MENU

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FOOD & HOSPITALITY RESEARCH

FOOD, BEVERAGES, SERVICES
through SOCIAL SCIENCES, ECONOMICS, COGNITIVE SCIENCE & NUTRITION

December 2018
Aims and Scope

*MENU, Journal of Food and Hospitality Research* aims to publish articles on food behaviors, in link with culinary arts, foodservice and hospitality. Its scientific ambition is both thematic and methodological. Firstly, it proposes to publish the work of PhD students, researchers interested in food, culinary arts and gastronomy, who place people –cooks, consumers, waiters… - at the centre of their works. Secondly, from a methodological standpoint, the journal gives priority to ecological studies of these activities, promoting the development of *in situ* approaches. Thirdly, as multidisciplinary approaches are at the heart of the journal, Menu aims to maintain the dialogue between behavioral and experimental sciences, social sciences and humanities together with food and nutrition sciences. As a scientific journal, it also aims to bring the academic, public and private sectors together, through the diffusion of applied research to a wide reading audience.

Articles published in MENU are subject to a review process mainly involving the researchers of the Centre for Food & Hospitality Research of the Institute Paul Bocuse and their scientific collaborators.

The journal publishes four types of publications:

- **Research articles** reporting accomplished or exploratory research works. (max. 4000 words).
- **Book / Literature reviews** are short articles presenting a critical view on recently published books or papers on a given research question. (max. 4000 words).
- **Fieldnotes** presenting ongoing research works (max. 2000 words).
- **Summary of symposia** on food behaviors and hospitality research (max. 4000 words).

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Editorial

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*Menu: Journal of Food and Hospitality Research* is a journal dedicated to food-related practices, usages, behaviors, decisions and perceptions, with a special focus on culinary arts, foodservice and gastronomy. Food is at the same time a product with sensory properties, a marketable good, a means to meet physiological needs and a symbolic stand. As such, its study calls for a diversity of approaches.

Among the range of approaches available, the scope of Menu is to focus on food perception and behaviors, culinary arts, foodservice and hospitality bridging the gap between research and application. Menu aims to create a dialogue between multidisciplinary research in consumer and sensory science, nutrition and food choice, cognitive science, social science, economics and management.

A special focus is made in 2018 on the topic of Ecological validity in consumer research. In the past decades the issue of ecological validity on consumer research has been highlighted. It is important to understand what ecological validity means across different research fields and why it represents a crucial factor to consider in experimental studies.

This issue includes six research papers that go from the product to the food service including consumers' emotions and attitudes in order to offer a global vision of food from different perspectives.

This issue of Menu wishes to illustrate again the multidisciplinary approach of the Institut Paul Bocuse Research Center.
The influence of thickness and carbonation on consumers' perception of freshness in alcoholic beverages

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Abstract:
The perception of freshness has received consideration in consumer studies since it is generally perceived as pleasurable by consumers in food and beverage products and it may be expected to influence their purchase and consumption behavior. Online surveys and laboratory studies have shown that somesthetic parameters such as carbonation and fluid texture may contribute to the experience of freshness in soft drinks and alcoholic beverages. The experiment reported here aimed at investigating the influence of thickness and carbonation on the perception and judgments of freshness as well as the corresponding liking of alcoholic beverages in a real consumption context. The results revealed that carbonation (oral-somatosensory cues in this experiment) increases the intensity of the perceived freshness whereas thickness decreases it. Moreover, the sparkling cocktail that was perceived as the freshest was also the most appreciated. These results pave the way for further investigation on the respective contributions of the different perceptual features that may influence the perception of freshness as well as the various crossmodal interactions that come to play during the consumption of beverages.

Keywords: freshness, multisensory perception, beverages, thickness, carbonation
1. Introduction

The perception of freshness has received recent consideration in consumer studies due to its hedonic dimension, assumed to influence consumers’ preference and behavior. A certain consensus is emerging regarding the nature of freshness which is generally presented as a multisensory perception, i.e. the result of an integration of olfactory, gustatory, trigeminal, visual, and auditory components (see Labbe, Almiron-Roig, Hudry, Leathwood, Schifferstein, & Martin, 2009a; Roque, Auvray, & Lafraire, 2018a for reviews). Sensory characteristics such as carbonation and thickness have been reported to influence the perception of freshness in beverages. In particular, carbonation in beverages has been shown to generate freshness perceptual expectations and increase freshness perceptual experience (Guinard, Souchard, Picot, Rogeaux, & Sieffermann, 1998; McEwan & Colwill, 1996; Peyrot des Gachons, Avrillier, Gleason, Algarra, Zhang, Mura et al., 2016). However, it has also been reported that the foam created by the bubbles on the surface of beers could decrease their thirst-quenching character (Guinard et al., 1998). The thirst-quenching properties of beverages have been shown to correlate positively with the perception of freshness (e.g., Labbe, Gilbert, Antille, & Martin, 2009b) and thereby they constitute a meaningful indicator of freshness. As for the texture of the beverage, a thick texture has been many times reported to decrease the perceived freshness (e.g., Guinard et al., 1998; McEwan & Colwill, 1996).

These studies that were conducted in laboratory conditions have also identified the influence of some basic tastes (e.g., sourness, Fenko et al., 2009; McEwan & Colwill, 1996; Saint-Eve, Déléris, Feron, Ibarra, Guichard, & Souchon, 2010; Zhang, Lusk, Mirosa, & Oey, 2016), as well as some aromas (e.g., lemon and grapefruit: Fenko et al., 2009; lemon, orange, and mint: Labbe et al.2009b; Zellner & Durlach, 2002) that generally increase the perceived freshness in soft drinks or alcoholic beverages. Different patterns of sensory dominance have been reported regarding the various sensory inputs contributing to freshness. For instance, Fenko et al. (2009) documented that for soft drinks, olfactory cues dominated over visual color cues as far as freshness judgments were concerned, based on a collection of declarative data using 9-point scale assessment. Meanwhile, Labbe et al. (2009b) used edible gels, varying in their olfactory (mint and peach), trigeminal (coldness), taste (acidity), and texture (thickness) properties. The latter study revealed the fact that people differed in the main sensory modality they associated with freshness, and that this appeared to be based on previously learned associations. One cluster of consumers assessed the contribution of smell (i.e., mint) and trigeminal (i.e., coldness) sensations to freshness as being most important. A second cluster of consumers considered taste (i.e., acidity) most important, whereas a third cluster ranked oral-somatosensory (i.e., low thickness for liquids) as the most important.

There seem to be a high inter-individual variability regarding the respective contributions of the different perceptual features that may contribute to the perception of freshness when consumers have to generate sensory descriptors on their expected or actual experience of freshness. The experiment reported here was thus conducted in order to investigate the influences of the somesthetic parameters of carbonation and thickness on the perception and judgments of freshness as well as the corresponding liking of alcoholic beverages in a real consumption context.

In the domain of food and beverage, it is important to consider the context of consumption that will also largely influence the way consumers perceive a product. Some literature reviews and experimental studies cover several dimensions from the size, shape, weight, and even the color of a wine glass (Spence & Wan, 2015), to ambient lighting (e.g., Oberfeld, Hecht, Allendorf, & Wickelmaier, 2009), background color (e.g., Spence, 2018), background music (e.g., Wang, Knoeferle, & Spence, 2017), and background noise (e.g., Spence, 2014). They have...
shown that context influences taste and flavor perception (see also Spence & Piqueras-Fiszman, 2014; Spence, Velasco, & Knoeferle, 2014; Velasco et al., 2013). In the experiment reported here, we did not manipulate variables linked to shape of the glass, lighting, or background music. The aim was not to compare the influence of carbonation and thickness in beverages on freshness perception between a laboratory context and a real consumption context. The aim of this study was to determine whether the influence of the somesthetic parameters (i.e., carbonation and thickness), that have already been often reported in laboratory experiments, still exist in a real consumption context, in which a lot of other modulating factors may influence the perception of products.

**Hypothesis 1.** Carbonation will positively influence both freshness ranking and ratings and will likely increase the liking of the sparkling cocktail as compared to the still reference and thick cocktails.

**Hypothesis 2.** Thickness will decrease both freshness ranking and ratings and will likely decrease the liking of the thick cocktail as compared to the still reference and sparkling cocktails.

To investigate these two hypotheses, an experiment was conducted with French participants that were clients of the experimental restaurant of the Institut Paul Bocuse Research Center. Three different versions of the same cocktail, varying in carbonation and thickness, were served as an aperitif in a fine-dining restaurant setting.

### 2. Materials and Methods

#### 2.1. Participants

One hundred and ten French participants (52% men, mean age 45 ranging from 19 to 75 years old, 61% working adults, 21% retired, 18% students) took part in this experiment. The participants had to pay 45€ for a gastronomic meal including the three tested cocktails. All the participants provided written informed consent prior to taking part in the study.

