

ABSTRACT

The Náttúra dining concept developed by Kitchen Theory ran from September to December 2014 in London. It was inspired by the New Nordic Cuisine Manifesto which has influenced not only cuisine in the Nordic countries but international gastronomy more broadly for a number of years now. This multisensory dining concept incorporated dishes that have subsequently appeared in peer-reviewed academic research, including in this journal, thus highlighting the potential of practice-led gastrophysics research (as in research that was designed to optimize the eye-appeal of the plating of one of the dishes served on the menu). By incorporating different nature/natural sounds with each pair of courses (namely the sounds of the earth, wind, fire, and water), this multisensory dining concept bridges the contemporary interest in ‘sonic seasoning’ and the increasingly common approach of incorporating atmospheric soundscapes into gastronomic dining experiences. At the same time, nature videos projected onto the wall of the dining room, together with the use of atmospheric ambient aromas incorporated into several of the dishes further helped to transport guests to a range of different immersive multisensory environments, all loosely connected by an Icelandic theme.

KEYWORDS: MODERNIST CUISINE; NORDIC FOOD MOVEMENT; AMBIENT
SOUNDSCAPES; GASTROPHYSICS; ORIENTATION BIASES.

1. Introduction

Náttúra, the multisensory dining concept developed by Kitchen Theory, ran from September to December 2014 in London. This immersive gastronomic dining experience was inspired by the New Nordic Cuisine Manifesto that has been so prevalent in the world of fine dining over the last decade or two (e.g., Neuman & Leer, 2018; <https://www.norden.org/en/information/new-nordic-food-manifesto>).¹

1.1. Náttúra: Concept development

When researching the concept, the Kitchen Theory team began by looking into the New Nordic Cuisine and the New Nordic Cuisine Manifesto, a culinary movement that had been developed in the Nordic countries, and Scandinavia in particular, since the early 2000s (Micheelsen, 2013). Denmark, and especially the city of Copenhagen, is widely considered to be the creative hub of the movement (Leer, 2016). The New Nordic Cuisine food movement was initiated by Danish food activist and entrepreneur, Claus Meyer (Henry, 2016), along with a number of Scandinavian chefs in 2004 in Copenhagen (Morris, 2020). At the initial conference, a manifesto was formulated and signed by a number of chefs from Denmark, Iceland, Sweden, Greenland, Norway, Finland and the Faroe Islands (Micheelsen, 2013, p. 19).

The basic principles of the manifesto were inspired by a deep and genuine desire to develop a new, healthy, and tasty Nordic food culture (Bergflødt, Amilien, & Skuland, 2013; Micheelsen, Holm, & O'Doherty Jensen, 2013; something that some would say the UK is perhaps also in need of; see Warde, 2009). The key components of this style of cuisine, and its underpinning manifesto, revolve around a respect for nature, seasonality, locality, a regard for the origin of the products (e.g., terroir; Tholstrup Hermansen, 2012; cf. Trubek, 2009), and simplicity (see also Morris, 2020). That said, no attempt was made as part of the Náttúra dining concept to incorporate entomophagy, as has also been popularized by the Nordic Food Lab in recent years (e.g., Evans, Flore, Bom Frøst, & Nordic Food Lab, 2017; see also Mikanowski, 2014).²

¹ Though as Moskin put in an article that appeared in The New York Times: “No one saw this coming. In the last five years, a new culinary movement has washed through the world’s top kitchens, flowing not from Spain, France or the Mediterranean, but from Copenhagen, Stockholm and points as far north as Lapland” (Moskin, 2011).

² For example, in 2013, the Nordic Food Lab, Festival, and the Wellcome Collection in London organized a two-night culinary event “Who’s the Pest?”, (<http://www.festival.org/news/09052013195103-a-guardian-film-about->

In developing the Náttúra concept, the team at Kitchen Theory came across a book by Booth (2014) referring to a Norwegian language professor working at Oslo university who had declared English to be a Scandinavian Language. This anecdotal suggestion led the research team at Kitchen Theory to read around the topic further. Their research soon revealed that the UK actually has more in common with the Nordic countries than it does with mainland European countries such as France, Spain, and Germany in terms of its humour, tolerance, religion, honesty, stoicism, and weather amongst a number of other factors that can help to shape culture. As such, there appeared to be good grounds for wanting to extend the New Nordic Cuisine ethos to the UK (Byrkjeflot, Pedersen, & Svejenona, 2013; Mithril, Dragsted, Meyer, Blauert, Holt, & Astrup, 2012; cf. Wilson, 2016). However, beyond this general theme, the concept was curated on the basis of multisensory and immersive experience design principles (see Velasco & Obrist, 2020), as well as a desire to introduce a more theatrical approach to service (see Spence, 2017a). In particular, the multisensory dining experience was specifically designed to simulate all five of the guests' major senses (namely sight, sound, touch/oral-somatosensation, taste, and smell) both on- and off-the-plate. Ultimately, Náttúra aimed to immerse the diners in a Nordic experience, while at the same time transporting them to a variety of different nature-inspired environments (all loosely based on an Icelandic theme).

Note here how Iceland has also held a certain fascination for multisensory and culinary artists, as evidenced by the one-off artistic/gastronomic collaboration between Teresa Stehlikova and Charles Michel. Their 'Sense of Iceland: A multisensory banquet experiment based on William Morris' Journey to Iceland, 1871/1873' incorporated various Icelandic themes to stimulate their guests' senses (Huxley, 2014).³

1.2. Practice-led research

Náttúra incorporated a number of elements that subsequently led to empirical research that has since been published (e.g., Spence, in press-a; Spence, Michel, Youssef, & Woods, 2019;

[nordic-food-lab-and-pestival-collaboration/-](#)). The audience was presented with a range of tasting elements including a French-style mousseline containing wax moth larvae with morel mushrooms, butter-roasted crickets, and a tangy ant-gin cocktail (see <http://nordicfoodlab.org/blog/2013/5/pestival>).

³ For more information on this event, see: <https://vimeo.com/80721532>; <https://cinestheticfeasts.com/2014/01/05/senseoficeland/>; <https://cinestheticfeasts.com/2013/11/27/icelandic-dining-exploration/>.

Youssef, Juravle, Youssef, Woods, & Spence, 2015). The dining concept itself built on the principles of modernist cuisine / molecular gastronomy (see Del Moral, 2020; Spence & Youssef, 2018; Youssef, 2013). As such, the dining experience can be seen as providing a bridge between the Nordic Food Movement and the emerging science of gastrophysics (see Spence, 2017a). The dining concept can also be seen as fitting the applied approach to research outlined recently by Fooladi (2020; Fooladi, Hopia, Lasa, & Arbolea, 2018; see also Spence & Youssef, 2016b).

