It's Not Just Numbers: Cultural Identities Influence How Nutrition Information Influences the Valuation of Foods

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Abstract

Three studies document the effect of cultural mindset cued by national identity on consumers' response to nutrition information. French, but not American consumers experience nutrition and taste as incompatible and rate even healthy food more negatively if nutrition information is provided. This effect is triggered by the distinctive cultural mindset of food enjoyment cued by a salient French identity, and is mediated by the belief that foods that present nutrition information will be less enjoyable than those presented without nutrition information. Salient French identity may in this sense reduce engagement in healthy behavior.

Keywords: hedonism, nutrition, cultural identity, cultural mindset, cultural incompatibility
It's Not Just Numbers: Cultural Identities Influence How Nutrition Information Influences the Valuation of Foods

There is no doubt that food enjoyment is a pillar of the French cultural identity (Pitte, 1991). France is worldwide known for its passion for cooking to such an extent that the French gastronomic meal has been recently declared as a world intangible heritage (UNESCO, 2010). However, as most Western countries, France has established public health plans in order to encourage health-conscious food choices among the French. This emphasis on the healthiness of foods often drives an utilitarian view of eating (Rozin, Remick, & Fischler, 2011). Thus, French consumers are encouraged to place a greater emphasis on the relationship between their food choices and overall health.

However, there is reason to believe that this focus on the utilitarian aspects of eating may interfere with the hedonistic norms of food consumption associated with the French identity. Indeed, the French start to consider food more as a basic necessity than a pleasure (Hébel, 2008). Borrowing from recent research on identity-based motivation and consumers’ readiness to fulfill salient cultural identity goals (Oyserman, 2011; Oyserman, Fryberg, & Yoder, 2007; Shavitt, Torelli, & Wong, 2009; Torelli, 2013), we argue that these attempts to enforce healthy eating can be perceived by French consumers as something that is utilitarian in nature and hence inconsistent with the Frenchness of food enjoyment. This research focuses on consumers’ responses to nutrition information because this is one of the most visible and noticeable aspects of public health plans designed to fight obesity. Indeed, in France and most developed countries, most food items display nutrition information (Storcksdieck genannt Bonsmann, et al., 2010).

We propose that because enjoying foods, instead of appreciating the utilitarianism of nutrition information, is a central aspect of the French culture, making salient the French identity activates norms of hedonic food consumption and motivates French consumers to
focus on the hedonic aspects of foods, rather than on the utilitarian value of their food choices. In this context, the presence of culturally-inconsistent nutrition information can become notably salient and induce a motivational conflict that triggers a sense of disfluency, and its concomitant negative consumer responses (Lee & Aaker, 2004; Torelli, Basu-Monga, & Kaikati, 2012). Importantly, because these effects should be triggered by the cultural mindset cued by a salient French identity, they should not emerge among consumers from cultures in which hedonic food consumption is not distinctively central to the culture (i.e., American culture, Rozin, 2005).

Three studies provide evidence for these assertions. The first two studies demonstrate that when national identity is made salient, French and not American consumers are more sensitive to the presence (vs. not) of nutrition information in foods (i.e., perceive the foods as riskier for their health) and evaluate more negatively foods that display (vs. not) nutrition information. Furthermore, these more negative evaluations are mediated by anticipated feelings that the foods would not be enjoyable, triggered by the incompatibility between the nutrition information and the salient cultural mindset. Providing further evidence for this incompatibility between food enjoyment, cued by a salient cultural mindset, and the utilitarian nature of nutrition information, Study 3 shows that French (and not American) consumers with a salient (vs. not) cultural identity experience more disfluency when processing nutrition information in foods. We discuss the theoretical and practical implications for these findings.

**Cultural Identities and the Motivation to Enjoy Food Consumption**

Food is an important component of the French cultural identity and probably one of the greatest sources of national pride (Gordon & Meunier, 2001). One particularity of the French is that they tend to overweigh pleasure in their food decisions and to focus more on the enjoyment of their food experiences (Rozin, 2005; Rozin, Fischler, Imada, Sarubin, &

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1 The term cultural identity refers to the accessibility of participants’ national identity, so we use the terms cultural identity and national identity interchangeably.
Wrzesniewski, 1999). This cultural specificity is well recognized in non-French cultures. Indeed, studies conducted in America show that brand names pronounced in French are judged to be more congruent with hedonic products than brand names pronounced in English (Leclerc, Schmitt, & Dubé, 1994). Because hedonic food consumption is such a central aspect of French cultural identity, French consumers should be motivated to enjoy food consumption when their French identity is made situationally salient. We make this prediction based on the identity-based motivation framework (Oyserman, 2009; Oyserman, et al., 2007), which posits that a salient identity triggers a motivational pull toward identity-congruent judgments and behaviors. When situations cue an identity (e.g., French identity), the cued identity triggers a general readiness to make sense of the world in identity-congruent terms, including the norms and goals associated with that identity (e.g., consuming foods for pleasure).