#### 2.2. Stimuli

Three different versions of the same Gin-based cocktail were prepared: a still reference cocktail prepared with still water, a slightly sparkling cocktail with sparkling water, and a still but slightly thicker cocktail than the reference (0.3% CMC - CarboxyMethylCellulose). The sparkling cocktail was slightly sparkling in order to avoid a negative influence of foam created by bubbles and only keep the oral-somatosensory signal coming from the processing of CO2 contained in bubbles that stimulates trigeminal neurons (Carstens, Carstens, Dessirier, O'Mahony, Simons, Sudo, & Sudo, 2002). The three cocktails were also composed of juices extracted from fresh limes and cucumbers (see Table 1). The three cocktails were visually indistinguishable (see Fig. 1).

![Figure 1: The three cocktails offered to the participants](image)

Each cocktail was labeled with three possible combinations of three randomized digits. They were disposed on a slate plate in order and presented simultaneously to the participants. The basic mixed preparation of the cocktails, i.e., all the ingredients, were stored in fridge at 3°C for 4 hours. The water was taken from a Castalie filtered water dispenser delivering cold water (8-10°C). The adjusted volume of mineral water (either still or sparkling) was added just before the cocktails were offered to the participants.
Table 1: Volumes of ingredients in the different cocktails

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Reference</th>
<th>Sparkling</th>
<th>Thick</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gin</td>
<td>7.3 mL</td>
<td>7.3 mL</td>
<td>7.3 mL</td>
</tr>
<tr>
<td>Ginger liquor</td>
<td>7.3 mL</td>
<td>7.3 mL</td>
<td>7.3 mL</td>
</tr>
<tr>
<td>Cucumber juice</td>
<td>7.3 mL</td>
<td>7.3 mL</td>
<td>7.3 mL</td>
</tr>
<tr>
<td>Lime juice</td>
<td>3.6 mL</td>
<td>3.6 mL</td>
<td>3.6 mL</td>
</tr>
<tr>
<td>Still mineral water</td>
<td>14.5 mL</td>
<td>X</td>
<td>14.5 mL</td>
</tr>
<tr>
<td>Sparkling mineral water</td>
<td>X</td>
<td>14.5 mL</td>
<td>X</td>
</tr>
<tr>
<td>Thickener (CMC)</td>
<td>X</td>
<td>X</td>
<td>0.12 g</td>
</tr>
<tr>
<td>Total volume</td>
<td>40 mL</td>
<td>40 mL</td>
<td>40 mL</td>
</tr>
</tbody>
</table>

2.3 Design and procedure

The experiment took place in the experimental restaurant of the Institut Paul Bocuse Research Center (see Fig. 2) during five diners between March and April 2016 (controlled conditions for restaurant setting, light, musical playlist).

The three cocktails were simultaneously presented to the participants on a slate plate as an aperitif. The participants responded to a self-administrated printed questionnaire for each cocktail. They had to taste the three cocktails step by step in the given order. The first question was a ranking task on the perceived freshness of the three cocktails. The participants were asked to taste the cocktails in a specified order (randomized across participants) and to rank them on a linear scale ranging from “Not fresh at all” to “Very fresh” (considered as a linear scale ranging from 1 to 9 for the analysis of the freshness ratings).

Then, the participants were asked to assess their liking of each cocktail (randomized order) on a 9-points Likert-scale ranging from “I did not like it at all” to “I liked it very much”, and to indicate the liked and disliked characteristics for each cocktail (open-ended question). They had to take a sip of water to rinse their mouth between two samples.

3. Results

3.1. Freshness ranking

For the ranking task on the perceived freshness, a Friedman test revealed a significant effect of the rank sum of the three cocktails (p<0.0001). A multiple comparison by pair revealed that the reference and the sparkling cocktails were ranked as significantly fresher than the thick one. The sparkling cocktail only tended to be ranked as fresher than the reference one (see Fig. 3).

![Figure 3: Rank sum for the three cocktails (N=110).](image-url)
3.2. Freshness ratings

The linear scale on which the participants ranked the cocktails for the perceived freshness was considered ranging from 1 to 9 in order to analyze the corresponding freshness ratings. An ANOVA (Analysis of Variance) was conducted on the freshness ratings considering as independent variables the Cocktails (Reference, Sparkling, or Thick) and the Participants. A significant main effect of the Cocktails was obtained (p<0.0001) whereas the variable Participants had no significant effect (p=0.99). Student post-hoc tests revealed that the freshness ratings of the three cocktails differed significantly one from the other (see Fig. 4). The mean freshness rating of the thick cocktail was inferior to the mean freshness ratings of both the reference and the sparkling cocktails. The sparkling cocktail was also rated as significantly fresher than the reference one.

Figure 4: Intensity scaling (from 1: Not fresh at all to 9: Very fresh) (N=110)

From this supplementary analysis, it appears that the scaling method allows a finer discrimination of the perceived freshness of the three cocktails than the ranking method.

3.3. Relationship between freshness ratings and liking

From the liking ratings and the freshness ratings of each cocktail, a significant positive correlation was revealed (Pearson correlation, rho=0.41, p<0.0001, see Fig. 5).

Figure 5: Correlation between freshness intensity and liking (N=110).

The more the freshness ratings were higher for the cocktails, the more they were appreciated. The open-ended question on the liked and disliked characteristics of the cocktails revealed that the reference and the sparkling cocktails were particularly appreciated for their sourness content as well as their lime and cucumber flavors.

4. Discussion & conclusion

The experiment reported here aimed at investigating the influence of carbonation and thickness on the perceived freshness of an alcoholic cocktail, served as an aperitif in a real consumption context. The results revealed a positive influence of carbonation (oral-somatosensory cues in this experiment) on both freshness ranking and freshness ratings (Hyp. 1). On the contrary, thickness decreased the intensity of the perceived freshness (Hyp. 2).

Interestingly, the scaling method (i.e., freshness ratings) revealed a finer discrimination of the perceived freshness of the three cocktails than the ranking task. However, it should be noted that the ranking task and the assessment of the perceived freshness were made simultaneously by the participants on a linear scale ranging from “Not fresh at all” to “Very fresh”. Thus, it remains to be investigated whether a finer discrimination of the freshness ratings would also be found if the two tasks have been separated, and if the freshness ratings have been made on a linear scale displaying the 9 assessment points -with numbers or words- instead of (or in complement to) the two extreme labels of the
Various perceptual features that belong to different sensory modalities can modulate freshness perception in beverages (Roque et al., 2018a). An interesting follow-up of the experiment reported here would be to get a psychophysical validation of these perceptual features that belong to the freshness perceptual category, in order to obtain more objective measures of their respective contributions. Laboratory experiments using, for instance, categorization or recognition tasks would also enable to investigate the potential crossmodal interaction effects – e.g., between texture, color, taste, odor – that can increase the perceived freshness (see Roque, Lafraire, Spence, & Auvray, 2018b for the influence of audiovisual interactions on the categorization of freshness in beverages). This new empirical evidence on crossmodal interactions and the facilitation effect induced on participants’ performances still remain to be investigated in more ecological context in order to determine how the observed results are modulated when the environment becomes more complex.

In the experiment reported here, the influence of particular taste phenotypes on the perception of freshness and the liking of the cocktails was not controlled. However, a lot of studies have shown that 25% of the population can be more sensitive to bitter-tasting compounds, such as phenylthiocarbamide (PTC) or the chemically-related 6-n-propylthiouracil (PROP) and they are called “supertasters” (e.g., Bartoshuk & Beauchamp, 1994). Around 50% would be “medium tasters” and 25% “non-tasters” (Bartoshuk, 2000). PROP sensitivity is associated with a higher taste sensitivity in general, and with a larger number of taste buds on the tongue. Non-tasters to PROP appear to like fat, sweet foods, and alcoholic beverages (Duffy, Peterson, & Bartoshuk, 2004). In future studies involving beverages’ tasting, the influence of such physiological parameter that may contribute to inter-individual differences in terms of the perception of products should be considered.

References

temperature, carbonation, and color on the categorization of freshness in beverages. Journal of Sensory Studies, e12469.