1A.



Figure 1. *A Taste of Nature*. Cox apple cream, cobb nuts, apple caviar, curd, and damson syrup. A. How the plate was originally intended to be served. B. The figure shows the same dish plated in two ways. Each dot around the two plates highlights the preferred orientation of the dish for one online participant. The size of the purple segment in the rose diagram highlights the preference for a specific range of orientations. On the basis of the results of the online research, this dish was plated and placed in front of diners so that the dominant line ascended to the diner's right (see also Spence, 2019). [Figure reprinted from Youssef et al. (2015).]

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94 The visual design of one of the dishes, namely *A Taste of Nature*, led on to research orientation
95 bias in plating (see Youssef et al., 2015). **Figure 1A** shows how the dish was initially envisaged
96 prior to the results of online plating research that helped to identify that an oblique angle for
97 the dominant line would be preferable in terms of maximizing the eye-appeal of the dish (see
98 **Figure 1B**) (see Spence, Okajima, Cheok, Petit, & Michel, 2016, for a review of gastroporn).
99 Here, it is interesting to note how subsequent gastrophysics research has highlighted the
100 ubiquity of the ascending to the right preference bias (at least when compared to a dominant
101 element on the plate ascending to the left (see also Spence, 2019). At the same time, however,
102 it is also important to note how chefs may sometimes also want to challenge the conventions
103 (e.g., of plating; though see also Carbon & Pastukhov, 2018) in order, perhaps, to emphasize
104 their innovative approach (see Roque, Guastavino, Lafraire, & Fernandez, 2018; see also
105 Zellner, Loss, Zearfoss, & Remolina, 2014).

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107 1.3. Náttúra: The menu

108 The final menu for the Náttúra dining concept is shown in **Menu 1**. It is perhaps worth
109 highlighting here the food-beverage pairing that was incorporated into this particular dining
110 concept, given the growing popularity of ‘flavour pairing’ in recent years (see Spence, 2020a,
111 for a review).



Amuse bouche

Pickled mackerel, seaweed

A taste of nature

Cox apple crème, pickled wild celery, beetroot, homemade curd

**Terrain Chardonnay*

A taste of the earth

Leek soup, goat's cheese crème, leek ash, parsley oil

**Tourraine Sauvignon Blanc*

A taste of the wild

Wood pigeon, mushroom & chestnut oats, rowan berry, pickled cep

**Crozes Hermitage Caladieres Pierre Amadieu*

A taste of the sea

Poached smoked haddock, sea vegetables

**Muscadet Sur Lie Domaine de la Chauviniere*

Pre-dessert

Danish pastry with elderberry compote and yogurt parfait

**Koenig Muscat*

Northern Lights Dessert

Green apple and chocolate mousse, blackberry, walnut silver sand

**Blackberry Bellini*

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113 Menu 1. The final menu for the Náttúra dining concept.

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115 **2. Atmospheric ambient soundscapes**

116 Beyond the design of the food itself, one of the key elements of the Náttúra multisensory dining
117 experience was the deliberate inclusion of nature-inspired/natural soundscapes chosen to
118 accompany each pair of courses on the menu, namely earth, wind, fire, and water. The idea to
119 incorporate atmospheric sounds was, in the first instance, inspired by the international success

of the 'Sound of the sea' dish, as popularized by The Fat Duck restaurant in Bray (e.g., Blumenthal, 2008; Spence, Shankar, & Blumenthal, 2011), where the sashimi comes to the table arranged to look like the sea shore with a conch shell out of which emerge earbuds playing the sounds of waves crashing gently on the seashore, and seagulls squawking overhead. It has recently been suggested that the nature sounds incorporated into (or rather accompanying) the 'Sound of the sea' dish may help to trigger positive nostalgia in diners (Leonor, Lake, & Guerra, 2018). This is certainly not the only emotion that the sounds of the sea can be used to evoke though (Brennan, 2020). Furthermore, the atmospheric sounds of the sea approach has recently been extended by Youssef, Keller, and Spence (2019), with their Jellyfish Dish which incorporates both the sounds of the ocean, and intermittent crunching sounds (once again presented over headphones).

2.1. The nature effect

At the same time as choosing nature sounds to complement (and hence be in some sense congruent) with the food being served, however, it is worth noting that there is also an emerging literature documenting the beneficial effects of the nature effect (e.g., see Spence, 2021; Williams, 2017). And while the majority of research has tended to focus on the sight of nature (consistent with a more general visual bias; see Hutmacher, 2019), the research now clearly shows that the sounds of nature (e.g., bird song) can also be relaxing and help to restore our mental resources (e.g., Alvarsson, Wiens, & Nilsson, 2010; Anderson, Mulligan, Goodman, & Regen, 1983). What is more, it would appear that the more types of birds that one can hear, the more restorative the soundscape (Ratcliffe, Gatersleben, & Sowden, 2016; see also Hedblom, Heyman, Antonsson, & Gunnarsson, 2014). Furthermore, it has now been shown that combining the sights and sounds of nature can sometimes give rise to more of a benefit than simply just experiencing nature via one of the senses (e.g., Spence, 2021; Steinwald, Harding, & Piacentini, 2014). Here, one might also wonder whether adding a nature-related scent could also help improve the nature effect still further (see Spence, 2020b, for a review). While it might be assumed that the direct, or unmediated, exposure to nature ought to be best, numerous studies now show that digital (or even plastic; see; Krieger, 1973) renditions of nature can also have a surprisingly beneficial effect on the well-being of those exposed to such sensory cues (cf. De Kort, Meijnders, Sponselee, & Ijsselsteijn, 2006).

At the same time, however, the incorporation of ambient sound into the Náttúra dining concept was designed to go beyond simply reproducing the sounds of nature. The research team at Kitchen Theory also wanted to question what nature really sounds like, and whether it is necessarily always positive (see Spence, 2021). The sounds of birds are not always positively-valenced: In fact, this was precisely the idea behind chef Jozef Youssef's, idea to incorporate the sounds of a duck being chased and then dispatched prior to serving a duck dish as part of one dining concept (Spence & Youssef, 2016a; see also Marinetti, 1932/2014). Listening to the last hectic moments of the duck's life made many of the diners giggle; It made a few of them feel uncomfortable about what they were about to eat, which was, in fact, the idea. That is, the intention was to make the diners much more mindful of where their meal (specifically their animal protein) has come from. There are, then, multiple reasons why one might want to incorporate atmospheric nature sounds into a multisensory dining experience. And it should not be assumed, as often seems to be the case, that all nature sounds are positive/relaxing/calming.