Conversely, in the U.S., food choices are not only driven by hedonistic goals but also by utilitarian values (Rozin, et al., 2011). Americans tend to worry more about food and to focus more on the health consequences of their food choices (Rozin, et al., 1999). Health is also a central tenet of American life (Smith & Wallston, 1992). Americans then have a tendency to view their food choices in a utilitarian way, and medical or nutritional terms appear frequently in food imagery (Fischler & Masson, 2008). Supporting this utilitarian view of eating, Americans tend to overweigh shelf-life when making food choices whereas taste and freshness play a dominant role in France (Rozin, 2005). Thus, situations that heighten the salience of the French identity should distinctively activate a food enjoyment mindset (due to the centrality of food enjoyment in French culture, Oyserman, 2009). In contrast, because a hedonic view of foods is less culturally defining for Americans, situations that heighten the salience of American identity should not readily trigger a food enjoyment mindset. This would have consequences for the reactions of American or French consumers to the presence (vs. not) of nutrition information in foods.
The Frenchness of Food Enjoyment and Its Incongruity with the Utilitarianism of Nutrition Information

There is strong evidence that food consumption can be alternatively driven by hedonic (i.e., focus on pleasure) or utilitarian (focus on functional product aspects) values (Khan, Dhar, & Wertenbroch, 2005). Furthermore, in the context of food consumption, hedonistic aspects (i.e., the taste of foods) commonly oppose utilitarian aspects (i.e., nutrition and healthiness of foods) (Verbeke, 2006). Because food enjoyment, rather than a utilitarian view of foods, is central to the French culture, we propose that a salient French identity would activate an identity-relevant food enjoyment mindset. In turn, this will heighten French consumers’ sensitivity to the presence (vs. not) of nutrition information in foods that does not belong to the salient cultural mindset, and hence create a motivational conflict that triggers a sense of disfluency (Lee & Aaker, 2004; Torelli, et al., 2012). As a result, French consumers with a salient French identity would process less fluently and evaluate less favorably foods that display (vs. not) nutrition information.

We don’t expect these effects to emerge among American consumers. Because food enjoyment is less culturally identifying for Americans, a salient American identity is unlikely to spontaneously activate a food enjoyment mindset. Furthermore, because Americans hold both utilitarian and hedonic views of foods, it is unlikely that the presence (vs. not) of nutrition information in foods would create a motivational conflict and its concomitant sense of disfluency. We also anticipate that these effects should be attenuated when French consumers are reminded of a social identity that is more neutral in relation to the norm of food enjoyment, and hence unlikely to activate a food enjoyment mindset.

Study 1
Study 1 tests the basic prediction that a salient French identity would cause French consumers to be more sensitive to the presence (vs. absence) of nutrition information in foods. To demonstrate the specificity of these effects to French culture, due to its distinctive association with food enjoyment, we included a baseline condition of American participants—for whom food enjoyment is not culturally distinctive (Rozin, 2005) (see also pretest results below). We assessed participants’ sensitivity to the presence of nutrition information in foods via perceptions of negative consequences to one’s health associated with consuming these foods.

Method

One hundred and thirty-nine students took part in the study (55% female) for a chance to win €10 gift cards in a lottery (in France, N = 82) or in exchange for course credit (in the U.S., N = 57). The study was a 2 (cultural group: French vs. Americans) × 2 (presence of nutrition information: present vs. absent) between-subjects design. We made cultural identity salient by exposing the participants to a hedonic food item that contained French (American) cultural symbols (Wong & Hong, 2005). Two types of cultural primes were used: words and images (Morris, Mok, & Mor, 2011). Participants were divided in two groups and were invited to take part in a packaging test for a culturally-relevant cookie (French Petits Beurres in France or Chocolate Chip cookies in the U.S.—see Appendix A for stimuli). The package of the cookie displayed two cultural icons (France: Eiffel tower and Gallic roster; the U.S.: Statue of Liberty and bald eagle—see pretests below) and two explicit cultural claims (“Made in France [the U.S.]” and “With Normandy [Vermont] butter”). Half of the participants in each cultural group were exposed to nutrition information (i.e., nutrition information present condition), whereas the other half were exposed to general information about how to properly preserve the product (nutrition information absent condition). Immediately after viewing the package, participants rated their health risk perception with two items (Burton, Creyer, Kees,
& Huggins, 2006): “perceived likelihood of gaining weight” and “perceived likelihood of having heart disease upon frequent consumption of the product” (1 = not at all, 7 = very much), $r = .63, p < .001$. We also measured nutrition motivation using the 5-item Nutrition Involvement Scale ( “I pay close attention to nutrition information,” “I actively seek out nutrition information,” “It is important to me that nutrition information is available,” “I ignore nutrition information,” and “Calorie levels influence what I eat,” $\alpha = .92$) (Chandon & Wansink, 2007).

Results and Discussion

Manipulation checks. We conducted a first pretest ($N = 117$) to validate the assertion that food enjoyment is more normative in French culture than in American culture, as well as to demonstrate that the French are more hedonic than utilitarian in their eating, whereas Americans are equally hedonic and utilitarian in their eating. Participants were students enrolled in undergraduate courses in business schools in France ($N = 60$) and the U.S ($N = 57$). They were presented with a list of 18 different items (e.g., monuments, famous characters, animals, or behaviors) and were asked to categorize each of the items as either associated with their own culture (French or American, depending on the group) or with a foreign culture. Two of the items in the list were “eating for pleasure” and “focusing on nutrition information in foods.” As expected, “eating for pleasure” was more frequently categorized as culturally normative by the French (86.4% of participants) than by Americans (64.9% of participants, $z = 3.13, p < .002$). In addition, “eating for pleasure” (vs. “focusing on nutrition information in foods”) was more frequently categorized as culturally normative by the French (86.4% and 45.8% respectively, $z = 4.7, p < .001$), whereas both notions were categorized as equally culturally normative by Americans (64.9% and 59.6% respectively, $z = .58, ns$). In the same pretest, the cultural icons used in the cookie’s packages in the main study
were categorized by at least 91% of participants as distinctively belonging to their corresponding cultures.

