Adding some zest to product development articles

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EDITORIAL

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Adding some zest to product development articles: How food technology findings can spark designers' interest

ABSTRACT

To qualify as food design, technological details must be placed in perspective of the all-encompassing challenge of designing a successful, tasty food product that contributes to a desirable society. Articles describing food product development typically focus on technological issues, while they should provide a broader, multidisciplinary perspective to inform food design. Furthermore, food design articles also consider the creative and developmental processes followed to innovate. Including a description of the future consumption context can complete the discourse.

KEYWORDS

food science
design process
multidisciplinary
consumer behavior
food business
future context

In a previous editorial, I touched upon the question of what the defining characteristics of the field of food design are (Schifferstein 2022). Answering this question is vital for the *International Journal of Food Design* (*IJFD*), because the journal editors have to decide whether submissions belong to the field of food

design or not. A specific question concerns articles that take a technological approach to developing a new food product or studying an ingredient of a product: What criteria must they meet to qualify as food design articles? Food design projects go beyond the activities of product development teams in companies or those of chefs creating a new dish. But what makes them different? To clarify the issue, I consulted several colleagues and editorial board members. The results of our discussions can be found below.

The first criterion previously identified is that a diversity of academic disciplines are involved in food design. Design challenges tend to be broad, and the new design can impact consumers and society in multiple ways. In my first article in this journal (Schifferstein 2016), I indicated that knowledge about food technology, consumers and the commercial food environment is essential for new product development. Designers add value to the innovation process by broadening this process to include additional disciplines, like food history, media studies, policy considerations and so on (Figure 1). The designers' aim goes beyond making a food product that consumers like and that is profitable to companies. How is the food digested and what effect does it have on the body? What meaning does the product acquire for consumers over time? What emotions does it evoke? How does it fit into the company strategy? What role does it play in societal challenges, such as those related to public health, environmental impact, animal welfare, worker conditions, food safety and accessibility, or cultural heritage? This way of approaching challenges ties in with the desire of many designers to make the world a better place.

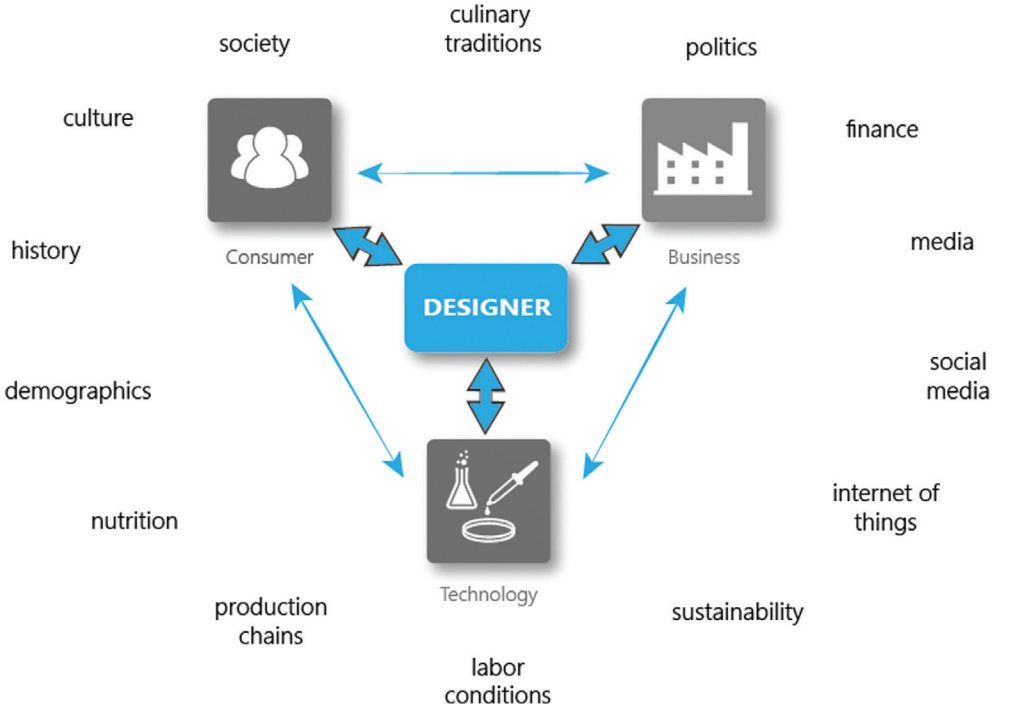

Figure 1: Role of designers in food innovation (from Schifferstein 2016).

To achieve impact, designers must combine inputs from many different viewpoints to increase the likelihood of successful adoption and implementation.

Another essential element of food design is the interest in the process of how designers and researchers create interventions in an effort to improve elements of the food system. Therefore, articles in this journal should not only report outcomes, but also describe, analyse and reflect on the processes followed to innovate. Food design should emphasize the choices a designer makes when developing a new food or prototype. While aspects of the chemical, physical or biological consequences of such choices obviously play a role in technology-oriented design projects, the reflections on the shape, appearance, structure, texture, taste and smell of food must be leading and should be considered in the context of the individuals or communities for whom these foods are developed. Insights in the creative and development processes are important so designers can learn from the pros and cons of each other's approaches, the enablers and barriers they encountered, and the reactions of different stakeholders. In addition, these reflections make it possible to link up with the design literature, where lessons can be exchanged and learned from other areas of design.

