A "crescendo" model: designing food experiences for psychological well-being

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Abstract

Purpose: The present paper advances the design-thinking approach in food from an engineering mindset toward a positive psychology perspective, by investigating how consumer experiences evoked by food-related activities can facilitate, stimulate, and enhance individuals' happiness and perceptions of life satisfaction.

Design/methodology/approach: A diary field experiment was conducted. Participants from a major European city were asked to reflect on their food-related activities, provide descriptions, and answer questions on experiential stimulation derived from these activities in relation to happiness and perceived life quality.

Findings: Food-related activities generally result in positive consumer experiences and psychological well-being. Experiential stimulation resulting from food activities is positively related to perceived life satisfaction directly and indirectly via pleasure and meaning. Although we found an overall positive relationship between these constructs, we also found differences based on the experience type considered. A "crescendo model" of experiences that details how experiences lead to happiness and perceived life satisfaction is presented.

Research limitations/implications: This study is largely exploratory. Future research should adopt an experimental approach and further test the relationship between experiential stimulation, happiness, and perceived life satisfaction in the context of food.

Practical implications: The paper offers innovation teams in food companies a practical "crescendo model" that can be used to design product–consumer interactions.

Originality: The research bridges literatures on design thinking, psychological well-being, and consumer experiences. By studying the relationship between experiences, happiness, and perceived

life satisfaction in the context of food, our findings contribute to research on food well-being by expanding the notion of happiness seen only as pleasure. The research also contributes to work on design thinking by offering an experiential framework that contributes to the notion of consumer empathy.

Keywords: Food, Design thinking, Consumer experience, Happiness, Perceived life satisfaction, Psychological well-being.

Paper type: Research paper.

Introduction

Originating in industrial design at the beginning of the 1990s, design thinking has become a popular approach to ideate new products across multiple industries (Beckman and Barry, 2007). At its core, design thinking has the merit of placing greater emphasis on the end-user perspective and relies less on experts for the product-development process (Seidel and Fixson, 2013). Consumer insight has been codified as a necessary input into this process (Olsen, 2015), both at the initial stage (i.e. consumer empathy) of analysis and throughout the iterative steps of evolution and fine-tuning (i.e. rapid prototyping). Instead of perfecting internally a solution to validate later with consumers, innovation teams can now co-develop through frequent consumer-feedback loops (Harrington, 2004). In the food industry, the adoption of this process enables big multinational companies to increase the agility of their innovation cycles and their speed to market and focus more on what people want rather than what chefs are inspired to create. Several companies have worked with communities of "creators" (eyeka.com) or "solvers" (mindsumo.com) to generate and develop demand-led products at pace, from Anheuser-Busch's iWeek yearly events to KitKat's "Katapult" flat-pack frustrations, from Arnott's flavors innovation in biscuits to Unilever's "lean-like-a-startup" program (researchworld.com/innovating-at-unilever-like-a-lean-startup). Food companies have also leveraged their subscription services, like the Unilever-owned "Graze," supposedly able to interact with their base of 100K+ "Grazers" and test a new idea every few days (foodnavigator.com). Companies like Pepsi have elevated such an approach to a strategic level (hbr.org/2015/09/how-indra-nooyi-turned-design-thinking-into-strategy) and adopted trend-scouting systems able to predict successful innovations from millions of online conversations (products like "Bubly" and "Off the Eaten Path" were launched in this way; blackswan.com/case-studies/pepsico-360-trends-next-generation-insights-from-trendscope). However, such an approach has also been observed in SMEs that benefit from proximity to their consumer base and are often rooted in local communities (Tardivo *et al.*, 2017).

As the design-thinking approach becomes a recognized practice, we maintain that it is now the right time for it to borrow the most relevant advancements in consumer behavior and consumer psychology to expand its impact in the corporate world. In fact, whilst focused on the consumer for product development, the design-thinking process still relies mainly on engineering and optimization perspectives. So far, consumers understanding has mostly been expressed in terms of "problems to solve" (Beckman and Barry, 2007), i.e. "needs" for the product to fulfil. Also, such problems are analytically examined in terms of their sub-components: large problems are broken down into smaller parts with the intent to resolve them through stepwise procedures. Buchanan's (1992) article about "wicked problems" has become a foundational reference in this sense.

However, we maintain that this perspective does not fully represent how consumers think and feel in hedonic categories such as food because it ultimately addresses only the more functional aspects of product performance. Food is a category that people enjoy and are delighted by; they might not always have or be aware of a "problem," i.e. a need that must be functionally fulfilled (Block *et al.*, 2011). In fact, as societies become post-materialistic (Inglehart, 1997), consumers are no longer concerned simply with functional features and benefits (Schmitt, 1999); they are concerned about the experiences that they can derive from various consumption contexts (Schmitt *et al.*, 2015). At the same time, most design-thinking codified processes (e.g. MAYA, SCAMPER) focus on generating insights from the actual use of the product. Whilst consumer journeys are frequently used to understand the context of people's lives (Christensen *et al.*, 2016), they investigate less interaction with the product beyond the actual point of use. Until recently, there have been few attempts to develop and implement a design-thinking approach for food innovation and well-being by considering the whole food experience (Batat and Addis, 2018).

In this context, academic advancements from positive psychology and consumer behavior could be borrowed to help expand on these two aspects. To this aim, the present paper attempts to offer a contribution towards progressing the design-thinking approach in food by moving from an

engineering mindset to a positive-psychology perspective. Specifically, the foundational concepts are first identified from a literature review encompassing (food) design thinking, psychological well-being, and consumer experience. Then, a quantitative and qualitative empirical research is carried out through a diary method to explore how food-related experiences can contribute to consumer happiness and perceived life satisfaction. Finally, a model is presented: a "crescendo model" of food-consumer interactions for psychological well-being, underpinned by different consumption moments and experience types. The "crescendo model" can empower innovation teams in designing solutions for earlier, happier, and longer product engagements, addressing the question "How does it make my life better?" rather than "How does it solve my current need?" Equally important, by expanding beyond the concepts of appetite appeal and sensorial stimulation, the crescendo model can contribute to designing more balanced products, which make people happy beyond the act of eating.

In the following, we first review the literature in relation to the concepts of (food) design thinking, psychological well-being, and consumer experience. Next, we report the diary method that we adopted in our research, which comprises both a quantitative and a qualitative part. Subsequently, discussions of our "crescendo model" are reported, followed by conclusions.

Literature review

Design thinking for food experiences

Design thinking is a process that uses designers' methods to match people's needs with what is technologically feasible and economically viable (Brown, 2008). It has been defined as a human-centered innovation process that emphasizes observation, collaboration, fast learning, visualization of ideas, rapid prototyping, and concurrent business analysis (Lockwood, 2010). Developed in the 1990s in design studies (Buchanan, 1992), design thinking has been approached from different perspectives based on distinct epistemological roots, including practice-based, rational, and hermeneutic approaches (Johansson-Sköldberg *et al.*, 2013). Over the last 20 years, design thinking

has become popular outside its traditional area of industrial design (Beckman and Barry, 2007). It has evolved from a way of thinking among engineers when designing technical products to an innovation technique among businesspeople. Its application to the food industry is increasingly relevant nowadays with a higher number of consultancy agencies offering food-design-thinking services (e.g. ideo.com; fooddesignthinking.org), in the light of all the possible benefits for food companies, although scholarly articles on food design thinking are still scarce (Olsen, 2015).

The basic premise of design thinking is to rely less on experts and more on consumers for both identifying problems and finding solutions. Instead of searching for "perfect" solutions developed by expert teams for consumers, innovation teams should involve consumers to identify their problems and co-develop with them solutions for those problems (Seidel and Fixson, 2013). This consumer-centricity, which is essential for design thinking, differs from the contemporary way of thinking about consumers within food science and technology, where consumers are typically included in the final part of the development process to secure acceptance of solutions previously developed by experts (Olsen, 2015).

Design thinking offers a variety of specific methods that are usually categorized by scholars using the following three categories: (1) need-finding, which is aimed at identifying the needs of consumers; (2) brainstorming, which is intended for generating ideas for possible solutions; and (3) prototyping, which is useful for testing possible solutions (Brown, 2009; Hargadon and Sutton, 1997; Shane and Ulrich, 2004). In this paper, we will focus on the first category of these methods only. Need-finding, also called "consumer empathy" (Olsen, 2015), includes a series of activities for better understanding consumers, encompassing what they think and how they feel in relation to an issue. Innovation teams are asked to immerse themselves in consumer contexts and to observe them to understand their needs and unsolved problems, collect valuable insights, and develop meaningful innovations (Brown, 2009). The ethnographic approach, which is instrumental in need-finding, does

not seem the standard in food research. Instead, focus groups, conjoint analysis, and other product-driven tests are mostly used (Olsen, 2015).

Psychological well-being, happiness, and perceived life satisfaction

Over recent decades, there has been strong interest in psychological well-being in the field of psychology, fostered by the emergence of the "positive psychology" movement. According to Seligman and Csikszentmihalyi (2000), positive psychology is "a science of positive subjective experience, positive individual traits and positive institutions" (p. 5); the field of positive psychology provides an alternative perspective to clinical psychology's decade-long obsession with damage repair and healing. Positive psychology stresses the importance of positive experiences (including contentment, hope, optimism, and love), positive individual traits (such as aesthetic sensibility, perseverance, originality, and future purpose), and positive institutional values (such as responsibility, civility, tolerance, and work ethic) for psychological well-being.