Two of the dishes on the Náttúra menu, in particular, *A Taste of Nature* and *A Taste of the Earth*, were accompanied by ambient nature sounds (sourced from <https://sound-effects.bbcrewind.co.uk/search?cat=Nature>). The *A Taste of the Wild* dish was accompanied by the sounds of a crackling log fire (cf. Velasco, Jones, King, & Spence, 2013, for a similar use of such sounds as a part of an immersive multisensory whisky-tasting – The Singleton Sensorium), and the *A Taste of the Sea* dish was accompanied by the sounds of crashing waves instead (cf. Spence, in press-b). The deliberate incorporation of atmospheric sounds can also be seen as acknowledging the undoubted influence that ambient sounds have been shown to have on the multisensory tasting experience (see Spence, 2014; Spence et al., 2011, 2019). All of the tracks were played at a comfortable listening level given the number of diners present. No formal measurement of sound pressure levels (SPLs) was undertaken. In future interventions, it would be ideal to measure this given it can impact tasting (Bravo-Moncayo, Reinoso-Carvalho, & Velasco, 2020)

2.2. Crossmodal congruency

One of the things that would appear to be important when trying to develop immersive multisensory atmospheric dining experience is the importance of crossmodal congruency (see

Anderson et al., 1983; see also Schreuder, van Erp, Toet, & Kallen, 2016). However, quite how congruency should be defined in this context is perhaps up for debate, or at the very least is worth closer consideration (e.g., Heckler & Childers, 1992; Shen & Chen, 2006), especially given how central the notion of crossmodal congruency is to many contemporary accounts of sensory interaction (Spence, 2011). As a restaurateur, one presumably has to provide some form of auditory stimulation, otherwise the atmosphere in the dining room can appear oppressively quiet (i.e., like a library). At the same time, however, playing the same music from the kitchen in the dining room, can often lead to dangerously loud music levels (see Spence, 2015, for a review). One might question the extent to which background music, such a popular feature of many restaurants is rarely ‘congruent’ even when it is curated. At the same time, however, it should also be acknowledged that the phenomenon of ‘sensation transference’, whereby the more your guests like the music that you happen to select, the more they tend to like whatever it is that they have been given to eat (e.g., Reinoso-Carvalho, Dakduk, Wagemans, & Spence, 2019; Reinoso-Carvalho, Gunn, Molina, Narumi, Spence, Suzuki, ter Horst, & Wagemans, 2020), meaning that one might be well advised to play appropriately-selected popular music, no matter whether it is ‘congruent’ or not (see Spence, Reinoso-Carvalho, Velasco, & Wang, 2019, for a recent review, of music effects on the experience and behaviour of diners).

To the extent that many diners expect to hear music in the context of a casual dining restaurant, this might lead one to consider the sound of music as being congruent, almost regardless of the degree of musical match. There are, though, a variety of atmospheric sounds, some musical, others not, that can also be considered as congruent with the history of the ingredients and their sometimes convoluted path to the diner’s plate. Indeed, a number of creatives have tried to capture the sounds of the place where the ingredients were grown. This includes Jo Burzynska’s incorporation of the sounds of an Italian vineyard during the year into a multisensory wine-tasting experience (e.g., Burzynska, 2012, 2018). Similarly, a few years later, Prof. Spence worked on a multisensory dining event/experience with Taiwanese chef Fudy Chen where recordings taken from the urban garden supplying Chen’s popular Taipei restaurants, were played those nature sounds back to connect the diners eating in his restaurant to the source of the ingredients making up their plates of food. Such attempts to capture the multisensory aspects of the places/environments where the ingredients were sourced will likely also help to enhance any sense of terroir that may be associated with the ingredients/food/beverage

products (Barbosa Escobar, Petit, & Velasco, 2021). One can think of this as yet another kind of crossmodal congruency.

Playing with the multisensory congruency, much like the challenging of plating conventions, can once again represent an opportunity to break the flow of a dining experience, and effectively capture the diner's attention as they try and resolve the incongruency (cf. Mitchell, Kahn, & Knasko, 1995). At the same time, however, it is also important to note how sensory incongruency can all too easily come across like bad design unless it is well executed, and appropriately interpreted (Piqueras-Fiszman & Spence, 2012). It is also worth stressing that what may appear congruent in the mind of the maker (such as playing the sounds recorded from the product's source) may not immediately be recognized as such by the diner. Depending on how the experience is curated, there may be a need (or better said, an opportunity) for the latter to resolve the initial combination of sensory inputs (both on and off the plate) that may make little sense (which may, in fact, seem incongruent) in order to achieve what may sometimes be an aesthetic aha (see Muth & Carbon, 2013). It is worth noting that the latter tends to be a positively-valenced experience and may help to explain why so many people are brought to tears by dishes such as the 'Sound of the sea' (Spence, 2020c). Looking to the future, the gastrophysics research approach should be able to help the adventurous chef better gauge the degree of novelty/incongruency in dish/dining concept so as to home in on the 'sweet spot' as far as getting the right amount of novelty is concerned for the typical diner.

In a sense, these two examples can be seen as analogous to the innovative musical compositions created by Sweden's Per Samuelsson literally makes music with the sounds from the kitchen (Spence, 2015). Samuelsson records the sounds of preparation, the noise of peeling, chopping, slicing, dicing, grinding, shaking, and stirring as the chefs prepare the dishes that will later be served. These sounds are then used as the elements (or instruments if you will) in Samuelsson's musical compositions which are very much site/event specific. That is, the musical compositions are played back to the diners while they are enjoying the foods that have been prepared in the kitchen. The diners are quite literally hearing their dinner being prepared. This approach would certainly appear to help foster a closer connection between the kitchen and the diners. According to a presentation that Samuelsson gave at the 2014 Sensibus Festival in Finland (Samuelsson, 2014), one of the aims behind these musical compositions is to highlight the often unacknowledged effort that is so often involved in creating the food that the diner all too happily eats. In the process, an immersive multisensory environment is created that is intended to enhance the experience of the meal for those who are lucky enough to be there.

One can perhaps think of this as a very particular kind of congruency (see also Jin, Jin, & Kang, 2020, on other aspects of multisensory congruency).