A second pretest (N= 94) was conducted to test the basic contention of a less hedonic and more utilitarian nature of nutrition labels in foods. Participants were students enrolled in undergraduate courses in business schools in France (N = 30) and the U.S. (N = 64) who were asked to describe their attitudes towards nutrition information. First, participants rated the hedonic and utilitarian dimensions of nutritional labeling (presented to participants as information about the amount of calories and nutrients provided on food labels) using the Hedonic/Utilitarian Scale (Voss, Spangenberg, & Grohmann, 2003). This scale is composed of 5 utilitarian items (“ineffective/effective,” “unhelpful/helpful,” “not functional/functional,” “unnecessary/necessary,” “impractical/practical,” α = .80) and 5 hedonic items (“not fun/fun,” “dull/exciting,” “not delightful/delightful,” “not thrilling/thrilling,” “unenjoyable/enjoyable,” α = .88). As expected, nutritional labeling was perceived to be high in utilitarian ratings and low in hedonic ratings in both French (Mutilitarian = 5.45, Mhedonic = 2.49, t(29) = 15.83, p < .001, Cohen’s d = 5.88) and American cultures (Mutilitarian = 5.55, Mhedonic = 2.84, t(63) = 19.02, p < .001, Cohen’s d = 2.45). Participants were then presented with a fictitious scenario describing an individual using the information in a nutritional label before choosing a food item in a supermarket. They were asked to assess the perceived healthiness and tastiness of the subsequent food item choice on 1-7 Likert scales (1 = unhealthy, 7 = healthy; 1 = not tasty, 7 = tasty). As expected, the perceived healthiness of the subsequent food item choice was judged to be higher than its perceived tastiness in both France (Mhealthiness = 5.53, Mtastiness = 4.50, t(29) = 2.24, p < .05, Cohen’s d = .83) and the U.S. (Mhealthiness = 6.13, Mtastiness = 4.16, t(63) = 10.14, p < .001, Cohen’s d = 1.82). These results revealed that, in both cultures, nutritional information in foods is perceived to be less hedonic and more utilitarian in terms of both its features and its consequences.
**Risk estimates.** To investigate the cultural differences in the impact of the presence (vs. absence) of nutrition information in foods on participants’ judgments about health risk, we conducted an ANCOVA on participants’ risk estimates with cultural group and presence of nutrition information as fixed factors, while controlling for participants’ nutrition involvement (included as a continuous covariate).\(^2\) Results yielded a significant main effect of cultural group, \(F(1,134) = 31.92, p < .001, \eta^2 = .192\), simply reflecting that American participants perceived a higher risk from eating the cookies (a relatively unhealthy product) than their French counterparts (M = 5.52 and 4.36 respectively). More importantly, as expected, results revealed a significant cultural group × presence of nutrition information interaction, \(F(1, 134) = 7.03, p < .05, \eta^2 = .05\) (see Figure 1). French participants reminded of their cultural identity reported higher risk perceptions when nutrition information was present \((M = 4.77), F(1, 134) = 9.84, p < .01\), than when it was absent \((M = 3.95)\). In contrast, American participants reminded of their cultural identity reported similar risk perceptions when nutrition information was present or absent \((M = 5.39 and 5.66\) respectively), \(F(1,134) = .70, p = .40\).

[Insert figure 1 about here]

Results from this study demonstrate that French consumers reminded of their cultural identity are more sensitive to the presence (vs. not) of nutrition information in foods, as evidenced by their higher perceptions of health risk associated with consuming a hedonic food item. This occurs presumably because a salient French identity activates an identity-relevant food enjoyment mindset, which in turn heightens the salience of nutrition information that does not belong to the active cultural mindset. Consistent with this assertion, the effects were absent among American participants that associate eating equally with hedonic and utilitarian goals and for whom food enjoyment is less culturally normative (as per pretest results). The

\(^2\) A similar analysis conducted without nutrition information as a covariate also yielded a significant main effect of cultural group, \(F(1,135) = 33.50, p < .001, \eta^2 = .199\), as well as the expected significant cultural group × presence of nutrition information interaction, \(F(1, 135) = 4.78, p < .05, \eta^2 = .034\).
next study assesses more directly the effect of cultural identity salience and the presence of nutrition information on food evaluations and provides evidence for the process.

**Study 2**

Study 2 was designed to demonstrate that French consumers with a salient cultural identity evaluate less favorably foods that display (vs. not) nutrition information. This study further investigated the proposed underlying mechanism for this devaluation effect via consumers’ anticipated enjoyment. If French consumers with a salient cultural identity are sensitive to the presence of nutrition information in a food item, because such information is incompatible with the cultural norm of hedonic food consumption and is thus more salient in this context, the presence (vs. not) of nutrition information should negatively impact the hedonic potential of the food item. That is because the utilitarian nature of the salient nutrition information would subtract from the hedonic potential of the food item (as per pretest results in Study 1). We then expected that a decrease in anticipated enjoyment would mediate French consumers’ less favorable evaluations of a food item that displays (vs. not) nutrition information. To increase the generalizability of the findings, this study included foods that vary in their utilitarian and hedonic properties. Specifically, the study included a less tasty but nutritious food item (utilitarian food), as well as a more tasty but less nutritious food item (hedonic food). Finally, as a baseline comparison, this study also included a sample of American participants— for whom food enjoyment is not culture-distinctive and that associate eating equally with hedonic and utilitarian goals (as per Study 1’s results).