Importantly, positive psychologists have focused on key components of psychological well-being including happiness and life satisfaction (Seligman, 2011). In relation to the former, psychologists have distinguished two main approaches toward achieving happiness: pleasure (Kahneman *et al.*, 1999) and meaning (Waterman, 1993). The hedonic approach, dating back to the Greek philosopher Epicurus, focuses on pleasure and positive emotions, and stresses that happiness results from experiencing pleasurable moments or episodes. The eudaimonic approach, originally associated with Aristotle, focuses on meaning, stressing that happiness results from engaging in meaningful activities. Whereas the hedonic route concerns the small, pleasurable elements in life, the eudaimonic route to happiness focuses on the search for lasting meaning. Perceived life satisfaction, in contrast, has been defined as a judgment resulting from an assessment of a person's quality of life according to individually chosen criteria (Diener *et al.*, 1985). Hence, if happiness, with its two

components, refers to the affective and cognitive aspects of subjective experiences, perceived life satisfaction refers to a cognitive and judgmental process.

Well-being has been studied in relation to food since the influential paper of Block *et al.* (2011), where a new view of "food as well-being" was advanced in opposition to the traditional view of "food as health." The authors emphasized the positive and holistic contributions that food could make to consumer well-being, in contrast to focusing on nutrition and top-down imperatives that lead to restrictions and constraints. Subsequent research on food well-being has revealed how food can be associated with hedonic and symbolic goals rather than functional goals (i.e. achieving health objectives). The food well-being perspective is also associated with gustatory pleasure related to well-being, rather than adopting a special diet to remain within a social norm. Finally, following the food well-being view, food relates to other positive emotions that contribute to psychological well-being (Mugel *et al.*, 2019).

Consumer experience

Consumer experience has been an established stream of research in consumer behavior since Holbrook and Hirschman (1982) proposed an experiential view of consumption as an alternative to the mainstream information-processing view. The experiential view acknowledges "the roles of emotions in consumer behavior; the fact that consumers are feelers as well as thinkers and doers; the significance of symbolism in consumption; the consumer's need for fun and pleasure; the roles of consumers, beyond the act of purchase, in product usage as well as brand choice, and so forth" (Addis and Holbrook, 2001, p. 50).

Over the years, this stream of research has created general frameworks and categorizations of the consumer experience process. In relation to the experience process, Arnould *et al.* (2002) identified and conceptualized as phases all the possible interactions with marketing objects that can result in experiences. These have been labeled as follows: (1) anticipated consumption, which

includes searching, planning, daydreaming, budgeting, and fantasizing; (2) purchase experience, which refers to choice, payment, bundling product, service encounter, and atmospherics; (3) consumption experiences, which regards sensory experiences, satiation, satisfaction/dissatisfaction, arousal/flow, and transformation; and (4) remembered consumption, which is related to reliving past experiences, often in nostalgic ways, by telling stories, comparing old and new times, talking with friends of days gone by, playing "what if," daydreaming, and sorting through memorabilia. Whereas, traditionally, marketing scholars have concentrated on the first two phases of consumer experience, over the last two decades, interest in interactions on how consumers use and remember the products that they purchased has increased (Arnould *et al.*, 2002).

Moreover, in the literature, there is agreement that experience is a multidimensional construct. One of the first classifications of consumer experience was provided by Schmitt (1999) in his managerial writings, where he presented five types of experiences: sense, feel, think, act, and relate. According to him, the sense experience includes aesthetics and sensory qualities; the feel experience includes moods and emotions; the think experience includes convergent/analytical and divergent/imaginative thinking; the act experience refers to motor actions and behavioral experiences; finally, the relate experience refers to social experiences, such as relating to a reference group. This classification inspired Brakus *et al.* (2009) in their work on brand experience, defined as "subjective, internal consumer responses (sensations, feelings, and cognitions) as well as behavioral responses evoked by brand-related stimuli that are part of a brand's design and identity, packaging, communications and environments" (p. 53). They empirically identified different experience dimensions, labelled as sensory, affective, intellectual, and behavioral. This classification has become prominent in the literature and has been used in a variety of contexts (for a review, see Andreini *et al.*, 2018).

The literature has also focused on some important distinctions in consumer experience (Schmitt and Zarantonello, 2013). These distinctions include the degrees of intensity of an

experience, as some experiences can be stronger and more intense than others. Consumer experiences can also vary in valence, as there can be experiences that are perceived as positive and others that are perceived as negative by consumers. Finally, experiences can vary in their degree of novelty, as there can be extraordinary experiences that are highly memorable and can transform an individual, but also ordinary experiences that are simpler and more contemplative.

Consumer experiences have been investigated in the literature using a variety of methods belonging to mainstream empirical or interpretive methodologies (Addis, 2005). Data-driven, quantitative empiricist methodologies include surveys and experiments for self-reported measures, as well as measures to analyze consumers' physiological response on central or peripheral levels (e.g. response latency techniques and neuro-imaging techniques) for non-self-reported measures. In contrast, interpretive, qualitative research methods that have been used to analyze consumer experiences include subjective personal introspection, phenomenological interview, photo elicitation, and the Zaltman metaphor-elicitation technique for self-reported measures, as well as role-taking, case study, participant observation, and ethnographic approaches for non-self-reported measures.

Over the years, consumer experiences have been often examined in relation to food using a variety of methods. Examples include: consuming types of food such as chocolate (Zarantonello and Luomala, 2011) and drinks such as wine (Aurifeille *et al.*, 1999; Charters and Pettigrew, 2005); eating in places such as Michelin-starred restaurants (Hetzel, 2004); preparing and consuming food on special occasions such as Thanksgiving (Wallendorf and Arnould, 1991); and posting food photos on social media (Zhu *et al*., 2019). Overall, what emerges from these contributions is that food can result in intense and complex consumer experiences, which include affective components, symbolic meanings, sensory stimulation, and intellectual involvement.

An expanded definition of consumer empathy in food design thinking

From the review of the literature, it emerges that food design thinking has a limited number of academic contributions. Its recent foundation, as well as the managerial origin of its parent discipline (design thinking), might explain this phenomenon. At the same time, long-established studies on consumer experience and psychological well-being provide academic articulation for "consumer empathy" as referred to in food design thinking (Olsen, 2015). The concept of consumer experience can be adopted to broaden the definition of consumer–product interaction and acknowledge a wider range of stimulations (Zarantonello and Schmitt, in press). Furthermore, several studies [see Gilovich and Gallo's (2020) review] have shown how experiences can contribute to psychological well-being, which has already been considered as the ultimate outcome for food consumption (Block *et al*., 2011). Adopting the well-being perspective could expand the design-thinking approach by considering less immediate but intense and enduring consumer outcomes.

At the same time, design thinking allows positive psychology concepts to be operationalized as part of a process that leads to tangible products. The practical connotation of this area of study can simplify and refine the theoretical frameworks from consumer psychology by retaining only those actionable concepts that lead to features' specification in product development.

In summary, the bridge between positive psychology and design thinking can provide a practical operationalization of how to investigate consumer empathy beyond the need to solve a consumer problem at the moment of consumption (engineering mindset). This draws from Zarantonello and Schmitt (in press) and is discussed further in the theoretical implications.

Conceptual model and hypotheses

We look at food from a consumer-experience perspective and investigate how experiences originating from food activities relate to happiness and perceived life satisfaction. Overall, our conceptual model predicts that food experiences are important contributors to happiness and perceived life satisfaction. In so doing, the model goes beyond immediate sensorial gratification as

the ultimate outcome of food-related activities. Empirically, we explore the relation between experiential stimulation from food-related activities and happiness/life satisfaction. Specifically, our conceptual model supposes that the degree of experiential stimulation resulting from food-related activities contributes to perceived life satisfaction through the two components of happiness: pleasure and meaning (see Figure 1). We therefore hypothesize:

H1: Food-related activities (X) affect perceived life satisfaction (Y).

H2: The influence between food-related activities (X) and perceived life satisfaction (Y) develops through two indirect paths. Specifically:

H2a: The more the specific food-related activity (X) arouses an experiential stimulation (M1), the stronger the pleasure (M2) and, in turn, the greater the perceived life satisfaction (Y).

H2b: The more the specific food-related activity (X) arouses an experiential stimulation (M1), the stronger the meaning (M3) and, in turn, the greater the perceived life satisfaction (Y).

Insert Figure 1 about here

Methodology

To examine the relation between experience, happiness, and perceived life satisfaction in the context of food, we conducted a diary field experiment. The diary research technique seems particularly suitable for understanding individual experiences (Alaszewski, 2006). Diaries "capture the particulars of experience in a way that is not possible using traditional designs;" they are self-report instruments that are useful in order to "examine ongoing experiences" and also "offer the opportunity to investigate social, psychological, and physiological processes, within everyday situations" (Bolger *et al.*, 2003, pp. 579-580). The diary field study was structured as quantitative

and qualitative, as both psychometric scales and open-ended questions were included (Patterson, 2005). While the quantitative design was useful in understanding the overall relationship between the variables examined in the study, the qualitative design was intended to gain additional insights into the reasons why such relationships emerged.

The diary field study was structured as a 4 × 2 experiment, that is, four experience types (sensory, affective, intellectual, and behavioral) × two happiness components (pleasure and meaning). Experience type, based on Brakus *et al.* (2009), was a between-subjects factor; happiness type, based on Peterson *et al.* (2005), was a within-subject factor. Four different versions of diaries were prepared, each focused on a specific experience type, and in each diary version questions about happiness were asked.