How to evaluate a gastronomic experience? The role of spontaneous language to capture emotions

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Abstract:
In the context of high quality food, such as meals in a gastronomic restaurant, classical approaches using liking levels hardly differentiate recipes as products are all rated excellent. More, recipes are often complex, with many stimuli contributing the overall judgment: the visual dressing of the plate, the flavour and texture of each component, e.g. meat, vegetable 1, vegetable 2, sauce, starch…
The objective of this work is to define a way to measure consumer opinion of complex dishes allowing to compare recipes and draw conclusions for possible improvements.
The selected method is based on spontaneous language as it is hypothesised that emotion would be more relevant than liking scores to reach a better discriminability. Consumers are asked to give 3 words to describe their experience of the food. Then the R3M algorithm takes into account the language structure: the meaning but also the world nature (grammatical, logic, valence…) and the verbalisation context. Consumers are also asked to rate their liking of the food and give positive and negative reasons explaining the given scores. Regular clients of the restaurant participated in the study (n=120). Four dishes of two menus were evaluated: Menu Créativité and Menu Bien-être
In a general perspective, the two methods gave consistent results and allow to show the menu Créativité was slightly more preferred than the other one.
In a detailed analysis, the spontaneous language approach allowed to identify associated emotions that were not verbalised in the liking measures. More specifically, it also allowed to identify some sensory characteristics to be adjusted for better satisfaction.
The spontaneous verbalization helped to go beyond rational diagnosis, bringing emotional dimensions crucial for this high-end culinary universe, such as surprise, aesthetics and originality of the dishes.
1. Introduction

In the context of gastronomic restaurants, the meals are by essence of high quality: fine ingredients, technical cooking and aesthetic design. When consumers are asked to rate their experience, most dishes in gourmet restaurants are expected and actually rated excellent (Cardello et al., 1996). As a consequence, it is rather difficult to discriminate between high quality dishes. This could be due to threshold effects observed in the use of liking scales. In addition, a gastronomic dish is a set of multiple components, each of them resulting of a complex process, recipe, cooking, presentation. Thus, many stimuli may contribute to the general judgment of one dish: appearance, flavor, texture of each component are included in an integrated hedonic evaluation (Parizot et al., 2015).

Finally, in addition to food stimuli, the atmosphere of the restaurant, the decoration and the service contribute to the emotional experience of the meal and therefore to the overall experience (Meiselman & Giboreau, 2018).

In order to bring valuable information to chefs and identify areas of further refinement, it is necessary to better discriminate between gastronomic dishes. Thus, a new method is needed to measure gastronomic restaurant clients judgment taking into account the emotional dimension of their experience. Daniel Kahneman’s analysis of decision making according to two different and interacting thought systems is a now a reference model for many researchers (Kahneman, 2012). “System 1” is automatic, unconscious and fast; the emotional and reflex system. “System 2” is slow, conscious and more energy-intensive; the rational system, it requires a cognitive effort. Decisions are thus a mix of emotion and reasoning (Derbaix 1989, Damasio 1994, Ferrandi 2002). That is even more true for decisions considered to be of low stakes, which is the case for many consumer goods purchase decisions. This model constituted a real conceptual revolution in the field of marketing studies: the perfectly rational "homo economicus" has been challenged. Most quantitative tools that rely on a thorough questioning of the respondent are not adapted to the understanding of the automatic emotional system and new methods are needed to lead the interviewee to activate his/her system 1. Many authors demonstrated the benefit of emotional rating techniques versus a standard stimulus evaluation questionnaire in the product testing fields (King & Meiselman 2010, Spinelli et al, 2014). Nevertheless, these methods rely on scales, risking to switch to “system 2” as respondents need to self-assess their feelings and translate them according to the imposed scales. Moreover the very principle of these scales forbids the detection of reactions other than those predetermined a priori by the practitioner.

Given the difficulty to discriminate between high quality samples, such as gastronomic dishes, and the addressed limits of scaling approaches, in particular the measure of emotional engagement, a new tool has been developed based on spontaneous wording.

2. Principle of the R3m\(^1\) score based on 3 first quoted words

The founding hypothesis is based on the link between free associations and emotional activation. Indeed, a pleasant stimulus generates more associations than an un pleasant one (Johnson & Lim, 1964, Matlin & Stang, 1978) and a more complex stimulus (eg a compound word) generates a greater diversity of associations (Cramer 1968). In addition, the state of mood or arousal of a subject influences the character of word associations: people artificially placed in a positive mood or a higher arousal tend to generate more original associations (Isen et al. 1985, Gilet and Jallais 2011).

These results confirm the relevance of the selected approach of characterizing the emotional activation on the simple basis of a few words production associated with a given stimulus. For example, a person who is presented with a glass of water who

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\(^1\) R3M for Repères 3 Mots
produces the following 3 words water / glass / transparent is less emotionally activated by the stimulus than a person who quotes refreshing / essential / I want.

The creation of the 3 first quoted words method (R3m) was led by Franck Saunier, psychoanalyst and semiologist. The fist validation study was conducted on a sample of 60 subjects. Each participant was successively submitted to 9 room fragrances with a video recording of their reactions to the discovery of perfumes and the spontaneous production of 3 words (Saunier F. 2013). Results showed a significant interaction between the emotional activation measured from nonverbal images and quoted words. This first study completed by theoretical considerations on emotions (Russel 1980) and linguistics (Dubois et al., 2009) allowed the construction of an algorithm and the development of the R3M method.

The R3m method requires subjects to quote 3 words while experiencing a stimulus, with no prior nor other questions being answered. The collected verbal corpus is then computed using different criteria:
- Rank
- Valence (if unambiguous, e.g.wonderful), and specifically adapted to the research category
- Grammatical nature: noun, adjective, verb
- Subject posture: e.g. judging the stimulus, describing self-perceived effects, describing the stimulus, expressing an analogy or a metaphor
- Level of consensus between subjects.

Each of the three words is scored on the basis of these criteria, which allows to calculate a score at the respondent level and by extension a score at the sample level (average of the scores of all respondents). The R3m score is ranging from -150 to +100 and can be interpreted as an ordered classification of four states related to the emotional activation status of individuals:

1. The highest R3m scores correspond to highly positively activated individuals,
2. Then weakly positively activated individuals,
3. Then weakly negatively activated individuals,
4. Finally strongly negatively activated individuals.

In the context of gastronomy and very appreciated and emotional foods, the objective of the current work is to explore the potential interest of the R3m score versus a conventional scaling measure with a particular focus in discriminability.

3. Material and Method

The study took place in the Experience Restaurant, one application restaurant of the Institut Paul Bocuse (Ecully). This restaurant offers a real gastronomic experience with menus created, prepared and served by students of the school under the supervision of a MOF\(^2\) chef.

Participants were regular guests having dinner at the restaurant upon their own booking and at their own expenses. 55 customers evaluated courses of Menu Contemporary and 57 those of Well-being Menu.

The study compares two menus: « Contemporary » and « Well-being ». Four courses were evaluated: appetizer, starter, main course and dessert. (Figure 1).

\(^2\) MOF Meilleur Ouvrier de France, highest distinction for culinary chefs in France.
Figure 1: Photos of evaluated dishes «Contemporary» and «Well-being» Menus.

The questionnaire was composed of three questions for each dish (see Figure 2.):
- Quotation of three spontaneous words
- Rating of the overall liking on a scale from 1 to 9
- Description of positive and negative characteristics of the dish.

For each dish, scores of samples from the 2 menus were compared using Student test, at a 5% risk level (both R3m score and liking score). Positive and negative characteristics collected with the open questions were groups using semantic analysis to bring further explanation on the liking scales and not statistically compared between menus.

Figure 2. Questionnaire for one dish.

4. Results

Means of liking scores and R3m scores were compared for the 4 dishes between the two menus «Contemporary» and «Well-Being». An average of the 4 courses scores was also calculated to evaluate the menu as a whole. Mean scores are given in Figure 3 for both menus and both methods.

Figure 3: a. Overall liking scores. b. R3m mean scores. Symbols (<) indicate significant difference at the 5% level. Both scores show the same pattern of experience during the meal: the least appreciated dish and the
most appreciated one are the same using both method. However, the R3m score shows a better discrimination. While there is no difference between the starters of the two menus with the liking score, the R3m score shows that the « Well-Being » starter raises more activation than the « Contemporary » starter. The same effect is observed for the overall appreciation of the 4 dishes.

Focusing on starters, the lower R3m score of the « Contemporary » starter can be explained because this dish generated less enthusiasm and less positive words associations than the « Well-Being» one. Indeed, the most impacting words for the « Well-Being» starter were: delicious and appetizing. Stronger visual emotional dimensions such as splendid, original and graphic were also quoted.

A standardized database of images together with image size and a coding of positive (in green) and negative (in red) is used to represent word contribution to the R3m score and provide an easy reading of the results (Figure 4).

Comparing open-ended verbatim, no clear differences appear between the two starters (Figure 5).

5. Discussion

The study conducted at Restaurant Experience has demonstrated that the R3m score goes further than conventional declarative measures in the case of the evaluation of gastronomic dishes. On one hand, spontaneous language has been richer in generating unexpected dimensions. Moreover, the method is quick and easy to implement thanks to a simple question supposed to limit bias and little influence the consumer than a judgment scale and a categorization of positive and negative characteristics.