A third element that often characterizes design challenges is that they aim to improve a situation in the future. Therefore, painting a picture of that future, describing the characteristics of this anticipated context, and reflecting or speculating on what applications the proposed design might have in this future context is also part of many food design studies.

Although food technology is presented as an essential element of food design in Figure 1, scanning the articles in the past eight volumes of *IJFD* will not provide many details about technical aspects of food products. Some exceptions reported the nutritional composition of (combinations of) food products to determine their suitability in healthy and sustainable diets (Daverkosen et al. 2022; Ibsen et al. 2022; Kauppi et al. 2019). Furthermore, Schmidt and Mouritsen (2022) reported the content of nucleotides and glutamate in various products in a study on umami taste perception. In other cases, authors provided details on the products they prepared and provided to consumers for assessment (e.g. Velasco et al. 2016; Westling et al. 2021). In all these cases, the technological data did not play a major role, but provided background information for the design of the study or supported the main reasoning. The only exception in which food technology played a crucial part can be found in Pedersen et al. (2021), who elaborated on the technological processes that can make the flesh of a jellyfish crispy.

So why are there only a few articles with a food technology focus in *IJFD*? In the last few years, we have received several submissions from food technologists, but many of these were not admitted to the review process because they did not fulfil the criteria outlined above. Nonetheless, I must admit that there is room for discussion, because some articles include multiple measurements, including chemical analyses, shelf-life tests with micro-organisms counts, instrumental measurements (e.g., colour, texture), and some also included sensory test panel results. So multiple disciplines were involved, but these were all part of the 'Technology' box in Figure 1 and they did not provide insight into how the product would fit in consumers' lives, or what the market opportunities and challenges for food companies were. Moreover, they did not take into account the complexity of the food environment, as (partly) visualized in the outer circle of Figure 2. In many food design projects described in *IJFD* the relationships in and with the

outer circle take on a central role, and the components of the inner triangle become just three of many variables of interest.

As far as the description of the creative processes is concerned, many technical product development processes tend to follow a linear rather than an associative development process. The linear problem-solving process typically focuses on direct solutions to any identified problems (e.g. Lawson and Dorst 2009). For instance, if consumers find it convenient to store a product longer, food technologists may try to extend product shelf-life by experimenting with heat treatments, new packaging, adding preservatives or investigating other storage conditions. Designers, on the other hand, may wonder why consumers want to keep the product longer and can begin to examine consumer habits and the ways in which the product is used. As a result, they can come up with a completely different kind of solution that does not even involve the original food product. Therefore, a description of a specific technological solution and its corresponding development process may not appeal to the designer audience because it can be difficult to derive general insights that have implications in other contexts.

In this respect, it is interesting to look at the example of the jellyfish article (Pedersen et al. 2021) to see what makes it different from other food technology articles. These authors use the case study of the crispy jellyfish 'to exemplify how physical and chemical methodologies and thinking can be applied to tackle questions in gastronomy and provide both understanding of traditional preparation methods and points towards novel preparation techniques and gastronomic products' (2021: 163). The technological knowledge thus provides insight into what happens during food processing and preparation, highlighting how relevant this is for applications in the food industry and gastronomy, where product developers and chefs can use these insights to create new products and recipes. However, in order to make a successful product proposition, the creatives must also consider consumers' prejudices about jellyfish, culinary traditions, fishery supply chains and so on, reconnecting them to the intricacies of the food system. That is why the authors describe explicitly how their technological experiments relate to the greater whole of the food production and consumption context. And this is what it takes to make food technology projects relevant to food design professionals. Ultimately, design is about creating something for other people. Thus, a description of the food engineering process that is void of how this connects to the user and the market situation is not a food design article.

I hope to see more articles using technological data to inspire food design processes in future *IJFD* issues. Therefore, I would like to encourage researchers with a food science background to submit articles in which they open up their range of considerations to discuss the potential impact of their findings for new products, new market opportunities or contributions to sustainable innovations, in line with issues of primary production, transportation and distribution, culinary creativity, retail channels, consumer habits or disposal strategies, in order to engage food designers more in their work.

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Hendrik N. J. (Rick) Schifferstein is associate professor at the Faculty of Industrial Design Engineering of Delft University of Technology. His topics of interest include (multi)sensory perception, food design and experience-driven innovation. He contributed to 100+ articles in international scientific journals, including *Acta Psychologica*, *Food Quality and Preference*, *Chemical Senses*, *Materials & Design* and *International Journal of Design*. He is principal editor of the *International Journal of Food Design*, and co-editor of the books *Food, People and Society* (Springer Verlag, 2001), *Product Experience* (Elsevier, 2008), *From Floating Wheelchairs to Mobile Car Parks* (Eleven International, 2011) and *Advanced Design Methods for Successful Innovation* (Design United, 2013). He is founder and director of the Food & Eating Design Lab https://delftdesignlabs.org/food-design/ in which staff members and design students work together to improve people's interactions with their daily foods.

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