Before starting the diary, participants were instructed to look at a picture and imagine being the person depicted in it, then focus on the sensations (sensory condition)/feelings (affective condition)/thoughts (intellectual condition)/actions and behaviors (behavioral condition) of this person and describe these sensory/affective/intellectual/behavioral experiences in the space provided. Through days 1 to 7, participants were asked to reflect on the various activities they engaged in during the day, including those related to eating/preparing food. The list of activities was derived from Stigliz *et al.* (2010), who aimed to develop alternative measures for economic performance and social progress. Participants were asked to indicate the degree to which each of these activities stimulated the experience type (experiential stimulation) on which their diary was focused (i.e. sensory, affective, intellectual, or behavioral). To note, the four experience types are not defined as a continuum of intensity (e.g. from a low-intensity to a high-intensity experience type), rather each experience type independently varies in intensity and is measured as such. Next, they were asked to identify one activity that they had done the most each day and rate their happiness (pleasure and meaning) on a six-item scale (derived from Peterson *et al.*, 2005) and perceived life satisfaction on a four-item scale (derived from Diener *et al.*, 1985). All items in the questionnaire were presented as

seven-point Likert scales. Finally, participants were asked to provide descriptions of how each activity stimulated their senses (sensory condition)/their feelings and emotions (affective condition)/their mind and intellect (intellectual condition)/their body or behavior or lifestyle (behavioral condition), as well as to give examples of their daily activities and briefly discuss them.

Insert Table I about here

Graduate students from a major European business school helped, in exchange of extra credit, to recruit adult consumers to participate in the study. A total of 200 diaries was given out (50 diaries for each condition). Of the 174 diaries returned, three were removed as they did not meet basic quality standards (i.e. they were not properly filled out) and 8 did not pass the manipulation check conducted through the qualitative descriptions provided by participants in the open-ended questions (e.g. comments in the sensory diary were not sensory-focused). The 163 diaries retained included 38 sensory diaries, 47 affective diaries, 39 intellectual diaries, and 39 behavioral diaries. The sample included consumers of both genders (male=52%, female=48%), with a mean age of 24 years (min=18 years, max=65 years).

For the purpose of this paper, we decided prior to the analysis that only diaries where eating/preparing food was indicated as the main activity for at least one of the seven days were retained. A total of 27 diaries were subsequently not considered as eating/preparing food was not indicated as the main activity on any day of the week. This criterion led us to retain 136 diaries (30 sensory, 43 affective, 32 intellectual, 31 behavioral) for a total of 266 observations (average observations per diary=2, minimum no. of observations=1, and maximum no. of observations=5). The gender and age of the final sample were consistent with those of the initial sample (male=52%, female=48%, mean age=24 years). There were no statistically significant differences between groups in terms of gender ($\chi^2(3)=0.78$, $p=0.85$) and age ($F(3, 132)=0.84$, $p=0.48$).

The analysis of the diaries reported below follows their structure and includes a quantitative analysis followed by a qualitative analysis. It starts with the responses to psychometric scales in order to understand the relationship between experience, happiness, and perceived life satisfaction in the context of food. It then moves to the responses to the open-ended questions in order to better understand the findings from the quantitative analysis and possibly gain additional insights into the topic. In this way, the role played by the different experience types in psychological well-being in the context of food-related activities can emerge.

Analysis and results

Quantitative findings on food, experiences, and psychological well-being

Preliminary analyses were conducted in order to verify the quality of the measures used. A confirmatory factor analysis (CFA) was performed with all the relevant variables. Table I details the items used for measuring the variables, along with the CFA results. The fit of the model was good ($\chi^2(39)=97.86$; CFI=0.98; NNFI=0.97; SRMR=0.05; RMSEA=0.06) (Hu and Bentler, 1999), and all factor loadings were significant, ranging from 0.75 to 0.91. All construct reliability values were satisfactory ($\alpha_{pleasure}=0.88$; $\alpha_{meaning}=0.90$; $\alpha_{life\ satisfaction}=0.90$). All the average variances extracted (AVE; Fornell and Larcker, 1981) were above the recommended threshold of 0.50 ($AVE_{pleasure}=0.62$; $AVE_{meaning}=0.59$; $AVE_{life\ satisfaction}=0.63$), and the likelihood ratio tests further confirmed that the measures of all variables exhibited discriminant validity. All this confirms the appropriateness of considering all the variables of the model independent and autonomous, including the two components of happiness (pleasure and meaning).

Insert Table I about here

As common method variance (CMV) is acknowledged as an insidious problem in behavioral research (Bagozzi and Yi, 1990; Bagozzi *et al.*, 1991; Kline *et al.*, 2000; Lindell and Brandt, 2000; Podsakoff *et al.*, 2003), we also controlled for CMV by considering the effects of an unmeasured latent methods factor. We allowed the items to load on their theoretical constructs and on a latent common methods variance factor (Podsakoff *et al.*, 2003). To do this, we added to the CFA model a new first-order factor explaining all the descriptors. The analysis showed that all loadings of the items on the corresponding theoretical constructs were positive and significant (see Table I), contrary to the loadings of the items on the common method factor (CMF), which were either not significant or much lower than the ones on the corresponding theoretical factor. Therefore, we can conclude that CMV is not a major problem in the model.

Then, we moved on to test the proposed model. First, we conducted an ANOVA analysis to check if there were differences between the experimental groups in terms of perceived life satisfaction to validate the effects of the four experience types to which respondents were exposed on the dependent variable. Results confirmed that the four conditions demonstrated significant mean differences ($F(3, 262)=2.66$, $p<0.05$), supporting *H1*. We then ran the procedure for computing mediation effects, which considers both sequential and parallel mediators (PROCESS model number 81; Hayes, 2013), to test the remaining hypotheses. This model allows the estimation of the influence of the independent variable (manipulated experience; sensory, affective, behavioral, and intellectual) on the outcome variable (perceived life satisfaction) through two parallel paths: the first path considers the influence of the independent variable to be mediated by the experiential stimulation (M1) and, subsequently, by pleasure (M2); the second path considers the influence of the independent variable to be mediated by the experiential stimulation (M1) and, subsequently, by meaning (M3) (see Figure 1). This model directly compares the four experience types collected to identify whether they can affect the experiential stimulation felt by respondents (M1, first step of the mediation process), which, in turn, affects the level of pleasure and meaning (M2 and M3, second

step of the mediation process, composed by two parallel mediators). The mediators M2 and M3 then convey these effects to the dependent variable: perceived life satisfaction. In this way, we were able to examine to what extent there are specificities in each condition by directly comparing them. Two demographic variables (age and gender) were also considered in the analyses as control variables, to strengthen findings.

The results are presented in Table II and reveal that the experience type to which respondents were exposed affected the experiential stimulation; the highest experiential stimulation was felt in the sensory condition, decreasing as it moved away from the sensory condition to the affective (–0.53, $p<0.05$), behavioral (–0.57, $p<0.05$), and intellectual (–0.72, $p<0.01$) conditions. The two control variables had no significant effects.

Insert Table II about here

Results indicated that experiential stimulation affected the pleasure felt by respondents (0.44, $p<0.001$) and, to a lesser extent, the meaning (0.09, $p<0.10$). These findings show that the stronger the experiential stimulation felt by respondents, which was influenced by the experience type to which they were exposed (sensory, affective, behavioral, or intellectual), the stronger the pleasure they felt. Similarly, the experiential stimulation was shown to affect the meaning, but to a lesser degree. Results also showed that one of the two control variables was able to affect both the mediators; respondents' age negatively affected the level of pleasure they felt and positively affected meaning. This result is in line with recent research showing that age and the meaning orientation to happiness are correlated (e.g. Steger *et al.*, 2009), suggesting that older people are more inclined to make sense of their experiences and their purpose in life, whereas young people are more inclined to pursue the pleasure orientation to happiness.

Under the outcome variable model, pleasure (0.44, $p<0.001$) and meaning (0.08, $p<0.10$) were able to positively affect the dependent variable (perceived life satisfaction). The stronger the pleasure, the higher the perceived life satisfaction; the stronger the meaning, the higher the perceived life satisfaction (it should be acknowledged that this relationship was only marginally significant; $p<0.10$). Finally, looking at the direct effect of experiential stimulation on the dependent variable, this path was significant (0.19, $p<0.001$), showing that the experiential stimulation not only affected the dependent variable in a mediated way (through the two happiness components), but also through a direct path connecting experiential stimulation to life satisfaction. The two control variables (age and gender) did not affect the dependent variable.

Considering the results at an aggregate level, we can conclude that happiness mediated the effect of experiential stimulation on the dependent variable (perceived life satisfaction), and that this effect depended on the experience type to which respondents were exposed, supporting H2. Considering in further detail the role of happiness, the bootstrap confidence intervals of the relative indirect effects of the two components of pleasure and meaning can be analyzed. The confidence intervals of the mediating path connecting type of experience (X)−experiential stimulation (M1)−pleasure (M2)−perceived life satisfaction (Y) did not include zero for all the group comparisons. Thus, this mediating path was significant for all the conditions examined, supporting *H2a*. This path is also affected by the age of respondents: younger people are shown to be more inclined to pursue the pleasure orientation to happiness. Thus, for younger people, the role played by pleasure in explaining the effect of experience with food on perceived life satisfaction seems to be more relevant. On the contrary, the mediating path connecting type of experience (X)−experiential stimulation (M1)−meaning (M3)−perceived life satisfaction (Y) was not statistically significant for all the conditions examined. Thus, even though experiential stimulation marginally affected meaning, which, in turn, positively influenced life satisfaction, this path is not statistically significant; therefore, *H2b* is not fully supported. This result is probably connected to the central role

played by the sensory experience condition; sensory experience is shown to affect the experiential stimulation felt by respondents to a greater extent compared to the other experience conditions (affective, behavioral, or intellectual), which probably drives the following path of influence favoring pleasure much more than meaning.