**Method**

We recruited 398 participants from online consumer panels in both France (N = 197) and the U.S. (N = 201). Thirty five French participants who either failed to follow the instructions in the culture salience manipulation or were non-French nationals were excluded from the analysis, thus leaving a total of 363 participants for the analysis (N_{France} = 162 and
N_{U.S.} = 201, 51\% female; mean age = 36.9, SD = 12.4). The design was a 2 (cultural group: French vs. Americans) × 2 (presence of nutrition information: present vs. absent) × 2 (type of food: hedonic vs. utilitarian) between-subjects design. The tasks in the study were presented as two ostensibly unrelated studies. The first task introduced the identity salience manipulation via feelings of national pride. Participants completed a brief questionnaire in which they provided three reasons why someone might prefer to live in France [the U.S.] (McGlone & Aronson, 2006; Shih, Pittinsky, & Ambady, 1999). Participants were then divided in two groups and invited to participate in an online product test. One group was presented with a pre-packaged fresh fruits mix (utilitarian product), and the other group was introduced to a tender and creamy chocolate cake (hedonic product). The choice of hedonic and utilitarian products was done based on findings in past research (Chernev, 2011; Wertenbroch, 1998). Half of the participants in each group were presented with nutrition information (nutrition information present condition) about the food item, whereas the rest of the participants were not (nutrition information absent condition). In both conditions, the participants were provided with general information about the preservation mode, the location where the product is available in stores, the product ingredients, and instructions about how the product should be prepared (see Appendix B for stimuli).

Immediately after reviewing the food item, participants completed the positive and negative affect scale (PANAS) indicating how they felt at the moment (Watson, Clark, & Tellegen, 1988) (positive affect items: “enthusiast,” “interested,” “excited,” and “attentive,” α = .83; negative affect items: “upset,” “offended,” “irritable,” and “annoyed,” α = .89). Next, participants evaluated the food item on 7-point scales (3-items: “unfavorable/favorable,” “bad/good,” and “dislike/like”; α = .95 (White & Argo, 2009), and rated their anticipated enjoyment (3-items: “This product is tasty,” “Eating this product will give me pleasure,” and “I will enjoy eating this product”; α = .95). We also measured nutrition motivation using the
same 5-items Nutrition Involvement Scale in Study 1 ($\alpha = .95$). Finally, participants provided information on height and weight in order to compute their body mass index (BMI).

**Results and Discussion**

**Positive and negative affect.** We first assessed the extent to which presentation of the food items with (or without) nutrition information influenced participants’ affective states. An ANOVA on the mean positive and negative affect scores with cultural group, presence of nutrition information, and type of food as fixed factors yielded no significant effects (all $p > .1$). This rules out the possibility of any effects driven by differences in mood triggered by the pairing (or not) of the food items with nutrition information.

**Product evaluation and anticipated enjoyment.** We conducted a repeated measures ANCOVA on the mean product evaluation and anticipated enjoyment scores with cultural group, presence of nutrition information, and type of food as fixed factors, and nutrition involvement and BMI as continuous covariates.\(^3\) Results showed a significant main effects of nutrition information ($F(1, 353) = 5.93, p < .002, \eta^2 = .017$) and cultural group ($F(1, 353) = 35.58, p < .001, \eta^2 = .092$), as well as significant interactions between the type of measure (evaluation or anticipated enjoyment) and nutrition information, ($F(1, 353) = 5.63, p < .02, \eta^2 = .016$), and between the type of measure and the type of food, ($F(1, 353) = 12.93, p < .001, \eta^2 = .035$). More importantly, as predicted, the nutrition information × cultural group interaction also reached significance ($F(1, 353) = 7.53, p < .01, \eta^2 = .021$). As depicted in Figure 2, simple contrasts estimated to explore this interaction revealed that, upon making French identity salient, the presence of nutrition information led French participants both to anticipate less food enjoyment when nutrition information was present ($M = 4.66$) than when