3. Ambient aroma

Several of the dishes served as part of the Náttúra dining concept were accompanied by ambient olfactory element. So, for example, the *A Taste of the Earth* dish was paired with the smell of geosmin (one of the main compounds in the air when the rain falls after a dry spell of weather or when soil is disturbed). The aroma, often referred to as petrichor, was delivered via an atomiser that was spritzed over the diners as the dish was served (see also Spence, 2017b, for a number of other examples of the more ‘theatrical’ incorporation of ambient atmospheric scent). Intriguingly, this was rated overall as one of the diners’ favourite dishes on the menu according to anecdotal feedback given to the staff. The *A Taste of the Wild* dish, meanwhile, was accompanied by a smoky aroma released from the blow-torched Douglas fir leaves that were placed on each diner’s plate at the pass (see **Figure 2**). The *A Taste of the Sea* dish (see **Figure 3**) was accompanied by the aroma of the sea, created using oyster shells and fresh seaweed (see Spence & Youssef, 2015). The resulting aroma was once again theatrically presented at the table in the form of a dry ice cloud which covered the diner’s table, re-creating sea mist. Notice how the ambient olfactory cues have become an increasingly common feature of multisensory immersive dining experiences. Here, though, it is worth noting that capturing an authentic smell of the sea is a more challenging endeavour than it might at first appear (see Trebolazabala & Atxa, 2012, on this theme).⁴

The use of ambient olfactory cues can be thought of as yet one more example of ‘off-the-plate dining’. It is worth stressing how the idea behind the incorporation of ambient aromas was very much to provide an atmospheric background for the dish (i.e., much like the atmospheric soundtracks and visuals), rather than necessarily to modify the taste of the food itself (see Spence & Youssef, 2015). As such, the use of atmospheric scents relies on the diner’s ability to segregate foreground aromas of the food itself from the atmospheric background aromas. While we typically appear to be able to do this effortlessly, this psychological/perceptual

⁴ Chef Youssef and his team at Kitchen Theory tried dimethyl sulphide, the main compound in the smell of the sea (Johnston, 2008; O’Connell, 2009; Wolfe, 2014). However, it did not really smell like the sea, more like bog water (see also Spence, in press-c).

capacity relies on some pretty sophisticated ability to engage in olfactory (scene) segregation of figure from background (see Spence, 2017a, c).

At the same time, however, one might also want to question the extent to which pleasant ambient scents really do influence a diner's immersion in the multisensory scene created within the confines of the dining room. For, at least according to virtual reality (VR) research, the suggestion is that it is the unpleasant scents that do most to enhance a person's immersion in a particular environment whereas pleasant and neutral scents seemingly have little impact on immersion (Baus & Bouchard, 2017; see also Ischer, Baron, Mermoud, Cayeux, Porcherot, Sander, & Delplanque, 2014). At the same time, however, it is important to stress that the dry ice diffusion of scent, as well as the spritzing of scent over the diners at the table, undoubtedly adds a theatrical element to proceedings that informal questionnaires suggest stay with the diner long after the meal has finished (see Spence, 2017a). Enhancing 'sticktion' (i.e., the memorability of the dining event in hindsight) is presumably just as important as maximizing the diner's immersion in the moment (see LaTour & Carbone, 2014).



Figure 2. A Taste of the Wild. Wood pigeon, smoked mushroom puree, chive powder, rowanberry gel, and douglas fir. Douglas fir leaves were blow torched and placed on diner's plates to deliver a smoky aroma with the dish. The plating can be seen as inspired by the Nordic approach. According to Morris, when describing the latter: *"We put the forest, or the shore, or the snow on a plate in front of you, Redzepi's dishes often seemed to say."* (Morris, 2020).



Figure 3. *A Taste of the Sea*. Smoked haddock, sea vegetables, black quinoa, and seaweed beurre blanc. A solution with an aroma reminiscent of the sea was created by using crushed oyster shells and seaweed. This was dispersed at the table using dry ice, which created a cloud representing the sea mist.

4. Atmospheric nature projections

A large projection screen mounted on one wall in the dining space displayed nature scenes that, in some sense, correlated with the courses that were served. The *A Taste of Nature* dish was accompanied by a colour video showing the grassy hills of Viðey, the largest island off the Kollafjörður Bay in Reykjavík, Iceland. The *A Taste of the Earth* course was accompanied by a video taken deep within the forest of Heiðmörk, located 6 miles from the city of Reykjavík; *A Taste of the Wild* was accompanied a video shot on Mount Esja, situated in the south-west of Iceland; *A Taste of the Sea* dish was accompanied by a video of crashing waves shot in Akurey, a small island near the coast of Reykjavík. As noted earlier, even digital projections of nature can convey some of the benefit of the nature effect (Spence, 2021; see also Pati, Freier, O'Boyle, Amor, & Valipoor, 2015; Schertz, & Kardan, & Berman, 2020).

5. Cutlery and plateware

Looking back, it is intriguing to note how the cutlery used for the Náttúra dining concept was fairly conventional (e.g., only standard knives, forks, and spoons were used), at least relative to what has emerged in subsequent years as part of subsequent Kitchen Theory dining concepts (e.g., see Welch, Youssef, & Spence, 2016; see also Gander, 2016). At the same time, however, as Figures 2 and 3 make clear, already by 2015 there was a growing awareness on the part of the research team at Kitchen Theory about the importance of matching the food to the plateware. As yet, however, there has been little research on the influence of the plateware on the perception of the food in a fine-dining context (though see Chen, Woods, & Spence, 2018; Piqueras-Fiszman, Alcaide, Roura, & Spence, 2012; Piqueras-Fiszman, Giboreau, & Spence, 2013, for research in this direction).

6. Conclusions

While the design of Náttúra by Kitchen Theory undoubtedly highlights the early nature of the dining concept (which took place in 2014), at least as far as immersive multisensory design is concerned, a number of the elements of the multisensory experience can nevertheless still be seen as formative in terms of what came next (e.g., see Spence & Youssef, 2020, submitted). At the same time, it is perhaps also worth stressing how this use of digital technology (namely visual projections and atmospheric soundscapes) would appear to serve a somewhat different purpose than the more outlandish multisensory atmospherics incorporated at restaurants such as Paul Pairet's Ultraviolet in Shanghai (Bergman, 2012; Gonzalez, 2013; Kessel, 2013), or Paco Roncero's Sublimotion in Ibiza (Moore, 2015; see also The Alchemist immersive multisensory dining experience in Copenhagen, Abend, 2019; and see Ellis, 2017). The focus in the latter immersive multisensory dining experiences primarily appears to be focused on storytelling and entertaining the diners. By contrast, many of the atmospheric soundscapes mentioned earlier, as well as being pleasant to listen to, hopefully also serve something of an 'edutainment' function in the context of Náttúra (see also Spence & Youssef, 2016a; Youssef, Sanchez, Woods, & Spence, 2018).