The results reveal that the experiential stimulation resulting from food activities was positively related to perceived life satisfaction, both through direct and indirect paths. Besides the overall positive relationship between these components, interesting differences based on the experience type considered were found. The sensory condition aroused the highest experiential stimulation felt by respondents, which decreased moving from sensory to affective, behavioral, and intellectual conditions. The differential influence of the experience type reverberated on the whole process leading to perceived life satisfaction; the stronger the influence of the experience type on experiential stimulation, the stronger the subsequent influences that this variable had on happiness (with pleasure playing a central role) and, ultimately, on perceived life satisfaction. This means that the hypothesized model of influence will decrease in explanatory power moving from the sensory condition, to affective, behavioral, and intellectual conditions.

These results show interesting connections between food activities, consumer experiences, happiness, and life satisfaction, but at the same time highlight the need for further analyses enhancing the role and characteristics of the components here examined. For example, given the central role of food experiences in shaping the underlying process of perceived-life-satisfaction development, it is also worthwhile mapping and systematizing the meaning of the four experience types here investigated. This can help in understanding the differential effects of experience types on happiness and perceived life satisfaction by considering, for instance, specific phases in the consumption experience (e.g. pre-consumption, post-consumption), the frequency of the activity connected with the food experience (e.g. routine or special occasion), and the role played by others (e.g. the presence of important others during the food experience). All these elements can shape the

effect of food experiences on perceived life satisfaction, helping to better understand their differential role in fostering the paths toward the dependent variable, adding important elements to those identified so far. In other words, while the quantitative part of the study shows the magnitude of the relationship between experiences and life satisfaction as a continuum of intensity and impact on outcomes for the four experience types, the qualitative part helps to explain why such differentials are present by identifying the distinctive manifestations underlying such a continuum.

Qualitative insights on food, experiences, and psychological well-being

A coding scheme was developed by two of the authors independently, using a random subset of 15 diaries through an iterative and multi-step process. The number of diaries for developing the scheme was tentatively defined at the beginning of the process. The analysis of these diaries showed that they were sufficient for developing the coding scheme as saturation was achieved within these diaries for both authors. The two authors adopted a grounded theory approach (Corbin and Strauss, 1990) and developed new categories that were useful to capture the idiosyncratic connotations of the different types of experiences that could eventually better explain the findings of the quantitative part. Once the coding schemes had been developed individually, the two authors met and agreed on a final scheme. They also included variables (i.e. gender, age, weekdays, diary type, and happiness type) present in the quantitative part. The final coding scheme is shown in Table III and was applied to the remaining main body of 121 diaries. The analysis of the diaries using the agreed coding scheme confirmed that all main themes had been captured by the categories of the existing coding scheme and that no additional categories had to be included. The quality of the coding was assessed by following Rust and Cooil (1994) with an overall proportion of inter-judge agreement above 0.90. As this score is comparable to Cronbach's alpha, the measures obtained indicate a satisfactory data quality (Nunnally, 1978). The two authors managed to resolve all the conflicts and developed an agreed coding of the diaries.

Insert Table III about here

The content analysis of the diaries indicated that all participants could link food with sensory, affective, behavioral, and intellectual experiences and verbalize them accordingly. For some of the observations, the richness and level of articulation showed a multi-dimensional depiction of the experience. Inter-coder agreement was hence used to identify the main type of experience reported, which was shown to be consistent with the manipulation check introduced and across the observations belonging to the same diary.

Moreover, the vast majority of experiences reported were positive. Negative experiences were reported in 14% of the observations, ranging from 9% of intellectual to 24% of affective diaries (e.g. reference to food disorders, eating too much, consumption of unpleasant food or in unpleasant environments, negative outcome of meetings/dates happening over meals). The relative low incidence of self-reported negative experiences can be explained through the positivity bias, based on which individuals describe their relationships, experiences, life circumstances, and other people mostly positively, unless they are specifically instructed to do otherwise (Hoorens, 2014), and by the fact that the memories of positive past events fade slower than those of negative past events so that individuals can better regulate their emotions, maintain a positive self-conception, and maintain a hopeful view of the future (Walker and Skowronski, 2009). The slightly higher incidence of negative comments in relation to affective diaries is discussed later.

Findings from the qualitative part are summarized in Figure 2. Three elements consistently emerged as significant in qualifying the (intensity of) relationships between experience type and outcomes such as happiness and perceived life satisfaction: the prevalence of a specific phase in the consumption experience (pre-consumption, during, or post-consumption); the frequency of the activity described (regular/routine or special occasion); and the presence of others during the

occasion (individual or collective activity). These elements were used to map the findings from the qualitative part and organize the meaning of the four experience types investigated. Each experience type is discussed below in detail, with reference to the elements that most characterize it vis-à-vis the others. However, other variables in the coding scheme did not prove useful in discriminating across experience types (i.e. processed/non-processed food) and were therefore disregarded.

Figure 2 about here

When asked to describe intellectual experiences with food, participants mostly reported how food could stimulate discovery and learning (e.g. new ingredients, recipes, traditions, and dishes). This educational element shows an underlying motivation of self-enhancement expressed as "challenging oneself" beyond the comfort zone or "acquiring new capabilities." Food activity was described as a meaningful choice beyond its taste more often than for other experience types: quality was referred to in this context, either explicitly or implicitly, through links with origin (e.g. "best ice cream ever from Gromm," "my first experience with Japanese cuisine"). Reference to healthier food was also often made, the choice of which provided satisfaction (i.e. "doing something good for me"). A second area of intellectual experiences related to food referred to its planning and preparation, including the mental process of checking elements for a recipe, deciding where to have dinner, what to choose from a restaurant menu, or when opening the fridge at home. In this instance, a significant proportion of experiences became less intense and related to repetitive and known activities (i.e. "cooking as a chore"); the verbatims became shorter and more descriptive, with the role of food more functional. Such activities can explain the prevalence of regular occasions and at-home consumption for the intellectual experiences. Whether related to the challenge of new learnings or solving the decision-making aspects of a known process, the pre-consumption phase was mentioned more often than in other experience types. It can be inferred that – because of the predominance of such

anticipatory (planning and discovery) phases of food consumption – the intellectual experience showed more neutral valence than other types of experience and had average to low intensity. It is important to note, however, that positive experiences were also reported in this space when self-enhancement or reassurance (through planning) was achieved. Finally, the intellectual experience showed a good balance of individual and collective occasions, probably linked to ambivalence toward optimized routine and discovery activities.

When asked to report on behavioral experiences related to food, participants described proportionally more the anticipatory act of cooking as well as the functional effects on body health post-consumption (e.g. "gave my body energy," "I feel relaxed"). The actual moment of consumption was reported in line with other types of experiences, but references here were more often to the pace of the activity: it was qualified as fast and on the go (e.g. "a quick bite") or as a social activity to slow down (e.g. "aperitivo with friends"). The behavioral experience was reported most often as positive and significantly more pleasurable than other types of experience (except the sensorial one). In fact, many observations described it as experience with fewer routine connotations than others. The act of cooking was here a creative exercise that freed the mind; the eating was described as a function of its more practical outcomes of recovering body energy or relaxing. From preparation to post-consumption, the center of such experience was the physical interaction with food, i.e. doing something with it (e.g. processing it) or using it to properly fuel the body. As a result, such hedonic gratification was experienced more in an individual context, with most observations describing a home environment. This proved to be in contrast with other types of experiences (i.e. affective and sensory) where the presence of others or the out-of-home environment proved to be relevant connotations for pleasurable moments.

When asked to report affective experiences, participants referred to a wide range of feelings associated with food (e.g. "feeling good," "relaxed," "contented," "nostalgic," and "fun"). Such experiences generally tended to be more complex than those so far described as they involved more

often relevant others (upon which the emotional outcome was often dependent), happened out of the home environment (e.g. in restaurants, cafeterias, and canteens), or were held for special occasions (e.g. birthdays, dates, holidays, and work meetings over lunch). Such occasions were more often celebratory in nature and food played the role of social glue that kept people together. In affective experiences, happiness was both pleasurable and meaningful. Food was an "act of shared love:" it was prepared for, or enjoyed with, relevant others. At the same time, a secondary and slightly negative aspect was reported among affective experiences with food more than for other experience types. This pertained to the description of food activities not properly carried out (e.g. "too quick," "too much," "too standard," or "not hungry") or – less frequently – to the food or the occasion being unpleasant (e.g. "not liked," "too anxious," or "controlled"). It appears that, in cases of negative valence of experiences related to food activities, the predominant characterization was in the emotions people were left with rather than the factual food consumed or the actions in which people engaged. The mismatch between the ideal food experience and an actual, more constrained experience was the most cited source of negative emotions. Importantly, given that such negative emotions appeared to be mostly of low intensity, we assume that the important area of eating disorders tends to be under-represented in the study as a result of the methodology used for data collection.