On the other hand, the R3m score highlights dimensions that have the greatest impact on the emotional activation of consumers. It allows to
engage more into emotional wording, on the positive side (eg delicious and not only very good) as well as the negative side (eg disappointing not only tasteless). More the visual and aesthetic characteristics of dishes are quoted with the R3m score but did not emerge in conventional declarative measures.

Several hypotheses can explain the superiority of the R3m score versus a conventional declarative measure of the pleasure experienced during a product test. First, the question of the 3 words is an indirect measure of pleasure. The respondent is not asked to tell if he/she likes the product or not, limiting the effects of social desirability of the declarative approach. It allows to access more spontaneous information, more intimate, more emotional and less post-rationalized. It is closer to Kahneman’s System 1 approach.

Second, the R3m score avoids the side effects of declarative scales. If two products obtain a liking score of about 9 out of 10, it is hardly probable that respondents use scores close to 10 and the difference of average scores might not be large enough to discriminate the products. Conversely, a product could theoretically obtain a maximum score of 100 using R3m score but the best products tested so far had reached scores close to 50. To obtain 100, all respondents should have used for their 3 words only expressions like “I love” “awesome” “super”, which is totally improbable. The R3m score scale authorizes greater nuances even in high score ranges and then allows to discriminate an exceptional product from a very good product.

Finally, it should be noted that the R3m score is a construct derived from 3 measurements per respondent (each word being scored) which gives it a robustness and fineness higher than the most frequently used global rating scales which are often based on a single measurement per respondent.

6. Conclusion

This study confirms the R3m score is a rich and precise diagnosis of liking and emotional consumer responses through the simple question of spontaneously quoting the first 3 words that come to mind.

Compared to more traditional methods, the R3m score brought more discrimination between different dishes.

This approach is of particular interest in the context of the Institut Paul Bocuse where guests usually give very positive – not discriminant – feedback on the dishes they consumed in the gastronomic environment. This information will certainly be useful to enable culinary students to identify potential areas of improvement and bring a deeper understanding of guests’ experience.

Acknowledgements

This study was possible thanks to the founding work of Frank Saunier, creator of the R3m score. The authors thank the Restaurant Experience team: Chefs Florent Boivin and Olivier Pons and the headwaiters, as well as the students of the Institut Paul Bocuse for their technical help. They also thank Pauline Leval from Repères, for her contribution to the study.

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The Experimental Cafe: an exploratory study on consumers’ behaviour towards food information in a natural consumption context

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Abstract:

On November 21st-23rd, 2017, the Center for Food and Hospitality Research of the Institut Paul Bocuse participated in Food Matters Live. During the event, a live experiment on the effect of information on food choices was set up in partnership with Levy Restaurants and Food Matters Live. During the three days of the experiment, data were collected at the lunch break. The information of the set menus was slightly modified every day, with the rest of the context and food offer being kept constant. 188 conference attendees, took their meal at the experimental café during the three days of the event and participated in the experiment. The data collected allows exploring the impact of context factors (information) on consumer decision-making for food. Moreover, the performance of a study in a real-life setting brought us several insights concerning this type of experiments.
1. Introduction

Food Matters Live is a cross-sector event that brings together different sectors of the food and drink industry in order to enable collaboration and innovation to support a sustainable food landscape for the future. In November 2017, the Center for Food and Hospitality Research of the Institut Paul Bocuse participated in this event performing an exploratory study about consumers’ behavior and food information.

During this event, different products “free from”, “organic” or “vegan” were presented as part of the trends in the food market. In the last decades, consumers have started to be much more interested in this type of products, focusing on food process and information (Asioli et al., 2017). Several studies have shown the impact of information on consumers’ liking and behavior (Jo & Lusk, 2018; Liu, Hooker, Parasidis, & Simons, 2017; Reis, Alcaire, Deliza, & Ares, 2017; Schouteten, De Steur, Sas, De Bourdeaudhuij, & Gellynck, 2017). Most of these studies, look at the effects of the information presented on packages on liking, choice or willingness to pay. However, there is still a lack as regards those effects on real-life settings like restaurants or cafeterias where no packaging is used but menus.

The objectives of this study were (i) to examine the effect of information on food choice and liking and (ii) to analyze the advantages and disadvantages of setting up a study like this in a real-life setting.

2. Methods

2.1. Participants

Conference attendees who voluntarily came to the restaurant during their lunch break were recruited at the cash point. They were told that we were conducting a survey as part of a PhD thesis project and if they could fill out a questionnaire on the food that they had freely selected. In total 188 conference attendees (mean age = 39; 72% women) participated in the study.

2.2 Questionnaire design

The questionnaire was divided in two sections: before eaten and after eaten.

In the first section participants were asked to indicate their level of hunger on a 9-point scale and answer some sociodemographic questions. In the second section, participants indicated which dish they have chosen and their liking on a 9-point scale.

2.3 Experimental design

The Levy Restaurant in partnership with Food Matters Live were in charge of the food offer at the Experimental Café (Figure 1).

![Figure 1. Setting of the Experimental Café](image)

The same food was served during the three days. Attendees could choose between three choices of protein dishes and five choices of salads. The information presented on the menus at the food stand and tables was slightly modified each day (Figure 2). This modification was highlighted by changing the color of the added descriptors.

- Day 1: Name of the dish
- Day 2: Information about the food preparation method (more appealing description)
- Day 3: Information of food preparation method + origin + sustainable claims

2.4 Data analysis

Data was analyzed by using XLSTAT Marketing (2018.7 version).

3. Overview of the results

The number of participants who came and participated to the Experimental Café varied from day to day:

- D1: 63 participants
- D2: 75 participants
- D3: 50 participants

3.1 Choice

Protein dishes choice:
In general, participants choose more the salmon dish than the chicken and Mediterranean tart (Table 1). The choice of the dishes was not affected by the presence of information. 11 participants did not choose the protein option during the conference event.

### Table 1. Distribution of participants (%) per protein dish option and day.

<table>
<thead>
<tr>
<th></th>
<th>Chicken</th>
<th>Salmon</th>
<th>Mediterranean tart</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1 (n=57)</td>
<td>24.56%</td>
<td>59.65%</td>
<td>15.79%</td>
</tr>
<tr>
<td>D2 (n=72)</td>
<td>19.44%</td>
<td>66.67%</td>
<td>13.89%</td>
</tr>
<tr>
<td>D3 (n=48)</td>
<td>35.42%</td>
<td>33.33%</td>
<td>31.25%</td>
</tr>
</tbody>
</table>

### Salad dishes choice:
As regards the salad choice, the broccoli and lentils option were the most selected compared to the other dishes (Table 2). In this case participants, could choose several salad dishes at a time. As occurs with the protein dishes, the choice of the different salads was not affected by the presence of information.

### Table 2. Distribution of participants (%) per protein dish option and day.

<table>
<thead>
<tr>
<th></th>
<th>Butternut, lentils, radicchio, spinach</th>
<th>Cracked wheat, roasted vegetables, cherry tomatoes, herbs</th>
<th>Broccoli, peppers, chilli and garlic</th>
<th>Potato, spring onion, truffle</th>
<th>Mixed leaf and vegetable salad</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>26.06%</td>
<td>16.20%</td>
<td>28.17%</td>
<td>14.08%</td>
<td>15.49%</td>
</tr>
<tr>
<td>D2</td>
<td>21.90%</td>
<td>21.17%</td>
<td>25.55%</td>
<td>19.71%</td>
<td>11.68%</td>
</tr>
<tr>
<td>D3</td>
<td>25.81%</td>
<td>19.35%</td>
<td>16.13%</td>
<td>18.28%</td>
<td>20.43%</td>
</tr>
</tbody>
</table>

### 3.2 Liking

#### Protein dishes liking:
The liking scores of the protein dishes slightly decrease during the three days of conference (Figure 3). However, no significant differences were found between the days.

#### Salad dishes liking:
As regards the salad dishes, the liking scores also differed from day to day but only significant differences were found for the butternut and mixed leaf salad dishes (Figure 4).
Figure 2. Menu offered to the conference attendees each day: a) menu presented day 1: name of the dish; b) menu presented day 2: information about the food preparation method (more appealing description); c) menu presented day 3: information of food preparation method + origin + sustainable claims.
Concerning the effect of information, we observed that consumers did not pay attention to the information presented at the menus. When they came to the Experimental Café, they observed the food offer and they asked the catering service about it. Therefore, as the results showed, the choice of food may have not been directly related to the given information. As Grunert (2011), described “exposure need not lead to perception”. Consumers tend to select the information they are interested in and ignore the excess of it. In this type of events, where people do not have a lot of time for lunch, this may have led them to simplifying food decisions by directly asking the catering service. On the other hand, we should consider that participants may have varied their choices within the 3 days of conference to avoid monotony (Köster, 2009; Meiselman, 2006).