REFERENCES

- Abend, L. (2019). Inside Alchemist, Copenhagen's jaw-droppingly paradoxical new frontier in fine dining. *Vanity Fair*, **July 9th**. <https://www.vanityfair.com/style/2019/07/inside-alchemist-copenhagen-fine-dining>.
- Alvarsson, J. J., Wiens, S., & Nilsson, M. E. (2010). Nature sounds beneficial. Stress recovery during exposure to nature sound and environmental noise. *International Journal of Environmental Research & Public Health*, **7**, 1036-1046.
- Anderson, L. M., Mulligan, B. E., Goodman, L. S., & Regen, H. Z. (1983). Effects of sounds on preferences for outdoor settings. *Environment and Behavior*, **15**, 539-566.
- Barbosa Escobar, F., Petit, O., & Velasco, C. (2021). Virtual terroir and the premium coffee experience. *Frontiers in Psychology*, **12**:586983. <https://doi.org/10.3389/fpsyg.2021.586983>.
- Baus, O., & Bouchard, S. (2017). Exposure to an unpleasant odour increases the sense of presence in virtual reality. *Virtual Reality*, **21**, 59-74.
- Bergflødt, S., Amilien, V., & Skuland, S. E. (2013). Nordic food culture(s): Thoughts and perspectives by way of introduction. *Anthropology of Food*, **2013**, S7. DOI: 10.4000/aof.7296.
- Bergman, J. (2012). Restaurant report: Ultraviolet in Shanghai. *The New York Times*, **October 3rd**. <http://www.nytimes.com/2012/10/07/travel/restaurant-report-ultraviolet-in-shanghai.html>.
- Blumenthal, H. (2008). *The big Fat Duck cookbook*. London, UK: Bloomsbury.
- Booth, M. (2014). *The almost nearly perfect people: The truth about the Nordic miracle*. London, UK: Jonathan Cape.
- Bravo-Moncayo, L., Reinoso-Carvalho, F., & Velasco, C. (2020). The effects of noise control in coffee tasting experiences. *Food Quality and Preference*, **86**:104020.
- Brennan, A. (2020). Unusual Ingredients: New immersive dining night to explore how music affects flavour. *The Evening Standard*, **February 19th**. <https://www.standard.co.uk/go/london/restaurants/unusual-ingredients-tour-london-food-music-a4365801.html>.
- Burzynska, J. (2012). The sweet rhythms of Italy's vineyards. *The New Zealand Herald*, **August 24th**. http://www.nzherald.co.nz/jo-burzynska/news/article.cfm?a_id=656&objectid=10828652.
- Burzynska, J. (2018). Assessing oenosthesia: Blending wine and sound. *International Journal of Food Design*, **3(2)**, 83-101.
- Byrkjeflot, H., Pedersen, J. S., & Svejenona, S. (2013). From label to practice: The process of creating New Nordic Cuisine. *Journal of Culinary Science & Technology*, **11**, 36-55. DOI: 10.1080/15428052.2013.754296.
- Carbon, C. C., & Pastukhov, A. (2018). Reliable top-left light convention starts with Early Renaissance: An extensive approach comprising 10k artworks. *Frontiers in Psychology*, **9(454)**:1-7.

- 383 Chen, Y.-C., Woods, A., & Spence, C. (2018). Sensation transference from plateware to food:
 384 The sounds and tastes of plates. *International Journal of Food Design*, **3**(1), 41-62. doi:
 385 10.1386/ijfd.3.1.41_1.
- 386 De Kort, Y. A. W., Meijnders, A. L., Sponselee, A. A. G., & Ijsselstein, W. A. (2006). What's
 387 wrong with virtual trees? Restoring from stress in a mediated environment. *Journal of*
 388 *Environmental Psychology*, **26**, 309-320.
- 389 del Moral, R. G. (2020). Gastronomic paradigms in contemporary Western cuisine: From
 390 French haute cuisine to mass media gastronomy. *Frontiers in Nutrition*, **6**:192.doi:
 391 10.3389/fnut.2019.00192.
- 392 Ellis, D. (2017). Out Of The Blue: Berkeley Hotel launch secret cocktail menu promising to
 393 change the way we drink. *The Evening Standard*, **November 14th**.
 394 [https://www.standard.co.uk/go/london/bars/out-of-the-blue-berkeley-hotel-launch-secret-](https://www.standard.co.uk/go/london/bars/out-of-the-blue-berkeley-hotel-launch-secret-cocktail-menu-promising-to-change-the-way-we-drink-a3690976.html)
 395 [cocktail-menu-promising-to-change-the-way-we-drink-a3690976.html](https://www.standard.co.uk/go/london/bars/out-of-the-blue-berkeley-hotel-launch-secret-cocktail-menu-promising-to-change-the-way-we-drink-a3690976.html).
- 396 Evans, J., Flore, R., Bom Frøst, M., & Nordic Food Lab (2017). *On eating insects: Essays,*
 397 *stories and recipes*. London, UK: Phaidon.
- 398 Fooladi, E. (2020). Taste as science, aesthetic experience and inquiry. In P. Burnard & L.
 399 Colucci-Gray (Eds.), *Why science and arts creativities matter: STEAM (Re-)Configurings for*
 400 *future-making education* (pp. 358-380). Brill: Sense.
- 401 Fooladi, E., Hopia, A., Lasa, D., Arboleya, J.-C. (2018). Chefs and researchers: Culinary
 402 practitioners' views on interaction between gastronomy and sciences. *International Journal of*
 403 *Gastronomy and Food Science*, **15**, 6-14.
- 404 Gander, K. (2016). The supper club where diners are given spoons filled with nails to promote
 405 slow, mindful eating. *The Independent*, **August 22nd**. [http://www.independent.co.uk/life-](http://www.independent.co.uk/life-style/supper-club-mindful-eating-steinbeisser-slow-food-movement-amsterdam-california-a7196901.html)
 406 [style/supper-club-mindful-eating-steinbeisser-slow-food-movement-amsterdam-california-](http://www.independent.co.uk/life-style/supper-club-mindful-eating-steinbeisser-slow-food-movement-amsterdam-california-a7196901.html)
 407 [a7196901.html](http://www.independent.co.uk/life-style/supper-club-mindful-eating-steinbeisser-slow-food-movement-amsterdam-california-a7196901.html).
- 408 Gonzalez, L. (2013). Ultraviolet by Chef Paul Pairet incorporates thematic video and perfumed
 409 air into his dining experience. **May 16th**. [http://www.psfk.com/2013/05/multisensory-dining-](http://www.psfk.com/2013/05/multisensory-dining-sight-sound-smells.html)
 410 [sight-sound-smells.html](http://www.psfk.com/2013/05/multisensory-dining-sight-sound-smells.html).
- 411 Heckler, S. E., & Childers, T. L. (1992). The role of expectancy and relevancy in memory for
 412 verbal and visual information: What is incongruity? *Journal of Consumer Research*, **18**(4),
 413 475-492.
- 414 Hedblom, M., Heyman, E., Antonsson, H., & Gunnarsson, B. (2014). Bird song diversity
 415 influences young people's appreciation of urban landscapes. *Urban Forestry & Urban*
 416 *Greening*, **13**, 469-474.
- 417 Henry, D. (2016). Meet Noma founder Claus Meyer: The man behind the Nordic food
 418 revolution. *The Telegraph*, **April 25th**. [http://www.telegraph.co.uk/food-and-](http://www.telegraph.co.uk/food-and-drink/features/meet-the-man-behind-the-nordic-food-revolution/)
 419 [drink/features/meet-the-man-behind-the-nordic-food-revolution/](http://www.telegraph.co.uk/food-and-drink/features/meet-the-man-behind-the-nordic-food-revolution/).
- 420 Hutmacher, F. (2019). Why is there so much more research on vision than on any other sensory
 421 modality? *Frontiers in Psychology*, **10**:2246. doi: 10.3389/fpsyg.2019.02246.