\(^3\) A similar analysis conducted without the covariates yielded the same significant main effects of nutrition information ($F(1, 355) = 6.09, p < .002, \eta^2 = .017$) and cultural group ($F(1, 355) = 38.41, p < .001, \eta^2 = .098$), as well as significant interactions between the type of measure (evaluation or anticipated enjoyment) and nutrition information, ($F(1, 355) = 5.46, p < .03, \eta^2 = .015$), between the type of measure and the type of food, ($F(1, 355) = 12.74, p < .001, \eta^2 = .035$), and between nutrition information and cultural group ($F(1, 355) = 7.49, p < .01, \eta^2 = .021$).
it was absent ($M = 5.14, F(1,353) = 6.00, p < .02, \eta^2 = .017$), as well as to evaluate the foods less favorably ($M_{\text{present}} = 4.58$ and $M_{\text{Absent}} = 5.37, F(1,353) = 15.44, p < .001, \eta^2 = .042$). In contrast, American participants with a salient American identity anticipated a similar enjoyment and evaluated similarly the foods when the nutrition information was present ($M_{\text{Enjoyment}} = 5.77$ and $M_{\text{Evaluation}} = 5.69$) and absent ($M_{\text{Enjoyment}} = 5.65$ and $M_{\text{Evaluation}} = 5.74$, all $F < .6, \text{ns}$). Viewing these data in another way, although in the absence of nutrition information French and American consumers evaluated equally favorably the foods ($M = 5.37$ and 5.74 respectively, $p > .05$), the presence of nutrition information caused French consumers to evaluate the foods more unfavorably than American consumers ($M = 4.58$ and 5.69 respectively, $F(1,353) = 30.43, p < .001, \eta^2 = .079$). A similar pattern emerged for participants’ judgments about anticipated enjoyment, when nutrition information was present, French consumers anticipated to enjoy the foods less than American consumers ($M = 4.66$ and 5.77 respectively, $F(1,353) = 32.37, p < .001, \eta^2 = .084$). However, when nutrition information was absent, French participants anticipated less enjoyment than Americans ($M = 5.14$ and 5.65 respectively, $F(1,353) = 7.44, p < .01, \eta^2 = .021$) however this effect was magnified by a factor of four in the nutrition information present condition ($\eta^2 = .084$ vs. .021).

[Insert Figure 2 about here]

**The mediating role of anticipated food enjoyment.** We sought to examine the mediating role of anticipated food enjoyment on the effect of the presence of nutrition information (present or absent) on French (and not American) consumers’ evaluation of the foods. Thus, we conducted a mediated moderation analysis (Muller, Judd, & Yzerbyt, 2005) with the presence of nutrition information as the independent variable (dummy-coded: Present = 1, Absent = 0), food evaluation as the dependent variable, anticipated food enjoyment as the mediator, and cultural group as the moderator (see Figure 3). The analysis was conducted
using Model 8 from the PROCESS macro following instructions in Preacher, Rucker, and Hayes (2007). Food healthiness, nutrition motivation, and BMI were included as covariates in the analysis. Conducting 5,000 iterations, we examined the pattern of mediation for French and American participants. For French participants, the 95% C.I. for the indirect effect of the presence of nutrition information on food evaluation excluded zero (−.704 to −.003). In contrast, for Americans, the 95% C.I. included zero (−.094 to .270). These results indicate that anticipated food enjoyment fully mediated the moderating effect of cultural group membership (French or American) and presence of nutrition information (present or absent) on the evaluation of the food items.

[Insert Figure 3 about here]

Results from Study 2 show that French consumers reminded of their cultural identity devalue more foods that display (vs. not) nutrition information, as evidenced by their more negative attitudes toward such foods. Furthermore, this effect was mediated by a decrease in anticipated food enjoyment when nutrition information was present (vs. absent), and did not emerge among American participants for whom food enjoyment is less culturally distinctive. We argue that this effect occurs because making the French identity salient heightens perceptions of incompatibility between the culturally-normative enjoyment of foods (associated with the French identity) and the culturally-inconsistent utilitarian nature of nutrition information. Study 3 was designed to provide more direct evidence for this proposed mechanism.

Study 3

Study 3 was designed to assess more directly the incompatibility between the cultural norm of food enjoyment, made available by a salient French identity, and the utilitarian nature

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4 Similar effects were obtained when dropping the covariates from the mediation model (French culture: 95% C.I.[-.699 to -.001]; American culture: 95% C.I.[-.106 to .258]). In addition, a simple mediation analysis conducted separately with French consumers also yielded evidence of full mediation (95% C.I [-.75 to -.03], sobel test: z=-1.97, p < .05).
of nutrition labels in foods (made salient due to its cultural incompatibility) that is proposed to underlie the devaluation effect uncovered in the past study. This was done by measuring feelings of disfluency when processing nutrition information in food labels when French identity is made salient (vs. not). We predict that making French identity salient (vs. not), would heighten perceptions of incompatibility between the utilitarian nature of nutrition information and the cultural norm of food enjoyment (associated with the salient cultural identity), and hence trigger a feeling of disfluency when processing the nutrition information. As in past studies, a baseline condition of American participants (for whom food enjoyment is less culturally normative) was included to show the specificity of the effects to French culture.

**Method**

Four hundred and four college students enrolled in business programs in France (N = 214) and the U.S. (N = 190) took part in an online experiment for a chance to win €10 gift cards in a lottery (in France) or in exchange for a small monetary payment (in the U.S.). Ten French participants were dropped from the analysis for either refusing to follow the instructions in the identity salience manipulation or because of their nationality (non-French citizens), thus leaving a total of 394 participants for the analysis (N\text{France} = 204 and N\text{U.S.} = 190, 49% female, mean age = 20.6, SD = 2.83).

The design of Study 3 was a 2 (cultural group: French vs. American) × 2 (identity salience: cultural identity vs. neutral) × 2 (type of food: hedonic vs. utilitarian) between-subjects design. The experiment was presented as two separate tasks. In the first task, the participants completed the same brief questionnaire used in Study 2 to induce feelings of pride with a social identity in order to make salient either their cultural identity (French or American depending on the group) or a neutral identity in relation to the norm of food enjoyment (McGlone & Aronson, 2006; Shih, et al., 1999). We chose as a neutral identity the college student identity, both because of its relevance for the participants and given its
association with more healthful habits and food choices and relatively less focus on food
enjoyment (Georgiou, et al., 1997) (see also pretest results below). In the cultural identity
salient condition, participants were asked to list three reasons someone might prefer to live in
France or the U.S. (depending on the cultural group), whereas in the student identity salient
condition participants answered the same questions about being a college student. Next,
participants were asked to assess the nutrition labeling of either a more nutritious (utilitarian
product) version of a fresh pasta carbonara or a less nutritious (hedonic product) version of
the same food (containing more calories, fat, and salt content—see Appendix C for the full
stimuli) (see Raghunatan, Naylor & Hoyer, 2006, for a similar manipulation).