Overall the food offer was perceived very positively. One of the concerns was considered a warm option much better than a cold one. As regards, the salad options, some of the participants reported that they would have wished for a vegetarian protein option – as this is a trend that was presented during the conference.

Concerning the advantages and disadvantages of setting up a study like this, it is important to highlight different aspects that may occur in real-life settings. During the study, the catering service changed the cutlery from day one (wood) to day two and three (plastic). This may had an effect on participants’ behavior and especially on liking (Piqueras-Fiszman, Laughlin, Miodownik, & Spence, 2012). Moreover, participants aroused several concerns regarding the sustainability of the plastic cutlery as it was one of the key elements of the event and did not match with the concept of the Experimental Café. On the other hand, the service of the food also varied from day to day - some food options were available before others due
to some logistical issues in the kitchen – which may have affected the results regarding the food choices.

An additional element that we did not consider was that participants seemed to be surprised about the price of the menu because getting just one dish (one protein and not salad) had the same cost than get 3 dishes (protein + 2 salads) which may also have impact in the choice and liking of the dishes.

Concerning the food offer, snacks (chocolate bars, chips) were part of the offer at the Experimental Café and we noticed that a lot of consumers just grabbed a coffee and a snack instead of looking at the menu (on which the experiment was focusing).

Regarding the experiment itself, it seemed that people were not fully able to realize that an experiment was going on, despite the logos and information on the site. Many people thought it was a commercial questionnaire related to the served food and unfortunately, we did not get many participants, especially on the third day where the numbers dropped quite significantly.

5. General remarks

This exploratory study gives us some insights about how consumers behave in real-life settings and how feasible an experiment of those characteristics is. Consumers did not pay attention to the presence of information on the menus, they were more focused on the appearance of the food when choosing their menu and, other contextual elements such as the cutlery used when evaluating the food, than on the information provided. From this result, we can assume that much more effort should be put on the way food information is presented in real-life settings.

Besides, we should consider that depending on the type of setting, cafeterias or restaurant, consumers may behave in a different manner so the way to communicate about food should also differ.

Experiments in real-life settings allow us to better understand consumers’ behavior and get direct feedback from the consumers. However, several factors external to the experiment (problems in the service of the food or the used cutlery) may occur biasing or making difficult the analysis of the results. Therefore, we suggest that an equal commitment between the internal validity of an experiment in controlled settings and the external validity of an experiment in real-life settings should be found.

References


Development of a database to assess the healthiness of children’s menus in commercial restaurant

Laure Saulais¹, Candice Lazreug¹

¹ At the time this research was conducted, both authors were members of the Institut Paul Bocuse Research Center, Ecully, France

Abstract:

The environment plays a major role in the rise of childhood obesity and overweight. This article reports the development of a database of menus targeting children in commercial foodservice. The aim of this database is to allow public health professionals to better assess the healthiness of foodservice environments that children have access to when eating out in restaurants.
1. Introduction

Although childhood obesity seems to have stabilized in France over the past 20 years, the OECD predicts an increase in child overweight in the next 10 years\(^3\). Childhood obesity and overweight have been associated with greater risks of obesity and overweight and cardiovascular disease in adulthood, but also with increased risks of psychosocial and mental health problems (Janssen et al., 2004; Nieman et al., 2012, Sjöberg, Nilsson and Leppert, 2005). The prevention of childhood obesity and overweight is therefore a major public health goal. Childhood obesity and overweight are complex and multifactorial phenomena. Family feeding practices and education have been associated to Body mass Index (BMI) (Fernández-Aranda et al., 2007, Puhl and Schwartz, 2003). The restaurant is one of the places where food is shared, and where potential exposure to new foods takes place and consumer practices can be transmitted. The acquisition of good eating habits outside the home therefore appears to be part of the obesity prevention challenge in the face of the rise of the out-of-home catering sector in the food habits of the population.

Furthermore, the food environment has been identified as a significant contributor to childhood obesity and overweight (Nestle, 2006, Reisch and Gwozdz, 2011b, The Lancet, 2010). Prevention therefore also requires vigilance with regard to environmental risk factors. In the field of public health, “obesogenic” environments designate environments that favor access to a diet that is of poor nutritional quality and in too large a quantity, and / or that promotes a sedentary lifestyle.

Childhood obesity and overweight are more common in underprivileged and low-educated environments: a French study shows a rate of obesity of 1.4% among children of cadres against 5.5% among children of workers (Fonteneau, 2017 ). Another study reports a negative association between education level and body mass index (Verdot et al., 2017). Although, to our knowledge, there are no published data on the links between body mass index and restaurant attendance by French children, this association has been established in adults in several cohorts (Bezerra, Curioni and Sichieri, 2012, Naska et al., 2011, Ruidavets et al., 2002). Similarly, there is very little public data on restaurant attendance by income or socio-occupational category. A study published in 2011, and conducted by the Chamber of Trade and Industry of Lyon in France on a sample of 6200 households in the Lyon area, notes a differentiated attendance of restaurants according to occupational categories, with a greater attendance of quick-service restaurants for blue-collar workers in the sample surveyed (CCI Lyon, 2011).

While the scientific and professional literature in public health has long been concerned with consumer risks related to the environment of choice, this line of work has focused primarily on the availability and accessibility of “healthy” or “less healthy” options in the environment of the consumer. In the collective catering sector, this approach of choice environment takes the form of standards, such as the one developed by the French GEMRCN (Market Research Group for Collective Catering and Nutrition), which provides guidance regarding reference portion sizes and frequency of appearance of each food group on school canteens menus (Darmon et al., 2010). The choice architecture literature provides an interesting complementary perspective to this one: it proposes to consider, beyond the nature and the nutritional quality of the options available, the “risks” of a certain environment in terms of decision-making processes. Do some ways of making choices available (range of products, saliency of certain options, pricing, etc.) favor less sustainable or less healthy choices?

This question is all the more important with the development (already apparent in certain subsectors

of the foodservice industry such as quick-service restaurants) of new digital media. When employed to allow consumers to place orders (through a pad or a smartphone), these new tools modify the presentation and the rules of choice, particularly the saliency of options, but also the ease of use and decision.

The menu is a decisive element in the interface between supply and demand in catering. It is both a list of products offered, but also a communication tool for the restaurant (Ozdemir and Caliskan, 2015). However, the latter aspect is rarely considered in the public health literature, and the scientific literature on menus is mainly focused either on strategic and managerial issues associated with profit (menu engineering), or on the assessment of the nutritional quality of the supply and impact of nutrition information on consumer perceptions and choices (Din, Zahari and Shariff 2012, Hwang and Lorenzen 2008, Jones 2009). However, work on structuring of options within a menu indicates that it may have an impact on decisions at the time of selection (Dayan and Bar-Hillel, 2011, DellaVigna, 2009, Johnson et al., 2012). As such, menu structure analysis could provide an interesting avenue to explore to better understand choices and to design environments that promote more sustainable and healthy choices.

Despite the importance of the food choice environment, there is very little publicly available data about the nature and structure of the offer that is made available to children in foodservice settings. The research project reported in this article aims to fill this gap by building a database of children’s menus in different sub-sectors (fast food, chain catering with table service, catering gastronomy ...) of commercial foodservice in France, taking into account not only the nature of the options, but also the choice architecture.

More broadly, this database is aimed to allow to establish a diagnosis of the eating-out options for children in France, concerning the nature of the options and how they are made available.

2. Materials and Methods

This study relied on the characterization and statistical analysis of menus of commercial restaurants.

Development of the database criteria.

The first step was to define the structure of the database. A literature review on the architecture of choices and decision biases was conducted in order to identify the contextual elements that can promote the occurrence of potential decision bias in menus. Ozdemir and Caliskan (2015) identified four factors in the structure and design of menus that may impact clients’ choices: (i) the position of options on the menu, (ii) the level of description of the menu items (degree of information and details), (iii) the phrasing of options (names of dishes, use of sensory terms or rather descriptive ingredients etc.) and (iv) the visual features of the card (boxes, highlighted dishes, graphics. Regarding, more broadly, choice architecture, Johnson et al. (2012) categorized choice architecture features into two approaches: an option-description approach, and a task-structure approach of choice (Johnson et al. 2012).