- 422 Huxley, A. (2014). TASTE OF ICELAND: Art, Science and Exploration. *Cinesthetic Feasts*,
 423 **January 15th**. [https://cinestheticfeasts.com/2014/02/09/taste-of-iceland-art-science-and-](https://cinestheticfeasts.com/2014/02/09/taste-of-iceland-art-science-and-exploration/)
 424 [exploration/](https://cinestheticfeasts.com/2014/02/09/taste-of-iceland-art-science-and-exploration/).
- 425 Ischer, M., Baron, N., Mermoud, C., Cayeux, I., Porcherot, C., Sander, D., & Delplanque, S.
 426 (2014). How incorporation of scents could enhance immersive virtual experiences. *Frontiers*
 427 *in Psychology*, **5**:736.
- 428 Jin, Y., Jin, H., & Kang, J. (2020). Combined effects of the thermal-acoustic environment on
 429 subjective evaluations in urban squares. *Building and Environment*, **168**:106517.
- 430 Johnston, A. (2008). On the microbial genetics of seaside smells. *Microbiology Today*, **35**(3),
 431 128-131.
- 432 Kessel, J. (2013) Ultra meal at Ultraviolet. *The New York Times*, **October 15th**. Available.
 433 <http://www.nytimes.com/video/dining/100000002498301/ultra-dining-at-ultraviolet.html>.
- 434 Krieger, M. H. (1973). What's wrong with plastic trees? Artifice and authenticity in design.
 435 *Science*, **179**, 446-455.
- 436 LaTour, K. A., & Carbone, L. P. (2014). Sticktion: Assessing memory for the customer
 437 experience. *Cornell Hospitality Quarterly*, **55**, 342-353.
- 438 Leer, J. (2016). The rise and fall of the New Nordic Cuisine. *Journal of Aesthetics & Culture*,
 439 **8**:33494. DOI: 10.3402/jac.v8.33494.
- 440 Leonor, F., Lake, J., & Guerra, M. (2018). Effect of nostalgia triggered by sound on flavour
 441 perception. In R. Bonacho, A. P. de Sousa, C. Viegas, J. P. Martins, M. J. Pires, & S. V. Estêvão
 442 (Eds.), *Experiencing food, designing dialogue* (pp. 37-40). London, UK: CRC Press.
- 443 Marinetti, F. T. (1932/2014). *The futurist cookbook* (Trans. S. Brill, 1989). London, UK:
 444 Penguin Books.
- 445 Micheelsen, A. (2013). *The New Nordic Diet: A sociological study of the acceptance and*
 446 *appropriation of a dietary regime*. Copenhagen, DK: University of Copenhagen.
- 447 Micheelsen, A., Holm, L. & O'Doherty Jensen, K. (2013). Consumer acceptance of the New
 448 Nordic Diet: An exploratory study. *Appetite*, **70**, 14-21. DOI : 10.1016/j.appet.2013.06.081.
- 449 Mikanowski, J. (2014). Noma. *The Point Magazine*, **June 12th**.
 450 <https://thepointmag.com/criticism/noma/>.
- 451 Mitchell, D. J., Kahn, B. E., & Knasko, S. C. (1995). There's something in the air - effects of
 452 congruent or incongruent ambient odor on consumer decision-making. *Journal of Consumer*
 453 *Research*, **22**, 229-238.
- 454 Mithril, C., Dragsted, L. O., Meyer, C., Blauert, E., Holt, M. K., & Astrup, A. (2012).
 455 Guidelines for the New Nordic Diet. *Public Health Nutrition*, **15**, 1941-1947.
- 456 Moore, M. (2015). 'Taste the difference: Sublimotion vs. Ultraviolet.' *Financial Times*,
 457 **August 28th**. [https://www.ft.com/cms/s/2/0a4f62f0-4ca2-11e5-9b5d-](https://www.ft.com/cms/s/2/0a4f62f0-4ca2-11e5-9b5d-89a026fda5c9.html#slide0)
 458 [89a026fda5c9.html#slide0](https://www.ft.com/cms/s/2/0a4f62f0-4ca2-11e5-9b5d-89a026fda5c9.html#slide0).
- 459 Morris, K. (2020). What Noma did next: How the 'New Nordic' is reshaping the food world.
 460 *The Guardian*, **February 28th**. [What Noma did next: how the 'New Nordic' is reshaping the](https://www.theguardian.com/food/2020/feb/28/what-noma-did-next-how-the-new-nordic-is-reshaping-the-food-world)
 461 [food world | Food | The Guardian](https://www.theguardian.com/food/2020/feb/28/what-noma-did-next-how-the-new-nordic-is-reshaping-the-food-world).