Finally, when people were asked to report sensory experiences with food, they reflected on how food could stimulate their senses, as well as the environment they were in (e.g. "smells nice," "aesthetically pleasing," "tasteful food," "aromatic food," and "pleasant atmosphere"). The sensorial experience was the one that was generally more characterized by descriptions of food as a treat and by the pleasure derived from consuming it. The actual moment of consumption was more present here than in other types of experience and it was frequently reported with an abundance of intensity markers (e.g. exclamation marks and the choice of adjectives) that reflected how positive and pleasurable such experiences were. Such experiences were centered on food delight; they often

involved others but were not necessarily special occasions. The context, in fact, was less relevant and mentioned more rarely. However, the visuals, the smells, and the taste were often reported. Frequent mention was also made of specific dishes names (e.g. "perfect sushi," "typical spaghetti," "mum's sauce," "fish to taste," and "variety of flavors") or to indulgent food ("chocolate cream," "soft cookies," and "pizza").

Discussion

This empirical research – across both quantitative and qualitative parts – shows how people think about food in terms of different experience types when engaging in food-related activities. At the same time, the research sheds light on the relationships between these experiences and relevant outcomes of pleasure/meaning components of happiness and perceived life satisfaction. In particular, the quantitative part of the study allowed us to understand the magnitude of the relationship with the outcomes, to what extent they were direct or indirect, and what the intensity differentials were across experience types. The qualitative part allowed us to go deeper and explain why such differentials were present as exemplified by the consumption phase that participants spontaneously referred to, the relevant others they spontaneously remember engaging with, and the perceived frequency of the occasion spontaneously reported. While the quantitative part helped by showing a continuum of intensity and impact on outcomes for the four experience types, the qualitative part identified the idiosyncratic manifestations that could explain why such a continuum emerged. In this discussion, we will refer to the findings both of the quantitative and qualitative parts, and highlight how their joint contributions allow us to propose a "crescendo model" of experiences with food that leads to happiness and perceived life satisfaction across six steps (Figure 3). In Figure 3, the vertical axis of the model is mainly derived from the quantitative part of the study, which showed the strength of the relationship between experience types and happiness/perceived life satisfaction, whereas the horizontal axis is derived from the qualitative part, which allowed us to articulate these relations

further by taking into account the temporal progression of the experience, the presence of other people, and the frequency of the activity.

Figure 3 about here

At the base of this "crescendo", we find *intellectual* experiences (step 1). From the quantitative analysis, it emerged that thinking about food had the lowest level of direct/indirect effect on happiness and perceived life satisfaction. We understand from the qualitative findings that this can be related to the predominance of anticipatory elements that participants referred to when thinking about food (planning for/searching for food). Focused on anticipatory elements such as the discovery of something new and planning and preparation, or simply centered more on the cognitive evaluation of the food according to quality credentials such as origin and healthy composition, the intellectual experience had mostly neutral experiential valence and individual scope. Also, it was observed how happiness was associated with self-enhancing motives such as going beyond one's comfort zone of known tastes or the ability to prepare food. This could explain the effect on meaning-driven happiness found in the quantitative part. In fact, according to the qualitative findings, such experiences were, at best, personal endeavors for enrichment; at worst, they could become efficient, routine, everyday tasks to simply keep people fed.

The *behavioral* food experiences (e.g. how to eat food and what to do with it) are next in the "crescendo" in terms of their intensity of impact on outcomes, as per the findings from the quantitative part. In the qualitative part of the study, we observed further reporting of anticipatory elements, but they now focused more on the act of cooking itself (step 2). At the same time, and crucially, reports on this experience type also described the functional effects on body health post-consumption (e.g. "gave my body energy," and "I feel relaxed") (step 6). Also, behavioral

experiences were less routine-driven and more liberating/creative than intellectual experiences revolving around planning, and more pleasurable than the intellectual discovery of novelties as they focused on immediate benefits for the body. The physical use of food (its preparation or usage to ensure body maintenance), whilst still individual and over-represented in pre-/post-consumption phases, already constitutes a more pleasurable event. The practical use of food does good, makes you feel good, and also makes a person happy.

Affective experiences went beyond intellectual and behavioral ones in terms of driving impact on outcomes such as happiness and life satisfaction, according to the quantitative part. As described in the observations from the qualitative part, such experiences were more complex in nature: they often involved relevant others in special occasions or unfamiliar settings (step 3). The complexity of the stimulation from this environment, where food became more an enabler than the subject of the gratification, ensured that happiness was achieved both through pleasurable and meaningful routes. It seems that food enjoyed with others tasted better; it was a way of celebrating togetherness. The focus here shifts to the moment of consumption itself rather than its anticipation or any positive outcome for the body. A reflective attitude in post-consumption could become the core of the experience if negative, when a mismatch occurs between an ideal affective experience and an actual – constrained – one (step 5). Negative emotions tended to arise from a realization that the food-related activities were not properly carried out or – less frequently – the food or the occasion were unpleasant.

Finally, the climax of the "crescendo" can be seen in how *sensory* experiences with food were reported (step 4). Based on the quantitative part of the study, we observed that these experiences can stimulate happiness and life satisfaction the most. From the qualitative part, we detected important commonalities with affective experiences (i.e. mostly collective experiences, even more focused on the moment of consumption). Food still tasted better when enjoyed together; however, the occasion played a less relevant role than for the previous step. In fact, sensory experiences were perceived as more routine and less celebratory than affective ones. They can happen anytime, anywhere. What

mattered were the pleasurable elements of food described as a treat and delight for all the senses, rather than the event around it. They were described through the visuals, the smells, and the taste. The specific names of the dishes were mentioned more frequently.

In sum, the "crescendo model" presents food experiences based on the intensity of their relationship with happiness and perceived life satisfaction across the three phases of consumption: pre-consumption; consumption in the strict sense; and post-consumption. It includes different steps, mentioned above, along the entire consumer journey, encompassing intellectual experiences (step 1), behavioral experience (steps 2 and 6), affective experiences (steps 3 and 5), and sensory experiences (step 4). Correlation between different experience types and consumption stages (along with presence of other people) can explain the intensity of the impact in the crescendo.

Whilst derived from empirical findings, it is important to note that the crescendo model is a managerial framework based on the quantitative and qualitative findings from our analysis, which is intended to simplify and manage the consumer journey in food experiences. It depicts the predominant type of experience and its characteristics activated in a typical and complete journey, yet it does not imply that other experience types cannot be present in a given phase of such journey. The correspondence between intensity levels, identified from the quantitative part, and experience types and idiosyncratic characteristics from the qualitative part, is present but not absolute.

Conclusion

Theoretical implications

In this paper, we analyzed how the experiential stimulation resulting from food-related activities in which consumers participate is associated with psychological well-being. Through a quantitative and qualitative study, a framework to consider and investigate consumer journeys in food consumption was conceptualized and empirically tested. This model intends to contribute to the academic foundation of food design thinking by offering a way to operationalize consumer empathy

activities that borrows from advancements in the related fields of consumer research and positive psychology.

From an empirical point of view, through an experimental study this work assessed the different impact that four types of experiences connected with food-related activities have on psychological well-being. The quantitative part of our study allowed us to identify a layering of different types of experiential stimulation (sensory, affective, intellectual, and behavioral), the intensity of which progressively drives perceived life satisfaction through pleasure and, to a lesser extent, meaning. The qualitative part of our study offered a rationale for the level of intensity of such experiences, which mostly refers to the occasion in which the food-related activity happened: the different phase (pre-consumption, during, or post-consumption); the presence of others in the occasion (individual or collective activity); and the frequency of the activity (regular/routine or special occasion). Taken together, these two parts allowed us to order the experience types in a consumer journey with food according to their ability to increase psychological well-being, as well as their predominance in different steps of the journey. Also, the importance of relational aspects has been pointed out as the climax of the crescendo model is shown to be characterized by shared experiences with food.

From a conceptual point of view, the "crescendo model" offers a perspective on how to achieve more effective consumer empathy by shifting the focus from an engineering mindset toward a positive psychology perspective, which is better suited to investigate hedonic categories such as food (Zarantonello and Schmitt, in press). In fact, it suggests a shift from the optimization of sensorial gratification, studied as a problem to solve in a punctual act of consumption, to a staggered connection of positive experiences that center on, but also surround, the actual eating. In this way, the consumer journey is not the study of contextual elements that help define the problem to solve in a consumer–product interaction, but rather the study of the product itself, built as a food experience that generates happiness throughout. Importantly, we suggest that such an expanded view on how to

generate consumer empathy and conceptualize consumer journeys for food is instrumental to designing better products that address the holistic, psychological well-being of people rather than solving problems related only to the impulse for sensorial gratification. Wider adoption of this perspective can progress the debate on how to design and manufacture sustainable products that make people happier, both immediately and in longer term.

Managerial implications

From a managerial point of view, the "crescendo model" offers innovation teams in the food industry insights that can be used to design product–consumer interactions. Such a model can benefit the industry by broadening its design efforts beyond the mantra of "appetite appeal" and the target of sensorial stimulation. In fact, whilst this research confirms that sensorial stimulation is the most pervasive way of achieving consumers' happiness and perceptions of life satisfaction, it also highlights that other experience types play a role in building such perceptions, a role that we think is especially relevant beyond the moment of consumption.