The criteria that were selected to serve as a basis for the construction of the database characterizing the children’s menus were:

- The restaurant type and the average expenditure per guest
- The availability of options (presence or absence of food categories: fruits, vegetables, starches, dairy, meat/fish, water, sweets, soft drinks)
- The pricing structure, the existence and number of set menus
- The quantities served: portion size, possibility of choice of portions
- The level of available information: nature, type, medium (label, analytical information), degree of information, degree of uncertainty about composition, nutritional quality, proposed portions
- The number of relative options by food category
- The presence of default choices
- The saliency of certain products
- The ease for the child to make his decision alone in front of the menu (and the encouragement possibly to order alone)

- Additional features, such as toys/gifts

Data collection and integration

Once the database structure was designed, data was collected to populate the database. The study focused on the analysis of family-friendly restaurant cards, that is to say, restaurants where a specific offer was available to children. The study excluded restaurants whose menu did not offer a specific "children" offer. The collection of menus comprised three steps:

(i) Restaurant identification: using online platforms, researching catering offers in family-friendly places (shopping centers, leisure areas ...). 214 restaurant locations or chains were identified. (ii) Collection of online menus: by internet. (iii) Entry in the database: each card was analyzed manually and entered in the database in terms of the criteria established in step 1. One entry corresponded to a given set menu. In some cases (different menus for different age groups), there were several menu sets for one restaurant chain, therefore there was a total of 258 entries in the database for the 214 restaurants (Table 1).

Table 1: Distribution of restaurants type in the database

<table>
<thead>
<tr>
<th>Type</th>
<th>Chain</th>
<th>Independent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast Casual</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Fast Food</td>
<td>26</td>
<td>13</td>
</tr>
<tr>
<td>Fine Dining</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>Table service</td>
<td>72</td>
<td>101</td>
</tr>
</tbody>
</table>

3. Overview of results

Figure 1 indicates the number of options available per menu category in the restaurants of the database. Less than 10% of set menus offer a starter, while 99% of menus have a main dish, and only 8% do not offer a dessert. Regarding the range of option, the categories offering the largest variety are main dish and dessert, with respectively 78 and 68% of set menus offering two or more options, while only 22% of set menus offer a choice of side dishes and 5% of starters. Regarding drinks, while 37% of menus do not include any specific drink option, 48% have at least two options, and 32% at least three options to choose from.

Figure 1: Proportions of restaurants offering a given range of dish options. By dish category
Table 2 reports the price ranges for the set menus. A majority of menus cost 10 euros or less, with 53% between 5 and 10 euros. The price ranges varied across restaurant types, with respectively 95 and 96% of menus priced under ten euros in fast food and fast casual restaurants, while 33% of table service restaurants had children menus priced ten euros or more.

<table>
<thead>
<tr>
<th>Price range</th>
<th>Fast Casual</th>
<th>Fast Food</th>
<th>Fine Dining</th>
<th>Table service</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNDER 5</td>
<td>54%</td>
<td>26%</td>
<td>0%</td>
<td>8%</td>
<td>14%</td>
</tr>
<tr>
<td>5 TO 10</td>
<td>42%</td>
<td>69%</td>
<td>0%</td>
<td>58%</td>
<td>53%</td>
</tr>
<tr>
<td>10 to 20</td>
<td>4%</td>
<td>0%</td>
<td>73%</td>
<td>29%</td>
<td>26%</td>
</tr>
<tr>
<td>20 or more</td>
<td>0%</td>
<td>5%</td>
<td>27%</td>
<td>4%</td>
<td>6%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Regarding the type of food on offer, the most popular main dish options were: burger patty (which appeared on 12% of the menus), hamburger (12%), chicken nuggets (10%), pasta, fried fish, ham (4% each) and pizza (3%). 49% of set menus proposed at least one of these options. 53% of all menus proposed French fries as a side dish option, while 42% had at least one vegetables option and 12% offered rice as an option. Regarding desserts, the most frequently appearing option was ice cream, which was an option in 28% of menus. 41.5% of menus offered at least one soft drink option (syrup, soda, or juice).

4. Conclusions
This project aims to enable the evaluation of the type and number of options available to children in family restaurants. This article reports the first step of that approach – data collection. Further steps of the project will consider possible contributions of these menu environments in the prevention of overweight and childhood obesity. On the basis of this diagnosis, it could make it possible to identify new avenues for action to improve the design of healthy foodservice environments.

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Globalization of Food Practices and Local Food Cultures: The Use of Takeaway by Young Adults in France, Mexico and the USA.

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Abstract:
The practice of takeaway is often described in the media as a globalized trend, concerning mainly young adults. This preliminary study aims at questioning this idea by comparing the point of view of young consumers in France, Mexico and in the USA. Two interviews have been conducted in each country, plus two interviews with French food trucks owners. If “saving time” seems to be a shared motivation to buy takeaway food in each country, the results shows that this notion can have different meanings depending on the local food culture. Moreover, buying takeaway food can also be a distinctive practice, challenging an homogeneous vision of the “young adults” or “millennials”. Anyway, the results are strengthening the hypothesis of a cultural adaptation of international trends in the local food cultures.

Keywords: Take-Away, young adults, food culture, globalization
1. Context

Since the second part of the 1990’s, the notion of globalization started to be used in the humanities. It designate a particular context where space and time are compressed at a global level – idea already developed in 1989 by David Harvey (Harvey, 1989) – with an acceleration of the exchanges and, in consequence, an enlargement of the surface of impact of these exchanges (Held and McGrew, 2003). In the social sciences, the cultural impact of the globalization has been particularly investigated (Appadurai, 2005). Research in the anthropology of food have faced since their beginning the question of the international exchanges (Mintz, 1985), and they kept on working on the impact of globalization on food cultures. Most of the researches focused on a particular product, such as Coca-Cola (Foster, 2008), the pizza (Sanchez, 2007) or Chinese food (Roberts, 2002). But as our relation to food implies all of our social and cultural context (Poulain, 2002 ; Warde, 2016), the impacts of globalization on food culture can be seen in many other dimensions: timing, cooking, representations, social relations around food... These dimensions have been less investigated, except researches about eating out, especially fast-foods (Caldwell, 2016 ; Fantasia, 1995 ; Watson, 2006) or ethnic restaurants (Ray, 2016 ; Ray and Srinivas, 2012). In a journalistic approach, globalization is often considered to be responsible for a standardization of food practices (Ritzer, 1993 ; Schlosser, 2005). To a lesser extent, Claude Fischler’s point of view is close to this feeling of standardization when he claims the weakening of cultural patterns (Fischler, 1979) and a individualization of practices in Europe, under the influence of Anglo-saxon model (Fischler and Masson, 2008). But other researchers are more cautious, focusing more on local hybridization and intercultural dynamics (Corbeau, 2000 ; Counihan, 2012 ; Tibère, 2009) or on the affirmation of cultural identity through food practices, locally (Garth, 2013 ; Poe, 2002) or in the migration context (Gasparetti, 2012 ; Romo and Gil, 2012).

The objective here is to question the evolution of food practices in different cultural context through the analyses of the consumption of takeaway. This practice, that can be defined as "foods or meals that are prepared and purchased outside of the home, and ready for immediate consumption either at the place of purchase or elsewhere” (Turrell and Giskes, 2008), is often described as a new trend as global level4, whereas it is an old reality in many countries. This study focuses on young adults (less than 30 yo.), as this generation, sometimes designated as millennials in the marketing sector, is considered as more interested by these practice and more subject to international influences5. Three different countries are taken into account: France, Mexico and USA. In the first one, there is no tradition of takeaway from restaurant, except the purchase of sandwiches from the bakery6. The practice is quite recent and was until recently linked with non-French type of food, such as burger, kebab or hot-dog. This situation has evolved in the last years, with the multiplication of food trucks and the opening of classic restaurants to takeaway7. The USA are, in the contrary, used to takeaway practice for a long time, and are the country of origin of some of the most globalized takeaway concepts.

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5 “According to Technomic’s 2016 Generational Consumer Trend Report, when millennials order from restaurants, they’re dining in just 42% of the time. Other restaurant visits are made up of takeout (40%) and delivery (19%). Of all generations, they lead takeout orders, and 34% of millennials say they are visiting foodservice locations more now than they were two years ago.” (from https://www.restaurantbusinessonline.com/consume-r-trends/4-foodservice-trends-driven-millenials, visited on December, 14th 2018).
6 Which is anyway not considered as properly “eating” by French persons, as mentioned by Estelle Masson, quoted in Fischler and Masson, 2008, pp. 50–51.
7 It has not been possible to find quantitative data to confirm these statements. Thus, these description rely on the very recent date of opening for the numerous Food Trucks that have been listed for this study, and the discourses of the participants.
Mexico, in the end, is of interest because it receives a lot of influences from the neighboring USA, but also influences a lot the USA in return and keeps a very specific food culture, with a long tradition of street food (Long-Solis, 2007).

The present paper is reporting a preliminary study questioning to what extend the variations and continuities characterizing takeaway consumption among young adults in France, Mexico and the United States would tell us about the sociocultural dynamics ruling alimentary practices in a globalized context? The aim is to generate strong hypothesis to frame further studies at a larger scale.