To measure the disfluency triggered by the incompatibility between nutrition
information in foods and the cultural norm of food enjoyment upon making (vs. not) the
French identity salient, we asked participants to rate on a 7-point scale the ease of processing
the nutrition information (1-item: 1 = easy to understand, 7 = difficult to understand). The
participants were also asked to evaluate, on 7-point scales (1 = low, 7 = high), the amount of
calories, carbohydrates, and fat contained in the product (α = .60). We computed a healthiness
index by averaging the score obtained for the items of perceived calories and nutrients
(reverse-scored such that a high score indicated that the food item was perceived as healthier).
We also measured subjective nutrition knowledge (one-item measure: “compared to others,
how would you evaluate your personal knowledge about nutrition?, 1 = much less, 7 = much
more) (Andrews, Netemeyer, & Burton, 2009), motivation to process nutrition information
(two-items: "I pay close attention to nutrition information" and "I actively seek out nutrition
information," r = .90, Moorman, 1996), and participants’ height and weight (used to compute
their BMI).

Results and Discussion
**Manipulation checks.** To assess the notion that the college student identity is more including of healthy eating and less associated with food enjoyment in both France and the U.S., we conducted a pretest with French (N = 60) and American participants (N = 42) similar to those in the main study. They were presented with the same questions aimed at making their cultural identity (French or American depending on the group) salient or their college student identity. After that, they rated on a 7-point scale (1 = strongly disagree, 7 = strongly agree), the extent to which they agreed with the following two statements: “When eating, the average French/American [college student] emphasizes food enjoyment over maintaining weight,” and “When eating, the average French/American [college student] gives more importance to enjoying food than to eating foods that will not make you fat.” For each cultural group and salient identity, these two items were averaged into a single score of the extent to which the salient identity prioritized food enjoyment over health concerns (French sample: rFrench identity = .56, p < .001, rStudent identity = .61, p < .001; American sample: rAmerican identity = .81, p < .001, rStudent identity = .56, p < .001). A paired samples t-test revealed that French participants believed that their college student identity prioritized food enjoyment over health concerns less than did their French identity (MStudent identity = 4.28 and MFrench identity = 4.77; t(59) = 3.12, p < .005, Cohen’s d = .81). Similarly, American participants believed that their college student identity prioritized food enjoyment over health concerns less than did their American identity (MStudent identity = 5.19 and MAmerican identity = 5.69, t(41) = 2.37, p < .05, Cohen’s d = .48). Consistent with findings in Study 1’s pretests, both American and French participants reported high scores for food enjoyment, supporting the notion that food enjoyment is not culture-specific.

Next, we assessed the success of the type of food in the main study. As expected, in both countries, the utilitarian product was perceived to be healthier than the hedonic product
(France: $M_{\text{Utilitarian}} = 4.00; M_{\text{Hedonic}} = 2.60$, $F(1, 206) = 268.10, p < .001, \eta^2 = .565$; the U.S.: $M_{\text{Utilitarian}} = 4.13; M_{\text{Hedonic}} = 3.31$, $F(1, 189) = 37.709, p < .001, \eta^2 = .166$).

**Processing fluency.** To assess the disfluency triggered by the greater incompatibility between the utilitarian nature of nutrition information in foods and the cultural norm of food enjoyment upon making (vs. not) the French identity salient, we conducted an ANCOVA on the ease of processing measure with cultural group, identity salience, and type of food as fixed factors, and subjective nutrition knowledge, motivation to process nutrition information, and BMI as continuous covariates. Results yielded a significant main effect of cultural group, ($F(1, 383) = 15.72, p < .001, \eta^2 = .039$), driven by the higher perceptions of disfluency by French (vs. American) consumers, $M = 3.31$ and 2.63 respectively. There was also a main effect of subjective nutrition knowledge ($F(1, 383) = 19.66, p < .001, \eta^2 = .049$), as well as a significant cultural group × identity salience interaction ($F(1, 383) = 3.35, p = .06, \eta^2 = .009$). No other effects reached significance (all $Fs < 2.2, ns$). To further explore the significant effects, we computed simple contrasts for the American and French samples. Consistent with our predictions, French participants with a salient French identity experienced more difficulty when processing nutrition information than their counterparts with a salient college identity ($M_{\text{French identity}} = 3.58; M_{\text{Student identity}} = 3.04$, $F(1,383) = 5.76, p < .02, \eta^2 = .015$, see Figure 4). In contrast, among American participants, making the American or the student identity salient had no significant effects on processing fluency ($M_{\text{American identity}} = 2.60; M_{\text{Student identity}} = 2.66$ respectively, $F = .06, ns$).\(^5\)

Results from study 3 demonstrate that making the French (vs. college student) identity salient, causes French participants to experience more difficulty when processing nutrition information in foods. We argue that this effect emerges because making the French (vs.

