

Perishability

If you start using food as design material, you will immediately notice that it is extremely perishable. Food quality literally deteriorates while you are working with it. Attracting (or losing) moisture, heat, or oxygen can quickly ruin a tasty product. Hence, designers who work for the food industry need close cooperation with chefs, food chemists, microbiologists, physicists and other specialists to create new products that are relatively stable and easy to prepare. In addition, designers need to be aware that any mistakes they make can directly harm people, if foods become infected or polluted. This provides an interesting, new environment in which designers can sharpen their capabilities.

Seasonality and regionality

Many food products are originally seasonal and regional products. To increase availability of products, the agricultural sector and the food industry have developed new ways of breeding, harvesting, transporting, storing, packaging, and preservation in order to increase availability, up to the level where products are available all year round around the globe (e.g., Shafiur Rahman, 1999; Zeuthen & Bogh-Sorensen, 2003). However, these changes have not necessarily improved the sensory and nutritional quality of the available food. In my opinion, in some cases the system has failed drastically: whereas oranges and mandarins that were available in the 1970s in the Netherlands only in wintertime were extremely juicy and tasty, the fruits that are currently available all year round are often dry and tasteless. This asks for new solutions that bring back the tastiness of good quality foods in Dutch supermarkets.

Connecting production to consumption

Due to the large distance between food production and consumption, many consumers have only limited knowledge about the products they consume. Being unaware about the effort that has gone into the production of a product is likely to result in low appreciation of the product and its producers, and increases the probability that the product is spilled or wasted. On the other hand, modern media make it relatively easy to obtain such knowledge in an instant, and to connect to people all over the world who may be involved in the

production, processing and trading of the various products. Hence, in order to avoid unnecessary waste and in order to build up a sustainable food system, one of the strategies may be to develop a system that connects people more closely to the food they consume. This requires a design approach that focuses on developing a system of production, processing and trading that provides good environmental and working conditions for everyone involved, and on creating good and reliable customer service that can provide all relevant information. Here lies a design challenge to create more transparency in the food chain, so that each consumer can find out where the product she buys was produced, and thereby re-establish the connections between production, processing, trading and consumption.

Promoting behavioural change

Current food and eating designers more and more also support behavioural changes among consumers, to improve a healthy life style. For instance, designer Boguslaw Sliwinski created plates with drawings in order to motivate children to eat vegetables (Dezeen, 2015). The HAPIfork helps people to slow down during eating by monitoring how fast they eat and warning them if they eat too fast (Hapi, 2015). Researcher Brian Wansink (Wansink, 2014) provides checklists with which you can redesign eating environments in order to support weight loss. Each of these examples can inspire designers to provide solutions that promote healthy eating behaviour.

3D printing

Although 3D food printing holds many promises that require further explorations, its role in the future food chain and its impact on the food industry are largely unknown. The 3D printer might develop in the direction of the food replicator that we have seen aboard spaceships in the science fiction series *Star Trek*: An apparatus that can generate a food product tailored exactly to the individual consumer's needs and wishes (Sher & Tuto, 2015; Sun, Peng, Yan, Fuh, & Hong, 2015). The introduction of such a device will have major implications for the way in which the food production chain is organized and how food quality is assured. Currently, it is already possible to print 3D food structures using basic materials, such as sugar, chocolate, or pasta (Dezeen, 2015; Sugar-Lab, 2015). In addition, 3D printing techniques hold promises for the creation of specific food structures that are hard to produce with other methods, such as the layered filament structures that are characteristic of meat (Sher & Tuto, 2015). Furthermore, 3D printing may be appealing to patients with very specific dietary needs, for people preparing foods in remote areas or under extreme conditions, or for culinary chefs who would like to create very complex or unique food structures.

4. Papers in this thematic session

Hermannsdóttir, Dawes, Gideonsen, and De Moor, who try to stimulate people's connection with nature and their respect for authenticity and the people involved in food production in order to develop more sustainable food systems, tackle the challenge to connect food production and consumption.

Another paper by Stergiadou, Darzentasa, and Bofylatosa also addresses the theme of sustainability, but these authors use the design of food packaging to communicate the values of sustainability. By embodying issues of concern, they hope that packages can stimulate consumers to reflect on the implications of their product usage and motivate them to adapt their behavior accordingly.

Fenko, Heiltjes, and van den Berg-Weitzel try to increase the quality of design by increasing the coherence between food, brand, and packaging in their offering. Hence, this paper broadens the perspective from the food product to the brand and the packaging to develop a more holistic and multisensory approach to product perception and innovation.

Together these three papers tackle interesting issues in food packaging design and provide essential suggestions on how we might increase the sustainability of the food chain. However, these papers can only cover a small amount of the interesting and important issues that I have described in this tentative overview of food and eating design topics. Hence, I hope this paper will inspire more designers to work in this important realm: our everyday experience with the foods that nourish us and provide us with pleasure.

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