3. Methods

We've been focusing on young adults from 18 to 30 years old as an adequate age category for the study, as they are eating more outside of home than other generations (Holm, 2001; Lamet, 2002; Saint Pol de and Ricroch, 2012; Zander, Uta and Moser, 2005), and mostly living alone, which seems to favor out of home activities (Galland, 1993). Participants have been recruited through different networks, personal and professional, including the Institut Paul Bocuse Worldwide Alliance, diverse Facebook groups and Linkedin.

Semi directive interviews were conducted in the beginning of 2018, with two different categories of informants. The first interviews were with takeaway consumers, questioning their uses, practices and conception of takeaway. Six persons have been interviewed, two for each country. Secondly, two different food trucks owners based in France were also interviewed. As the objective is only to draw some hypothesis for further studies, the sample is neither representative nor aiming at reaching data saturation.

3.1 Mexico

According to the two Mexican persons interviewed, takeaway has developed very fast and recently in Mexico, mainly resulting from the arrival of Uber Eat delivery service, which seems responsible of a democratization of the take away market:

“The truth is that when Uber Eat started, it was very well accepted by the whole city, mainly for the comfort.”

The offer would nevertheless be limited to a small selection including pizzas, sushis, burgers and tacos, mainly found in food trucks, which were traditionally implanted for tacos selling. Moreover, it seems like restaurants remains the most common way to eat out, because of the importance given to the possibility of consuming a great variety of world cuisine, but also due to its economical nature. Takeaway would therefore mainly be consumed at dinnertime, for commodity reasons, as a fast option to eat, avoiding cooking, either alone or with friends:

“More than anything, dinner, because it’s when everyone is home, comes home from work, is tired and does not feel like preparing something.”

Takeaway, which seems still in a process of development, therefore constitutes a practice adapted to the daily life of a special category of population. They are young urban people with high socioeconomic status and educational level, whom socio-professional rhythm is increasing, but who are also seeking for opportunities to get out of the local Mexican food:

“I think more restaurants are (...) adapting to what society demands. I feel that the rhythm of society in Mexico is work-house. The time you spend eating is shorter. It is getting shorter every time. The rhythm of

http://worldwidealliance.institutpaulbocuse.com/fr/institut-paul-bocuse-5550.kjsp

One person interviewed in the USA was French, but living since many years in the country.
life is increasing and the demand too.” ¹² (Mexican consumer 1)

3.2 United States

“I have never seen it as much as in the United States. First the number of restaurant chains that offer takeaway is crazy, and in the United States, at noon, no one have a lunch break, it does not exist.” ¹³ (French consumer living in the USA)

Takeaway, or “to go”, seems rooted in the American “fast life” culture. It is consumed at any moment of the day, but mainly for the lunch time, and mainly used as a mean to save time:

“Yeah, let’s say the bottom line is like takeaway food is all about adapting to this high society where our lunches are half an hour, but most of the time we are too stressed out to actually sit and relax for half an hour.” ¹⁴ (French consumer living in the USA)

The notion of time scarcity is the main reason for takeaway consumption, in a society where the rhythm is perceived as increasing, ruling anyone’s daily life, in any aspect. Takeaway phenomena responds to the logic of time maximization, including the importance of the proximity and habit factors:

“There are plenty of fast food chains around offices because people do not have time. If sometimes there are places that I like but that are at five more minutes walk, I’m not going because I don’t have time, and it’s frowned upon. People have, in a way, a determined journey, they have been working in the same places for years and they go to little places they know. And as long as a restaurant is one block away from where they are used to go, well they do not go there. It must be fast, places you know, knowing that you’ll be served in two minutes. It’s really important!” ¹⁴ (French consumer living in the USA)

The lunch break, which either does not exist, either lasts maximum half an hour, should be optimized.

Most of the places therefore propose takeaway, even if they are not specialized in it. Lunch is mainly eaten on the way to the office or directly at the office. The development of meal pass, which is a pre-paid card used to take lunch away in a selection of restaurants or cafés, can be an illustration of the phenomena. A great diversity of takeaway food can therefore be found, from bagels restaurants to salad bars, through chains and food trucks proposing ready to eat dishes. Used by individuals of all social classes, there is nevertheless a distinction in the type of use. Indeed, there has been a recent expansion of healthy and organic options proposed by fancy spots, more and more attended by a upper-class of young workers enjoying a certain socio-economical capital. It can be interpreted as a way to counteract the takeaway culture of origin, based on fast food restaurants and pizza or hot dogs trucks, which are still activated by low-class:

“To me takeaway is the busiest part of America adapting and only has recently people trying to find healthy options to use as a lifestyle. So there are so many salad shops. Lots of places are naming farms where their stuff come from. (...) A lot of Americans will go grab a pizza. Low-income family will drive to McDonald’s and other stuff but that’s not really like a higher class thing. (...) I think there are different levels. People who frequent places like McDonald’s tend to have a lower income. And then there’s the high class that goes to fancy take out spots that take 15$ smoothies and their 20$ stick of vegetables. And then there’s an in between.” ¹⁴(American consumer 1)

As a direct consequence of time scarcity and fatigue, another key moment for takeaway consumption is therefore dinnertime:

“Too tired to make food. (...) I’ll pick up hot meals at the grocery store to take back up to eat so that’s like another version of takeaway, like, not enough time to...
cook, just enough time to do shopping (...) I don't have enough time to make my own coffee, to make the food I wanna make" (American consumer 1)

There is therefore no space for cooking, which is seen as a luxury, a “comfort”, a home “retreat”.

3.3 France

In France the takeaway phenomena has gained in popularity these last years, appreciated as convenient, economical and fast, therefore enabling time saving. Indeed, it looks like there is an increasing diversity of places proposing takeaway, either restaurants, caterers, cafés or food trucks, and more particularly through the development of lunch boxes. Moreover, numerous associations has emerged, defending the implementation of takeaway and food trucks, and advocating for the diversification of its offers: Food Truck Lyon, Food Truck en mouvement, Food Truck Gourmets or Too Good to Go, to name a few.

Takeaway offer has also diversified in terms of products, evolving from fat and caloric products, initially embodied by fast food, kebabs, burgers and pizza trucks, to the democratization and even valuation of local and healthy options. Those latter has clearly become part of the new preoccupations surrounding take away consumption:

“I saw a huge difference with the first year I started, four years ago, in 2014. (...) When we started, people were taking a lot of fries. Because they dared not take bulgur and vegetables. Now we are really half-and-half. (...) We are delivered all our vegetables, our meats. We have our poultry farmer who is on the market, we have a supplier who supplies us with French beef. (...) If we want to stand out, it must be good homemade food, otherwise people come less. (...) Yes people are really picky and they really ask where it comes from. I find them more demanding in terms of traceability and chosen product”.15 (French Food truck owner 1)

Nevertheless, such “picky” practices seem, like in Mexico and in the USA, to be carried by young workers from the middle or the high layers of the society, between 25 and 35 years old, seeking to combine different objectives in their food choices: pleasure, health, time concerns, and sustainable choices:

“It’s saving time and, in the same time, giving yourself a treat (...) So it is a kind of in-between.” (French consumer 1)16

Indeed the concept of “pleasure” appears many times in the discourses. In this perspective, numerous spots such as small cafés proposing relatively elaborated takeaway dishes, made of local and organic products, have emerged, responding to such preoccupations:

“It is a public a little boho (...) who is more aware of that, who does not eat to stall, who eats to have fun. (...) I think that before, all socio-professional categories did not take pizzas for example, in a truck. The very rich people were not going to get a pizza. Very clearly. While today I think these people can go to the food truck .. (...) The companies where we are, I do not think they would put a kebab truck or a pizza truck in front. They do it in that case because when it's burgers, it's super burgers, so having a good quality suddenly changes the image in the minds of people.”17 (French Food truck owner 2)

15 “Moi j’ai vu une énorme différence avec la première année où j’ai commencé, il y a quatre ans, en 2014. (...) Quand on a commencé les gens prenaient énormément de frites. Parce qu’ils n’osaient pas prendre de bougour aux p’tits légumes. Maintenant on fait vraiment moitié-moitié. (...) On se fait livrer tous nos légumes, nos viandes. On a notre volaille qui est sur le marché, on a un fournisseur qui nous fournit de la viande de bœuf française. (...) Si on veut se démarquer il faut que ce soit de la bonne nourriture fait maison sinon les gens viennent moins. (...) Oui les gens sont vraiment plus pointilleux et ils demandent vraiment d’où ça vient. Moi je les trouve plus exigeants en terme de traçabilité et de produit choisi.”

16 “C’est gagner du temps et c’est quand même se faire plaisir (...) Donc une sorte d’entre-deux..”