\(^5\) A similar analysis without the covariates yielded exactly the same pattern of significant effects (French sample: $M_{\text{French identity}} = 3.61; M_{\text{Student identity}} = 3.17$, $F(1,383) = 3.49, p = .06$; American sample: $M_{\text{American identity}} = 2.44; M_{\text{Student identity}} = 2.57, F = .3, ns$).
college student) identity salient heightens more perceptions of incompatibility between the culturally-normative enjoyment of foods made salient by the cultural identity prime and the less culturally-relevant utilitarian nature of nutrition information, which triggers disfluency when processing such nutrition information. Consistent with this interpretation, the effects only emerged among French participants, and were absent among American participants for whom food enjoyment is not more culturally-important than the utilitarianism of nutrition information. Making the American (vs. college student) identity salient did not trigger more processing disfluency among American participants. Although the American identity was found to be more inclusive of unhealthy eating than the college student identity (as per pretest results), for Americans, enjoying food is not more culturally-normative than valuing the utilitarianism of nutrition information. In contrast, for the French, enjoying food is more culturally-relevant than appreciating the utilitarianism of nutrition information. As a result, it is more likely that a salient cultural identity leads French (instead of American) consumers to experience disfluency when processing culturally-inconsistent nutrition information. Thus, only making the French (and not the American) identity salient did interfere with the processing of nutrition information in foods.

The effects in the past two studies were robust and emerged for utilitarian as well as hedonic foods. However, some of the hedonic foods might have been more culturally relevant for our French participants (e.g., French Petits Beurres) than others (e.g., chocolate cake), whereas the utilitarian foods might have been less culturally relevant (e.g., fresh fruits mix or pasta carbonara). As a result, there is more confidence that our effects emerge for different types of hedonic foods, whereas it is possible that the more unfavorable evaluations of utilitarian foods is circumscribed to food items that are less culturally relevant. To address this issue, we conducted a follow up study with one hundred and nineteen college students.
enrolled in business programs in France. Participants followed a procedure similar to that used in Study 3, but all were induced feelings of pride with the French identity (French identity salient). After this, and under the cover of a cooking recipe test, participants were presented with the recipe for a ratatouille (a typical nutritious French meal made with vegetables, olive oil, and herbs), including a picture of the dish, the list of ingredients, preparation instructions, and cooking time. Half of the participants were given this information only (nutrition information absent condition), whereas the other half saw this information along the nutrition label for the food (calories, fat content, and amount of carbohydrates and proteins). We measured disfluency, triggered by the incompatibility between nutrition information in the food and the cultural norm of food enjoyment triggered by the salient French identity, by asking participants to rate on a 7-point scale the ease of preparing the dish ("this recipe is difficult/easy to cook," 1 = difficult, 7 = easy). We also measured participants’ sensitivity to the presence (vs. absence) of nutrition information via perceptions of food healthiness (two items on a 7-point scale, 1 = unhealthy/not nutritious, 7 = healthy/nutritious, r = .70, p < .001). Results showed that French participants with a salient French identity rated the dish as more difficult to prepare when nutrition information was present than when it was absent, M = 3.92 and 4.56, respectively, F(1,101) = 3.89, p = .05, η² = .037. They also perceived the nutritious food item as being less healthy when nutrition information was present than when it was absent, M = 6.01 and 6.43, respectively, F(1,101) = 4.01, p < .05, η² = .038. These results demonstrate that the hypothesized effects also emerge for a utilitarian French food displaying (vs. not) nutrition information—something that such foods commonly emphasize.

General Discussion

6 Sixteen participants were removed from the analysis because they were not French and/or did not follow the instructions in the identity salience manipulation, thus leaving a total of 103 participants for the analysis.
The current research demonstrates that it is more difficult to process otherwise benign nutrition information in foods (Balasubramanian & Cole, 2002; Moorman, 1996) when such information is inconsistent with a salient cultural mindset. Three studies provide evidence for this assertion using French and American consumers, and adopting different methods and dependent variables. The findings demonstrate that the effects are exhibited by French consumers with a salient cultural identity, and emerge because of an incongruity between the motivation to enjoy food activated by a salient French-culture mindset and the utilitarian nature of nutrition information in foods—that does not belong to the salient French-culture mindset. Attesting to its identity-specific nature, the effects are absent among American consumers for whom food enjoyment is not culture-distinctive, and that are equally hedonic and utilitarian in their eating. In Study 1, French consumers reminded of their cultural identity were more sensitive to the presence (vs. not) of nutrition information in foods, as evidenced by their higher perceptions of health risk associated with consuming a hedonic food item. Study 2 further showed that the sensitivity of French consumers with a salient cultural identity to the presence of nutrition information in foods results in less favorable evaluations of foods that display (vs. not) such nutrition information. This effect was mediated by a decrease in anticipated food enjoyment when nutrition information was present (vs. absent). Furthermore, the effects in these two studies did not emerge among American participants for whom food enjoyment is less culturally distinctive. Study 3 further demonstrated that making the French identity salient (vs. not) heightens perceptions of incompatibility between the enjoyment of foods (activated by a salient French-culture mindset) and the culturally-inconsistent utilitarian nature of nutrition information. This was evident in the higher levels of disfluency experienced by French consumers with a salient (vs. not) French-culture mindset when processing nutrition information in foods. Attesting to the specificity of these effects to the distinctive cultural mindset of food enjoyment cued by a salient French identity, the
different studies determine that the effects are absent among American participants for whom food enjoyment is less culturally distinctive, as well as are attenuated when cueing with a social identity that is more neutral in relation to the norm of food enjoyment (i.e., college student identity, Study 3).