This way of thinking is relevant for innovation teams interested in developing healthier products, i.e. products that – by functional design – rely less on "appetite appeal" and impulse desire as an advantage against the competition, and that can leverage other experiential components to increase meaning, happiness, and perceived life satisfaction. Food consumption, especially comfort-food consumption, has significant implications in the moments preceding and following the consumption act. Designing healthier products in this space means taking care of the moments where experience types (other than the sensorial one) are dominant and not addressed. Such an approach could help marketing managers go beyond the trade-off expressed as "if it is healthy, it can't taste good" (see Suher *et al.*, 2016) and help them to design more balanced experiences for happier engagements with food products, both immediately and in the long-term. For example, to establish natural, plant-based energy drinks in the market, marketing managers could emphasize the origins

and properties of these drinks, as well as their manufacturing process (intellectual experience/pre-consumption). With respect to cultured milk, enhanced milk, and probiotic drinks, managers could further emphasize the benefits for mind and body, especially in the long term (behavioral experience/post-consumption).

The crescendo model can also help industries primarily focused on one type of experience to broaden their interactions with consumers by adding other experience types and consumption phases. For example, the wine industry, rooted in the anticipatory and educational moment of wine-tasting with sommeliers, could emphasize the behavioral experience of crafting/making (like homebrewing for beers) and the affective experience of mood-based products (like tea does with tisanes). Industries related to functional beverages or sports supplements, rooted in the practicality and personal benefits of the behavioral experience, could be present at more collective and celebratory events (e.g. online gaming and team sports) where affective experiences are generated. The snacking industry, rooted in the sensorial task of maximizing taste/health balance, could expand its rewarding experience to the affective side by creating moments to celebrate together. Finally, traditional, festive and, comfort-food industries could extend their reach beyond the season by proposing behavioral and intellectual experiences around the positive benefits that moderate consumption of their key ingredients brings to the body and soul.

Limitations and future research

Although our study offers valuable insights, it is also subject to limitations, which are related to the exploratory nature of our research. Future research should investigate further the different experience types analyzed in this work, all connected with food-related activities, and their effects on happiness and perceived life satisfaction to deepen the knowledge of the relationships shown here. It would be interesting to examine under which conditions food experiences stimulate happiness and life satisfaction more or less than others. In addition, as in our study we examined food very broadly

as daily food consumption activity, future research could investigate the impact of specific food-related episodes or events (e.g. buying food, reading about a new recipe, or giving food as a gift), as well as food activities in specific settings (e.g. consuming food at home, eating out in a restaurant, or consuming food in the context of special occasions or holidays). Future research could also compare the type of activities examined here, that is food-related activities, with other activities that people engage in on a daily basis to examine the differential effects of those activities on psychological well-being.

Moreover, this work collected data using convenience sampling, consisting of adult non-student consumers. Future studies could collect data on samples representative of the general population in order to strengthen the reliability of the findings. As self-reported data were used both for the quantitative and qualitative parts, some error is likely to be present in the respondent evaluations recorded. Although self-reported data are considered highly appropriate for understanding specific consumer behaviors and attitudes, such as those in this study, we acknowledge also the inherent limitations and suggest that future research should address these limitations by collecting data using different methods. Because our work is based on one sample for collecting both quantitative responses and qualitative comments, we also acknowledge that qualitative comments provided by respondents may be influenced by the scales they previously completed, for example in relation to pleasure and meaning; having answered questions on these two components of happiness may have led participants to refer to these aspects of happiness, and not others, such as "flow" (Csikszentmihalyi, 1990), in their qualitative comments. Therefore, we suggest that distinct studies should be designed for future research in order to minimize the potential impact from one method of data collection to the other.

Our paper focused on positive experiences that consumers have with food, as these are the ones that consumers tend to remember better. However, especially for some product categories or consumption occasions, it may be useful to investigate negative food experiences as well, in light of

the possible impact of negative affect on subjective well-being (Diener and Biswas-Diener, 2008) and the importance of the negative sphere in the context of consumption (Grappi *et al.*, 2019). A better understanding of negative aspects of food experiences could help further broaden the understanding of how food-related activities can contribute to people's happiness and perceived life satisfaction and, eventually, to their psychological well-being.

Finally, future research could further investigate the relationship between food experiences and happiness, for example by examining the specific role played by meaning and pleasure across life stages, given the results we found connected to participants' age. Future research could also investigate food experiences in relation to other components of psychological well-being. Although happiness and life satisfaction are the most important parts of psychological well-being, the positive psychology literature has identified other components of psychological well-being, such as engagement ("finding flow"), relationships ("authentic connections"), and achievement ("a sense of accomplishment") (Seligman, 2011), as well as internal and external determinants of psychological well-being, such as personality, resilience, and material/social resources (Diener *et al.*, 1999.

To conclude, we hope that this work will stimulate further research into how food experiences can help in fostering perceived life satisfaction based on the foundations provided here. For example, it will be useful to understand in future research how the need-finding stage informs the subsequent stages of the food-design-thinking process, as well as how food manufacturers can operationally implement the crescendo model to better understand consumers.

References

Addis, M. (2005), *L'esperienza di consumo. Analisi e prospettive di consumo*, Pearson Education, Milan.

Addis, M. and Holbrook, M. (2001), "On the conceptual link between mass customisation and experiential consumption: An explosion of subjectivity", *Journal of Consumer Behaviour*, Vol. 1 No. 1, pp. 50-66.

Alaszewski, A. (2006), *Using Diaries for Social Research*, Sage, London.

Andreini, D., Pedeliento, G., Zarantonello, L. and Solerio, C. (2018), "A renaissance of brand experience: Advancing the concept through a multi-perspective analysis", *Journal of Business Research*, Vol. 91 (October), pp. 123-133.

Arnould E., Price L. and Zinkhan, G. (2002), *Consumers* (2nd ed.), McGraw-Hill/Irvin, New York, NY.

Aurifeille, J.M., Quester, P.G., Hall, J. and Lockshin, L. (1999), "Investigating situational effects in wine consumption: A means-end approach", in Dubois, B., Lowrey, T.M., Shrum, L.J. and Vanhuele, M. (Eds), *European Advances in Consumer Research*, Vol. 4, Association for Consumer Research, Provo, UT, pp. 104-111.

Bagozzi, R.P. and Yi, Y. (1990), "Assessing method variance in multitrait-multimethod matrices: The case of self-reported affect and perceptions at work", *Journal of Applied Psychology*, Vol. 75 No. 5, pp. 547-560.

Bagozzi, R.P., Yi, Y. and Phillips, L.W. (1991), "Assessing construct validity in organizational research", *Administrative Science Quarterly*, Vol. 36 No. 3, pp. 421-458.

Batat, W. and Addis, M. (2018), "A design thinking approach for innovative food experience and well-being", *Transformative Consumer Research 2018 track proposal*, available at https://tcr.business.fsu.edu/sites/g/files/upcbnu1661/files/imported/TCR-proposal%202018.pdf (accessed 3 March 2020).

Beckman, S. and Barry, M. (2007), "Innovation as a learning process: Embedding design thinking", *California Management Review*, Vol. 50 No. 1, pp. 25-56.

Block, L.G., Grier, S.A., Childers, T.L., Davis, B., Ebert, J.E.J., Kumanyika, S., Laczniak, R.N., Machin, J.E., Motley, C.M., Peracchio, L., Pettigrew, S., Scott, M. and Bieshaar, M.N.G. (2011), "From nutrients to nurturance: A conceptual introduction to food well-being", *Journal of Public Policy & Marketing*, Vol. 30 No. 1, pp. 5-13.

Bolger, N., Davis, A., and Rafaeli, E. (2003), "Diary methods: Capturing life as it is lived", *Annual Review of Psychology*, Vol. 54, pp. 579-616.

Brakus, J.J., Schmitt, B.H. and Zarantonello, L. (2009), "Brand experience: What is it? How do we measure it? And does it affect loyalty?," *Journal of Marketing*, Vol. 73 (May), pp. 52-68.

Brown, T. (2008), "Design thinking", *Harvard Business Review*, June, pp. 84-92.

Brown, T. (2009), *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation*, Harper Business, New York, NY.

Buchanan, R. (1992), "Wicked problems in design thinking", *Design Issues*, Vol. 8 No. 2, pp.5-21.

Charters, S. and Pettigrew, S. (2005), "Is wine consumption an aesthetic experience?", *Journal of Wine Consumption*, Vol. 16 No. 2, pp. 121-136.

Christensen, C.M., Hall, T., Dillon, K. and Duncan, D. (2016), "Know your customers' 'jobs to be done'", *Harvard Business Review*, Vol. 94 No. 9, pp. 54-62.

Corbin, J. and Strauss, A. (1990), "Grounded theory research: Procedures, canons, and evaluative criteria", *Qualitative Sociology*, Vol. 13 No. 1, pp. 3-21.

Csikszentmihalyi, M. (1990), *Flow: The Psychology of Optimal Experience*, Harper & Row, New York, NY.

Diener, E. and Biswas-Diener, R. (2008), *Happiness: Unlocking the Mysteries of Psychological Wealth*, Wiley/Blackwell, Malden, MA.

Diener, E., Emmons, R.A., Larsen, R.J. and Griffin, S. (1985), "The satisfaction with life scale", *Journal of Personality Assessment*, Vol. 49 No.1, pp. 71-75.

Diener, E., Suh, E.M., Lucas, R.E. and Smith, H.L. (1999), "Subjective well-being: Three decades of progress", *Psychological Bulletin*, Vol. 125, pp. 276-302.