17 “C’est un public un peu boho (...) qui est plus sensible à ça, qui mange pas pour se caler le ventre, qui mange pour se faire plaisir. (...) Moi je pense qu’avant, toutes les catégories socio-professionnelles ne prenaient pas de pizzas par exemple, dans un camion. Les personnes très riches n’allayaient pas chercher une pizza, quoi. Très clairement. Alors qu’aujourd’hui je pense que ces personnes peuvent aller au food truck .. (...) Les entreprises où on est, je pense pas qu’elles auraient mis un camion de kebab ou un camion de pizza devant. Là elles le font parce que quand c’est des burgers c’est des super burgers, donc avoir une bonne qualité du coup ça change un peu l’image dans la tête des gens.”
Like in the United States, takeaway is mainly consumed at lunchtime and even extended to dinner time, as a consequence of time scarcity. Food trucks, for instance, mainly work in professional areas, adapting to new rhythms and proposing fast but tasty dishes to individuals who are seeking for time optimization. The time dimension therefore constitutes an important factor in takeaway consumption:

I think we are going towards a decrease in the lunch break (...) The food truck allows to be closer to companies. (...) I think more and more people will feel too lazy to cook, clearly. And suddenly, for example when we made dishes, dishes in sauce, for lunch, there are people who take it away and eat it at night. (...) Even at night, I think we prefer to do something else than cooking nowadays.” (French Food truck owner 2)

Also used out of professional contexts, takeaway consumption becomes a tool to socialize and a seasonal phenomenon, gaining popularity in the season of outdoor activities such as summertime festivals. Furthermore, and in a gastrotourist logic, takeaway offers the possibility of consuming world cuisine, which the recipes could be too complex to cook at home:

“Finally, today, you can find anything. There is world cuisine, organic, several burgers, French cuisine, Creole cuisine, Chinese cuisine…” (French Food truck owner 2)

4. Discussion and conclusion

The main similarity in the comments from the interviewed persons is the description of the use of takeaway as a way to save time. However, beyond this, these results are supporting the hypothesis that despite its large diffusion, the use of takeaway is adapted to local food culture. In the USA, the use of takeaway seems rooted in a traditional way of having lunch spending as little time as possible. The fact to say that spending time eating for lunch is “frowned upon”, from the French resident point or viewed, shows that he perceives it as a normative injunction, and not only as an individual choice. However, it appears in the interview that there are some evolution in the offer, including some new trends towards type of food perceived as more healthy. This diversification in the offer allows drawing the hypothesis of an evolution from a practice widespread in all the level of the American society to a more diversified practice, allowing social differentiation.

This dimension of social differentiation seems very important from French consumers’ and professionals’ point of view. The use of takeaway is not very widespread in the French society, but it seems to draw new type of consumer recently through a more diverse and specialized offer. Indeed, the offer adapted well to the preferences of young people from middle to high level of the society, through some qualitative food – that could be qualitative version of food perceived as junk food like the burger –, sustainable food (local and organic) and “healthy” food – here to be understood as low-caloric food. Admittedly, the question of saving time remains, and explains the growing presence of food trucks next to big companies offices. Nevertheless, we can hypothesize that this time is saved on the activities surrounding eating (cooking or walking to food selling point) more that on eating time in itself – that’s to say the moment, generally shared, when food is really eaten. This would explain that the practice of

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18 Despite of the fact that the lunch break time in France stopped decreasing and remains higher than in other countries. (source: Study Ideal Meal by Edenred, 2016 : https://www.edenred.com/fr/enquete-ideal-meal)

19 Je pense qu'on va vers une diminution de la pause déjeuner (...) Le food truck c’est de pouvoir se mettre au plus près des entreprises. (...) De plus en plus de gens vont avoir je pense la flemme de cuisiner, clairement, et du coup, quand nous par exemple on fait des plats, des plats en sauce pour le midi, il y a des gens qui l'emportent et le mangent le soir enfin. (...) Et même le soir enfin je pense qu'on préfère faire autre chose que faire la cuisine maintenant.

20 “Enfin aujourd’hui on peut tout trouver. Il y a cuisine du monde, du bio, plusieurs burgers, cuisine française, cuisine créole, cuisine chinoise…”

21 Indeed the quality of the product or the quality of the social environment can also characterize a “healthy” food from a French point of view. (Fischler and Masson, 2008)
takeaway is also frequent for dinner, and generally linked with shared meals.

In Mexico, the practice of takeaway seems to remain not very common, despite of the old tradition of food trucks. It consists more in a diversification of the offer, which now exceed the traditional tacos. The discourses are drawing the vision of a practice limited to young and urban population, but there are no clue to speak about a distinctive practice. The expressed feeling of something to save time but more in the evening to avoid cooking allows to imagine a configuration close to the French one, were “saving time” does not necessarily means to shorten and/or individualize the moment of eating in itself.

This explorative study thus invites us to be careful with the idea of the takeaway as a globalized trend in the young adults generation, explained by the willing to save time. Indeed, the gathered discourses are suggesting that the “young adults” category can hide a social diversity, which the consumption of takeaway can be a way to underline for certain social categories. Furthermore, the notion of “saving time” can have different meaning, depending on what on and what for the time is “saved”. Thus, studying the practice of takeaway seems to be a good way to question the dynamics of food culture and the way it is impacted in the context of globalization.

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“Light, that's important!” - Involving customers preferences in hotel rooms design

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Abstract
The impact of lighting on the comfort of a hotel room perceived by the user is a crucial issue. Perception of lighting quality depends on its parameters, the context in which lighting is perceived, and the users who are experiencing the environment. In this study, 203 customers expressed their preference among 4 luminous scenarios for 3 different activities experienced in the room. This study highlights different needs and expectations in terms of lighting, depending on the activity. These results may be taken into account by architects, lighting designers, and hotel managers to design new hotel rooms to improve the users’ comfort during their stay.

Keyword: lighting preference, comfort, hotel room, real setting
1. Introduction

The guest-room design is one of the top considerations in the decision to purchase a hotel stay and contributes to the customer’s perceived value and satisfaction during the stay (Choi & Kandampully, 2018; Dubé & Renaghan, 1998). The luminous environment, one of the relevant ambient parameters involved in the room design (Lin, 2004), has been identified as an important parameter in creating satisfaction and pleasure in a hotel room during a stay (Park, Pae, & Meneely, 2010; Yu & Akita, 2019). However, very few studies investigate the influence of lighting on individual satisfaction in hotels, and even less in hotel rooms. The main question considered in this study is how to implement appropriate lighting scenarios in the design of comfortable hotel rooms, based on user perception. Regarding lighting design, previous studies have shown that on one hand, correlated colour temperature (CCT) and illuminance affects cognition, and on the other, preferred luminous scenarios differ according to task or purpose (Fotios, 2017; Viénot, Durand, & Mahler, 2009). This study highlight the influence of lighting scenario on perceived comfort in the particular field of the hospitality industry.

2. Methodology and Main Results

The contribution of illuminance and colour temperature (CCT) on user’s comfort assessment regarding user’s activities, has been studied in a real hotel room, specifically equipped to implement the testing (3*hotel).

The study involved 203 customers (53% male), they were asked to evaluate the same four lighting conditions during three different activities: watching a movie, typing a text on a computer, and looking at him/herself in a bathroom mirror. These activities are respectively named situation of leisure, situation of work, and situation in the bathroom. Two parameters were considered: illuminance (30% (Dim); 100% (Bright) of luminous flux) and CCT (Warm White (WW): 2700 K; Cool White (CW): 4200 K).

After seeing the four conditions for each situation, users had to assess the lighting conditions on a visual analytical scale. As an example, for the working time the question was: *When you are working, do you like this atmosphere?*

In the situation of leisure, users preferred the warmer and dimmer condition (Dim WW) and discarded the colder and brighter condition (Bright CW).
In the situation of work, users preferred the warmer and brighter condition (Bright WW) and discarded the other conditions (Dim WW, Dim CW, Bright CW).

In the situation in the bathroom, the warmer and brighter condition was preferred (Bright WW) and the dimmer conditions were discarded (Dim CW).

In summary, statistical analysis revealed significant differences between lighting condition preferences according to the activity experienced. In the situation of leisure, people preferred a subdued atmosphere. In other situations (when the user is working or looking at him/herself in a mirror), people expressed a preference for the brighter lighting that provided more visual comfort.

3. Benefits of the study

From an academic point of view, this study shows the influence of the user’s situation on lighting preference. It contributes to a better understanding on the preferred combination of illuminance and color temperature of light according to a task and purpose in the specific field of the hospitality industry.

From an operational point of view, this study offers a model of perceived lighting quality in hospitality that takes into account cognitive processes in a real situation as well as light characteristics: quantity and colour temperature of lighting interacting with design elements, furniture, accessories, materials, etc.

This study’s results are reliable for hospitality specialists, engineers and lighting designers and suggest to pay more attention to luminous environments for future conception of hotels room.

Further research on this subject will involve the validation of the perceived quality model. This may include evaluation of its solidity in new situations, with new uses relevant to different establishments and/or customers.

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