- 462 Moskin, J. (2011). New Nordic Cuisine draws disciples. *The New York Times*, **August 23rd**.
 463 <http://www.nytimes.com/2011/08/24/dining/new-nordic-cuisine-draws-disciples.html>.
- 464 Muth, C., & Carbon, C. C. (2013). The aesthetic aha: On the pleasure of having insights into
 465 Gestalt. *Acta Psychologica*, **144**(1), 25-30. doi:10.1016/j.actpsy.2013.05.001.
- 466 Neuman, N., & Leer, J. (2018). Nordic Cuisine but national identities: “New Nordic Cuisine”
 467 and the gastronationalist projects of Denmark and Sweden. *Tourism & Gastronomy*, **13**.
 468 <https://doi.org/10.4000/aof.8723>
- 469 O’Connell, S. (2009). The science behind that fresh seaside smell. A tiny molecule lurks behind
 470 the evocative smell of the seaside. *The Telegraph*, **August 18th**.
 471 [https://www.telegraph.co.uk/news/science/6044238/The-science-behind-that-fresh-seaside-](https://www.telegraph.co.uk/news/science/6044238/The-science-behind-that-fresh-seaside-smell.html)
 472 [smell.html](https://www.telegraph.co.uk/news/science/6044238/The-science-behind-that-fresh-seaside-smell.html).
- 473 Pati, D., Freier, P., O’Boyle, M., Amor, C., & Valipoor, S. (2015). The impact of simulated
 474 nature on patient outcomes: A study of photographic sky compositions. *HERD*, **9**(2):36-51.
 475 doi: 10.1177/1937586715595505.
- 476 Piqueras-Fiszman, B., Alcaide, J., Roura, E., & Spence, C. (2012). Is it the plate or is it the
 477 food? Assessing the influence of the color (black or white) and shape of the plate on the
 478 perception of the food placed on it. *Food Quality & Preference*, **24**, 205-208.
- 479 Piqueras-Fiszman, B., Giboreau, A., & Spence, C. (2013). Assessing the influence of the color
 480 of the plate on the perception of a complex food in a restaurant setting. *Flavour*, **2**:24.
- 481 Piqueras-Fiszman, B., & Spence, C. (2012). Sensory incongruity in the food and beverage
 482 sector: Art, science, and commercialization. *Petits Propos Culinaires*, **95**, 74-118.
- 483 Ratcliffe, E., Gatersleben, B., & Sowden, P. T. (2016). Associations with bird sounds: How do
 484 they relate to perceived restorative potential? *Journal of Environmental Psychology*, **47**, 136-
 485 144.
- 486 Reinoso-Carvalho, F., Dakduk, S., Wagemans, J., & Spence, C. (2019). Not just another pint!
 487 Measuring the influence of the emotion induced by music on the consumer's tasting experience.
 488 *Multisensory Research*, **32**(4-5), 367-400. doi: 10.1163/22134808-20191374.
- 489 Reinoso-Carvalho, F., Gunn, L., Molina, T., Narumi, T., Spence, C., Suzuki, Y., ter Horst, E.,
 490 & Wagemans, J. (2020). A sprinkle of emotions vs a pinch of crossmodality: Towards globally
 491 meaningful sonic seasoning strategies for tasting experiences. *Journal of Business Research*,
 492 **117**, 389-399.
- 493 Roque, J., Guastavino, C., Lafraire, J., & Fernandez, P. (2018). Plating influences diners’
 494 perception of culinary creativity. *International Journal of Gastronomy & Food Science*, **11**,
 495 55-62.
- 496 Samuelsson, P. (2014). *Taste of sound – Composing for large scale dinners*. Keynote
 497 presentation given at the Sensibus Festival, Seinäjoki, Finland, March 13-14th.
- 498 Schertz, K. E., & Kardan, O., & Berman M. G. (2020). Visual features influence thought
 499 content in the absence of overt semantic information. *Attention, Perception, & Psychophysics*,
 500 **82**, 3945-3956. <https://doi.org/10.3758/s13414-020-02121-z>

- Schreuder, E., van Erp, J., Toet, A., & Kallen, V. L. (2016). Emotional responses to multisensory environmental stimuli: A conceptual framework and literature review. *SAGE Open*, **January-March**: 1-19. DOI: 10.1177/2158244016630591.
- Shen, Y.-C., & Chen, T.-C. (2006). When East meets West: The effect of cultural tone congruity in ad music and message on consumer ad memory and attitude. *International Journal of Advertising*, **25**(1), 51-70. <https://doi.org/10.1080/02650487.2006.11072951>.
- Spence, C. (2011). Crossmodal correspondences: A tutorial review. *Attention, Perception, & Psychophysics*, **73**, 971-995.
- Spence, C. (2014). Noise and its impact on the perception of food and drink. *Flavour*, **3**:9.
- Spence, C. (2015). Music from the kitchen. *Flavour*, **4**:25.
- Spence, C. (2017a). *Gastrophysics: The new science of eating*. London, UK: Viking Penguin.
- Spence, C. (2017b). The art and science of plating. In N. Levent & I. D. Mihalache (Eds.), *Food and museums* (pp. 237-253). London, UK: Bloomsbury Academic.
- Spence, C. (2017c). Enhancing the experience of food and drink via neuroscience-inspired olfactory design. *The Senses and Society*, **12**, 209-221. <http://dx.doi.org/10.1080/17458927.2017.1270800>.
- Spence, C. (2019). Reading the plate. *International Journal of Gastronomy & Food Science*, **16**:100156. <https://doi.org/10.1016/j.ijgfs.2019.100156>.
- Spence, C. (2020a). Flavour pairing: A critical review of the literature on food and beverage pairing. *Food Research International*, **133**:109124. <https://doi.org/10.1016/j.foodres.2020.109124>.
- Spence, C. (2020b). Using ambient scent to enhance well-being in the multisensory built environment. *Frontiers in Psychology* (SI: Smells, Well-being, and the Built Environment) **11**:598859. doi: 10.3389/fpsyg.2020.598859.
- Spence, C. (2020c). Extraordinary emotional responses elicited by auditory stimuli linked to the consumption of food and drink. *Acoustical Science & Technology*, **41**(1), 28-36.
- Spence, C. (2021). *Sensehacking*. London, UK: Viking Penguin.
- Spence, C. (in press-a). On the empirical aesthetics of plating In M. Nadal & O. Vartanian (Eds.), *The Oxford Handbook of Empirical Aesthetics*. Oxford, UK: Oxford University Press.
- Spence, C. (in press-b). Gastrophysics & the new science of plating. In H. This, R. Burke, A. Kelly, & C. Lavelle (Eds.), *Handbook of molecular gastronomy: Scientific foundations and culinary applications*. Boca Raton, FL: CRC Press.
- Spence, C. (in press-c). Why do fish and chips taste better at the seaside? To appear in P. Fraser (Ed.), *Beneath the batter*. Fishermen's Mission
- Spence, C., Michel, C., Youssef, J., & Woods, A. (2019). Assessing the aesthetic oblique effect in painting and plating. *International Journal of Gastronomy & Food Science*, **17**:100168. DOI: [10.1016/j.ijgfs.2019.100168](https://doi.org/10.1016/j.ijgfs.2019.100168).
- Spence, C., Navarra, J., & Youssef, J. (2019). Using ice-cream as an effective vehicle for energy/nutrient delivery in the elderly. *International Journal of Gastronomy & Food Science*, **16**:100140. <https://doi.org/10.1016/j.ijgfs.2019.100140>.