Fornell, C. and Larcker, D. F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39-50.

Gilovich, T. and Gallo, I. (2020), "Consumers' pursuit of material and experiential purchases: A review", *Consumer Psychology Review*, Vol. 3 No. 1, pp. 20-33.

Grappi, S., Zarantonello, L. and Romani, S. (2019), "Guest editorial", *Journal of Product & Brand Management*, Vol. 28 No. 5, pp. 573-574.

Hargadon, A. and Sutton, R.I. (1997), "Technology brokering and innovation in a product development firm", *Administrative Science Quarterly*, Vol. 42, pp. 716-749.

Harrington, R. J. (2004), "The culinary innovation process. A barrier to imitation", *Journal of Foodservice Business Research*, Vol. 7 No. 3, pp. 35-57.

Hayes, A.F. (2013), *Introduction to Mediation, Moderation, and Conditional Process Analysis*, Guildford Press, New York, NY.

Hetzel, P. (2004), "Vers une approche expérientielle de la haute cuisine française: Lorsque marketing sensoriel rime avec construction du sens", *Revue Française du Marketing*, Vol. 196, pp. 67-77.

Holbrook, M. and Hirschman, E. (1982), "The experiential aspects of consumption: Consumer fantasies, feelings, and fun", *Journal of Consumer Research*, Vol. 9 No. 2, pp. 132-140.

Hoorens, V. (2014), "Positivity bias", in Michalos, A.C. (Ed.), *Encyclopedia of Quality of Life and Well-being Research*, Springer, Dordrecht, pp. 4938-4941.

Hu, L.T. and Bentler, P.M. (1999), "Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives", *Structural Equation Modeling: A Multidisciplinary Journal*, Vol. 6 No. 1, pp. 1-55.

Inglehart, R.F. (1997), *Modernization and Postmodernization. Cultural, Economic, and Political Change in 43 Societies*, Princeton University Press, Princeton, NJ.

Johansson-Sköldberg, U., Woodilla, J. and Çetinkaya, M. (2013), "Design thinking: Past, present and possible futures", *Creativity and Innovation Management*, Vol. 22 No. 2, pp. 121-146.

Kahneman, D., Diener, E. and Schwarz, N. (Eds) (1999), *Well-Being: The Foundations of Hedonic Psychology*, Sage, Thousand Oaks, CA.

Kline, T.J.B., Sulsky, L.M. and Rever-Moriyama, S.D. (2000), "Common method variance and specification errors: A practical approach to detection", *Journal of Psychology*, Vol. 134 No. 4, pp. 401-421.

Lindell, M.K. and Brandt, C.J. (2000), "Climate quality and climate consensus as mediators of the relationship between organizational antecedents and outcomes", *Journal of Applied Psychology*, Vol. 85 No. 3, pp. 331-348.

Lockwood, T. (2010), *Design Thinking. Integrating Innovation, Customer Experience, and Brand Value*, Allworth Press, New York, NY.

Lyubomirsky, S. (2013), *The Myths of Happiness: What Should Make You Happy, But Doesn't, What Shouldn't Make You Happy, But Does*, Penguin, New York, NY.

Mugel, O., Gurviez, P. and Decrop, A. (2019), "Eudaimonia around the kitchen: A hermeneutic approach to understanding food well-being in consumers' lived experiences", *Journal of Public Policy & Marketing*, Vol. 38 No. 2, pp. 280-295.

Nunnally, J.C. (1978), *Psychometric Theory*, McGraw-Hill, New York, NY.

Olsen, N.V. (2015), "Design thinking and food innovation", *Trends in Food Science & Technology*, Vol. 41 No. 2, pp. 182-187.

Patterson, A. (2005), "Processes, relationships, settings, products and consumers: The case for qualitative diary research", *Qualitative Market Research: An International Journal*, Vol. 8 No. 2, pp. 142-156.

Peterson, C., Park, N., and Seligman, M.E.P. (2005), "Orientations to happiness and life satisfaction: The full life versus the empty life", *Journal of Happiness Studies*, Vol. 6, pp. 25-41.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. and Podsakoff, N.P. (2003), "Common method biases in behavioral research: A critical review of the literature and recommended remedies", *Journal of Applied Psychology*, Vol. 88 No. 5, pp. 879-903.

Rust, R.T. and Cooil, B. (1994), "Reliability measure for qualitative data: Theory and implications", *Journal of Marketing Research*, Vol. 31 No. 1, pp.1-14.

Schmitt, B. and Zarantonello, L. (2013), "Consumer experience and experiential marketing: A critical review", *Review of Marketing Research*, Vol. 10, pp. 25-61.

Schmitt, B.H. (1999), *Experiential Marketing: How to Get Customers to Sense, Feel, Think, Act, Relate*, Free Press, New York, NY.

Schmitt, B.H., Brakus, J.J. and Zarantonello, L. (2015), "From experiential psychology to consumer experience", *Journal of Consumer Psychology*, Vol. 25, pp. 166-171.

Seidel, V.P. and Fixson, S.K. (2013), "Adopting design thinking in novice multidisciplinary teams: The application and limits of design methods and reflexive practices", *Journal of Product Innovation Management*, Vol. 30 No. S1, pp. 19-33.

Seligman, M.E.P. (2011), *Flourish*, Nicholas Brealey Publishing, London.

Seligman, M.E.P. and Csikszentmihalyi, M. (2000), "Positive psychology: An introduction", *American Psychologist*, Vol. 55, pp. 5-14.

Shane, S.A. and Ulrich, K.T. (2004), "Technological innovation, product development, and entrepreneurship in management science", *Management Science*, Vol. 50 No. 2, pp. 133-144.

Steger, M. F., Oishi, S. and Kashdan, T. B. (2009), "Meaning in life across the life span: Levels and correlates of meaning in life from emerging adulthood to older adulthood", *The Journal of Positive Psychology*, Vol. 4 No. 1, pp. 43-52

Stigliz, J.E., Sen, A. and Fitoussi, J.-P. (2010), "Report by the Commission on the Measurement of Economic Performance and Social Progress", Stiglitz-Sen-Fitoussi Commission, available at: http://files.harmonywithnatureun.org/uploads/upload112.pdf

Suher, J., Raghunathan, R. and Hoyer, W.D. (2016), "Eating healthy or feeling empty? How the 'healthy=less filling' intuition influences satiety", *Journal of the Association for Consumer Research*, Vol. 1 No. 1, pp. 26-40.

Tardivo, G., Thrassou, A., Viassone, M. and Serravalle, F. (2017), "Value co-creation in the beverage and food industry", *British Food Journal*, Vol. 119 No. 11, pp. 2359-2372.

Walker, W.R. and Skowronski, J.J. (2009), "The fading affect bias: But what the hell is it for?", *Applied Cognitive Psychology*, Vol. 23, pp. 1122-1136.

Wallendorf, M., and Arnould, E.J. (1991), "'We gather together": Consumption rituals of Thanksgiving Day", *Journal of Consumer Research*, Vol. 18 No. 1, pp. 13-31.

Waterman, A.S. (1993), "Two conceptions of happiness: Contrasts of personal expressiveness (eudaimonia) and hedonic enjoyment", *Journal of Personality and Social Psychology*, Vol. 64 No. 4, pp. 678-691.

Zarantonello, L. and Luomala, H.T. (2011), "Dear Mr. Chocolate: Constructing a typology of chocolate consumption experiences through qualitative diary research", *Qualitative Market Research: An International Journal*, Vol. 14 No. 3, pp. 55-82.

Zarantonello, L. and Schmitt, B.H. (in press), "An experiential view for food design thinking: Expanding the consumer centricity concept", in Batat, W. (Ed.), *Design Thinking for Food Well-Being*, Springer, New York, NY.

Zhu, J., Jiang, L., Dou, W. and Liang, L. (2019), "Post, eat, change: The effects of posting food photos on consumers' dining experiences and brand evaluation", *Journal of Interactive Marketing*, Vol. 46, pp. 101-112.

Table I. Common method variance analysis.

	CFA model	CFA model with CMV
Measure paths		
Experiential stimulation → To what degree the food activity… stimulated your senses (sensory condition)/feelings (affective condition)/intellectual activity (intellectual condition)/actions (behavioral condition)	0.89***	0.98***
Pleasure → Being engaged in this activity is pleasurable	0.90***	0.90***
Pleasure → I love being engaged in this activity because it excites my senses	0.86***	0.84***
Pleasure → For me, the good life is the pleasurable life and being engaged in this activity is an example of such life	0.78***	0.72***
Meaning → Being engaged in this activity reminds me that I have a responsibility to make the world a better place	0.88***	0.86***
Meaning → Being engaged in this activity reminds me that my life has a lasting meaning	0.83***	0.81***
Meaning → Being engaged in this activity reminds me that what I do matters to society	0.91***	0.89***
Perceived life satisfaction → In most ways my life was close to my ideal today	0.78***	0.63***
Perceived life satisfaction → The conditions of my life were excellent today	0.90***	0.82***
Perceived life satisfaction → I was satisfied with my life today	0.91***	0.99***
Perceived life satisfaction → If I could live this day over, I would change almost nothing	0.75***	0.68***
Model summary		
Chi-square/df	97.86/39	48.96/28
CFI	0.98	0.99
NNFI	0.97	0.98
RMSEA	0.06	0.05
SRMR	0.05	0.04

Notes: *** indicates *p*-value<0.001. CMV=common method variance.