- 541 Spence, C., Okajima, K., Cheok, A. D., Petit, O., & Michel, C. (2016). Eating with our eyes:
542 From visual hunger to digital satiation. *Brain & Cognition*, **110**, 53-63.
- 543 Spence, C., & Piqueras-Fiszman, B. (2014). *The perfect meal: The multisensory science of food*
544 *and dining*. Oxford, UK: Wiley-Blackwell.
- 545 Spence, C., Reinoso-Carvalho, F., Velasco, C., & Wang, Q. J. (2019). Extrinsic auditory
546 contributions to food perception & consumer behaviour: An interdisciplinary review.
547 *Multisensory Research*, **32**, 275-318.
- 548 Spence, C., Shankar, M. U., & Blumenthal, H. (2011). 'Sound bites': Auditory contributions
549 to the perception and consumption of food and drink. In F. Bacci & D. Melcher (Eds.), *Art and*
550 *the senses* (pp. 207-238). Oxford, UK: Oxford University Press.
- 551 Spence, C., & Youssef, J. (2015). Olfactory dining: Designing for the dominant sense. *Flavour*,
552 **4**:32.
- 553 Spence, C., & Youssef, J. (2016a). Constructing flavour perception: From destruction to
554 creation and back again. *Flavour*, **5**:3. <http://rdcu.be/wOLI>.
- 555 Spence, C., & Youssef, J. (2016b). How to trick your brain into healthy eating. *The Guardian*,
556 **July 12th**. [https://www.theguardian.com/lifeandstyle/2016/jul/12/how-to-trick-your-brain-](https://www.theguardian.com/lifeandstyle/2016/jul/12/how-to-trick-your-brain-into-healthy-eating)
557 [into-healthy-eating](https://www.theguardian.com/lifeandstyle/2016/jul/12/how-to-trick-your-brain-into-healthy-eating).
- 558 Spence, C., & Youssef, J. (2018). Assessing the long-term impact of the molecular gastronomy
559 movement on haute cuisine. *International Journal of Gastronomy & Food Science*, **14**, 35-44.
- 560 Spence, C., & Youssef, J. (2020). Synaesthesia: The multisensory dining experience.
561 *International Journal of Gastronomy & Food Science*, **18**:100179.
562 <https://doi.org/10.1016/j.ijgfs.2019.100179>.
- 563 Steinwald, M., Harding, M. A., & Piacentini, R. V. (2014). Multisensory engagement with real
564 nature relevant to real life. In N. Levent, & A. Pascual-Leone (Eds.), *The multisensory museum:*
565 *Cross-disciplinary perspectives on touch, sound, smell, memory and space* (pp. 45-60).
566 Plymouth, UK: Rowman & Littlefield.
- 567 Tholstrup Hermansen, M. E. (2012). Creating terroir: An anthropological perspective on New
568 Nordic Cuisine as an expression of Nordic identity. *Anthropology of Food*, **2012**, S7.
569 <https://aof.revues.org/7249>.
- 570 Trebolazabala, J., & Atxa, E. (2012). Generating, entrapping and transferring natural aromas
571 to the dish and selected environments. *International Journal of Gastronomy and Food Science*,
572 **1**, 107-110.
- 573 Trubek, A. B. (2009). *The taste of place: A cultural journey into terroir*. London, UK:
574 University of California Press.
- 575 Velasco, C., Jones, R., King, S., & Spence, C. (2013). Assessing the influence of the
576 multisensory environment on the whisky drinking experience. *Flavour*, **2**:23.
- 577 Velasco, C., & Obrist, M. (2020). *Multisensory experiences: Where the senses meet*
578 *technology*. Oxford, UK: Oxford University Press.
- 579 Warde, A. (2009). Imagining British cuisine. *Food, Culture & Society*, **12**, 151-171. DOI:
580 10.2752/175174409X400710.
- 581 Welch, W., Youssef, J., & Spence, C. (2016). Neuro-cutlery: The next frontier in cutlery
582 design. *Supper Magazine*, **4**, 128-129.

- 583 Williams, F. (2017). *The nature fix: Why nature makes us happier, healthier, and more*
 584 *creative*. London, UK: W. W. Norton & Company.
- 585 Wilson, J. (2016). ‘Nordic to go’ could be a gradually acquired taste. *The Washington Post*,
 586 **July 25th**. [https://www.washingtonpost.com/lifestyle/food/nordic-to-go-could-be-a-gradually-](https://www.washingtonpost.com/lifestyle/food/nordic-to-go-could-be-a-gradually-acquired-taste/2016/07/25/d00f3356-445b-11e6-8856-f26de2537a9d_story.html)
 587 [acquired-taste/2016/07/25/d00f3356-445b-11e6-8856-f26de2537a9d_story.html](https://www.washingtonpost.com/lifestyle/food/nordic-to-go-could-be-a-gradually-acquired-taste/2016/07/25/d00f3356-445b-11e6-8856-f26de2537a9d_story.html).
- 588 Wolfe, A. (2014). Why does the sea smell like the sea? A microbiologist explores the
 589 distinctive odors of a day at the beach. *Popular Science*, **August 19th**.
 590 <https://www.popsci.com/seasmells>.
- 591 Youssef, J. (2013). *Molecular cooking at home: Taking culinary physics out of the lab and into*
 592 *your kitchen*. London, UK: Quintet Publishing.
- 593 Youssef, J., Juravle, G., Youssef, L., Woods, A., & Spence, C. (2015). Aesthetic plating: A
 594 preference for oblique lines ascending to the right. *Flavour*, **4**:27.
- 595 Youssef, J., Keller, S., & Spence, C. (2019). Making sustainable foods (such as jellyfish)
 596 delicious. *International Journal of Gastronomy & Food Science*, **16**:100141.
 597 <https://doi.org/10.1016/j.ijgfs.2019.100141>.
- 598 Youssef, J., Sanchez, C. C., Woods, A., & Spence, C. (2018). “Jastrow’s Bistable Bite”: What
 599 happens when visual bistable illusion meets the culinary arts? *International Journal of*
 600 *Gastronomy & Food Science*, **13**, 16-24.
- 601 Youssef, J., & Spence, C. (submitted). Mexico: An entomophagy primer. *International Journal*
 602 *of Gastronomy & Food Science*.
- 603 Zellner, D. A., Loss, C. R., Zearfoss, J., & Remolina, S. (2014). It tastes as good as it looks!
 604 The effect of food presentation on liking for the flavor of food. *Appetite*, **77C**, 31-35.