Table II. Results of the mediation models.

Mediator variable models (Sensory experience=basis for comparison)				
			M1: Experiential stimulation	
			b	***t***
X1: Affective experience			**–0.53**	**–2.07***
X2: Behavioral experience			**–0.57**	**–2.00***
X3: Intellectual experience			**–0.72**	**–2.49****
C1: Age			0.004	0.31
C2: Gender			0.11	0.56
	M2: Pleasure		**M3: Meaning**	
	b	***T***	***b***	***T***
X1: Affective experience	0.17	0.94	–0.02	–0.11
X2: Behavioral experience	0.11	0.51	–0.13	–0.52
X3: Intellectual experience	0.21	1.43	0.36	1.40
M1: Experiential stimulation	**0.44**	**9.96*****	**0.09**	**1.68**†**
C1: Age	**–0.03**	**–2.71****	**0.03**	**2.85****
C2: Gender	0.04	0.25	0.13	0.76
Outcome variable model (Y: Perceived life satisfaction)				
			b	***t***
X1: Affective experience			0.20	1.03
X2: Behavioral experience			–0.06	–0.30
X3: Intellectual experience			0.20	0.93
M1: Experiential stimulation			**0.19**	**3.47*****
M2: Pleasure			**0.44**	**6.76*****
M3: Meaning			**0.08**	**1.69**†**
C1: Age			0.01	0.75
C2: Gender			0.02	0.11
				R-square = .33
Omnibus test of direct effect of X on Y				
R^2-change	F	df1	df2	*p*
0.01	0.85	3.00	256.00	0.47
Relative indirect effects of X on Y	**Effect**		**LLCI**	**ULCI**
X → M1 → M2 → Y				
X1: Affective experience	–0.10		–0.22	–0.01
X2: Behavioral experience	–0.11		–0.24	–0.01
X3: Intellectual experience	–0.14		–0.27	–0.04
X → M1 → M3 → Y				
X1: Affective experience	–0.004		–0.02	0.002
X2: Behavioral experience	–0.004		–0.02	0.002
X3: Intellectual experience	–0.01		–0.02	0.002
X → M1 → Y				
X1: Affective experience	–0.10		–0.24	–0.003
X2: Behavioral experience	–0.11		–0.26	–0.01
X3: Intellectual experience	–0.14		–0.30	–0.02
X → M2 → Y				
X1: Affective experience	0.08		–0.05	0.23
X2: Behavioral experience	0.05		–0.15	0.25
X3: Intellectual experience	0.18		–0.01	0.37
X → M3 → Y				
X1: Affective experience	–0.002		–0.06	0.05
X2: Behavioral experience	–0.01		–0.07	0.04
X3: Intellectual experience	–0.03		–0.02	0.10

Notes: † $p<0.10$; * $p<0.05$; ** $p<0.01$; *** $p<0.001$. M=mediator, X=independent variable, Y=dependent variable. Significant paths in bold.

Table III. The final coding scheme.

Category	Definition	Levels	Sample verbatims
Gender	Gender of the participant reported in the diary	Male/Female	NA
Diary type	Type of diary assigned to the participant	Sensory/Affective/Intellectual/Behavioral	NA
Weekday	Days of observations included in the diary	Monday/Tuesday/Wednesday/Thursday/Friday/Saturday/Sunday	NA
Experience valence	The emotional value associated with the food-related activity by the participant	Positive/Neutral/Negative	"I tried a Sicilian recipe, I loved the taste and smell of the food"/"I had Chinese soup with my parents for lunch"/ "I didn't like the taste and smell of food in the canteen"
Experience intensity	The strength of the food-related activity for the participant	High/Low	"I ate my favorite dish and I felt well"/"I just had some plain food for lunch"
Experience phase	The stage in the experience process when the food-related activity is mentioned by the participant	Pre-consumption/Consumption/Post-consumption	"My friends and I spent a lot of time planning the picnic together, deciding where to have it, what food to bring and share together"/"I liked the smell and colors of the food while I was cooking"/ "Once back from the restaurant I felt I ate too much food"
Happiness type	The types of happiness referred to by the participant in relation to the food-related activity	Pleasure/Meaning	"I had fun cooking with some friends"/"This evening my partner cooked for me; I always feel special when someone cooks for me".
Place of activity	The place where the food-related experience is taking place	At home/Away from home	"I spent two hours this morning and this evening preparing today's meals"/"I went out to eat some sushi"
Presence of people	The presence of other people while the food-related experience is taking place	Alone/With others	"I had a snack while sitting on the grass"/"Today I had a barbecue with some friends"
Occasion type	The type of occasion when the food-related activity is taking place	Regular/routine/Special occasion	"I ate my typical spaghetti Bolognese dish cooked by my mum"/"I celebrated my birthday having dinner with my family in a good restaurant"
Food type	Type of food consumed during the food-related activity	Processed/Not processed	"I had junk food"/"I had a natural breakfast with fresh oranges"
Food benefit	The benefit of consuming food for the participant	Functional/practical/Treat/Healthy	"I had a quick bite at my university today"/"I had milk and cookies at midnight"/"I had salmon for lunch: simple, good, natural"

Figure 1. The conceptual model.

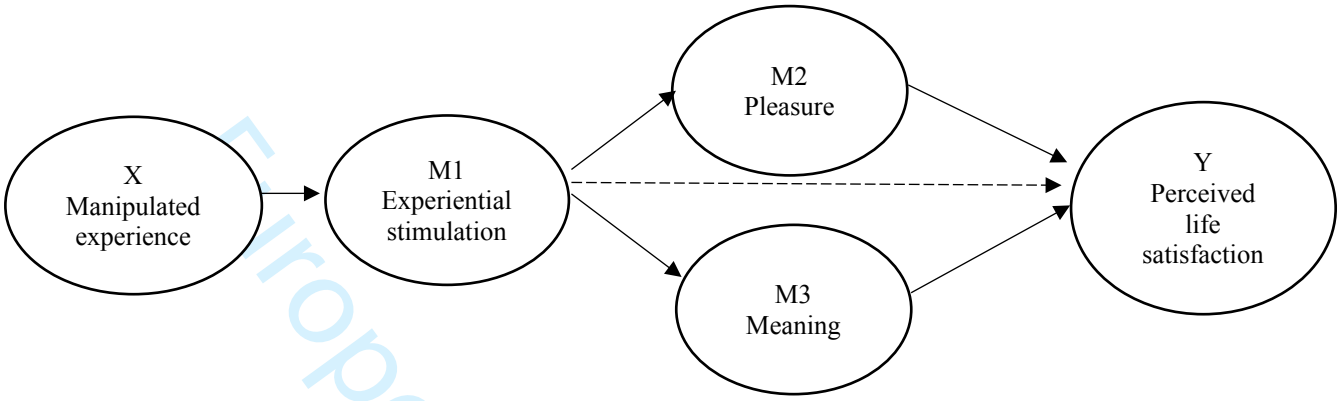

Figure 2. Results of qualitative analysis.

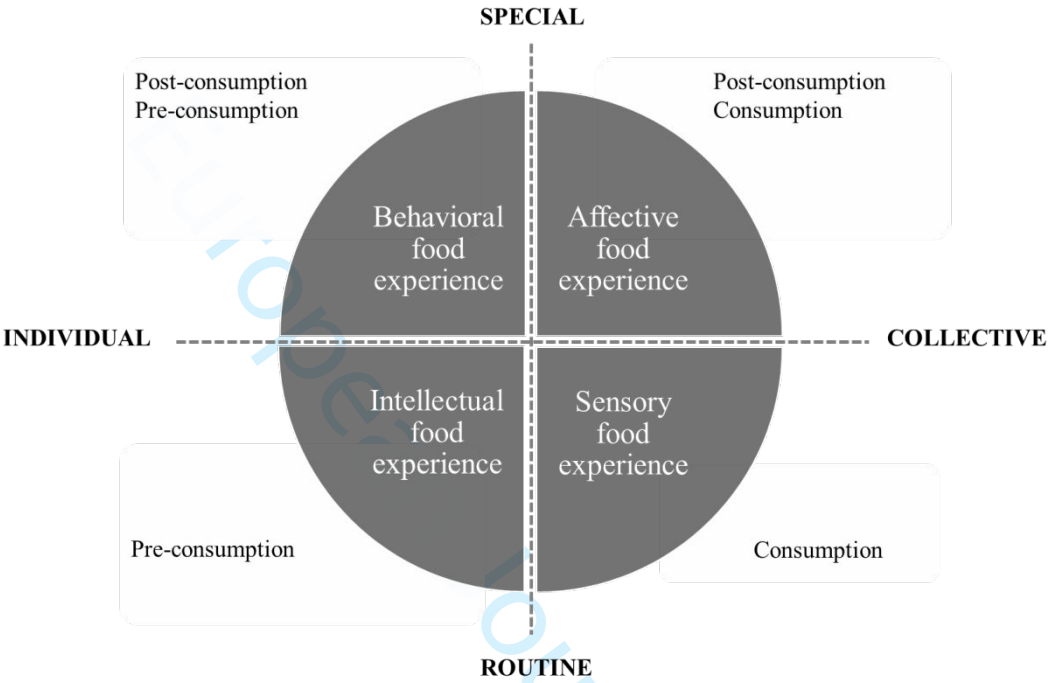

Figure 3. The "crescendo model" of food experiences and psychological well-being.