**Theoretical Contributions**

Identity-based motivation theory posits that a salient identity prompts people to act in identity congruent ways and to process information in ways that fit cued cultural mindsets (Oyserman, 2009, 2011, Shavitt et al., 2009). The current research extends this stream of research by demonstrating that it is more difficult to process otherwise benign nutrition information in foods (Balasubramanian & Cole, 2002; Moorman, 1996) when such information is inconsistent with a salient cultural mindset (i.e., a French-culture mindset). Our findings suggest that, among the French, a salient cultural mindset can undermine the intended health benefits of providing nutrition information on food labels. Past research has demonstrated that some cultural mindsets can include unhealthy, and even health-risking, attitudes and behaviors (Oyserman, et al., 2007). Pushing the empirical evidence forward, this research demonstrates that salient cultural mindsets can also influence how people interpret the meaning of seemingly neutral information intended to help consumers make healthy choices. This finding highlights how cueing cultural identities can have far reaching implications for consumers’ judgments and behaviors. Further attesting to the notion that cultural identities are situated, as opposed to stable trait-like concepts, our research demonstrates that cultural mindsets effects are specific to situations in which cultural identities are salient, but are attenuated when the situations bring to mind a non-cultural social identity.

This research also extends past research on nutrition information by suggesting that nutrition information can have culturally-sensitive meanings. Past research has adopted a
purely cognitive or motivational view of nutrition information processing (Grunert & Wills, 2007). Our results provide a cultural explanation for the use of nutrition information, thus revealing unexpected consequences on consumers’ judgments. Finally, this research also adds to the literature on culture as situated cognition (D. Oyserman, 2011) by demonstrating that the (dis)fluency triggered by cultural mindsets can emerge outside of the classical individualism/collectivism paradigm, and can be uncovered when considering differences in utilitarianism and hedonism. By doing so, our findings confirm the nuanced differences between Western cultures that might look similar when adopting broader cultural frameworks (Rozin et al., 2011).

Managerial Contributions

This research offers several contributions for marketers and public policy makers. Food and health policies often seem to disregard the cultural component of food behavior and adopt a one-size-fits-all approach. It is important to note that food and health policies are often designed in countries with cultures that are equally hedonic and utilitarian in their eating (e.g. the U.S.). Because these cultures do not distinctively emphasize the pleasure of food consumption, it seems critical to understand the effects of these policies in hedonistic cultures. For example, this research demonstrates that, among French consumers, the disfluency triggered by the presence of nutrition information in foods can reduce food enjoyment - a core component of the French cultural identity (Rozin, et al., 1999). In turn, this can result in higher perceptions of health risk when such nutrition information might intend to inform about the healthiness of certain foods (particularly in the case of utilitarian foods).

Limitations and Future Research

A number of limitations to our work should be noted. First, this research adopted a short-term approach. Thus, further research should focus on longitudinal studies to assess how food and health policies shape food beliefs and habits over time, and particularly so in
hedonistic cultures. This research also focused on contrasting French and American cultures. Although these two cultures differ in their distinctive emphasis on hedonistic (vs. utilitarian) aspects of food consumption (Rozin, 2005), it would be important to investigate the extent to which our results extend to other cultures that can be distinctively characterized as utilitarian or hedonistic according to their approach to food consumption (e.g., British or Italian culture).

Our research explored the evaluative and cognitive consequences of a motivational incongruity between the utilitarian nature of nutrition information in foods and the enjoyment of food distinctively triggered by a salient cultural mindset. Additional research should examine the conditions under which the negative effects of this motivational incongruity are attenuated or exacerbated. To the extent that the motivational incongruity can be interpreted as a threat to the collective self (i.e., inconsistency with the salient cultural identity), self-affirmation procedures (White & Argo, 2009) in related or unrelated domains could help to reduce the devaluation effects. In contrast, because a social identity threat is more likely to trigger the need to belong among those with an interdependent (vs. independent) self-construal (White, Argo, & Sengupta, 2012), priming interdependence (vs. independence) might cause stronger adherence to cultural norms and exacerbate the devaluation effects documented here. Further research should explore these issues.

Because the devaluation effects uncovered in this research are likely to occur rather automatically due to the experience of disfluency when processing nutrition information (Oyserman, 2009; Torelli, et al., 2012), the effects should be attenuated when consumers explicitly or implicitly recognize that the subjective experience of disfluency is no longer informative (Alter & Oppenheimer, 2009). This may have implications for designing promotional campaigns aimed at fostering the use of nutrition information for making healthy food choices. Finally, although the devaluation effects reported in this research emerged for food items that were more or less hedonic/utilitarian, they were all relatively pleasurable food
items (e.g., a chocolate cake and a fresh fruits mix). It is possible that the devaluation effects uncovered here are stronger for highly enjoyable food items (e.g., a 2000 feuilles dessert from Pierre Hermé, one of the most famous French pastry chefs), and weaker (and perhaps non-existent) for unpleasurable food items (e.g., raw broccoli). This would be consistent with the tenets in the identity-based motivation framework that people use salient identity-congruent mindsets when they are applicable to the situation (i.e., when the food is likely to be enjoyed). In our context, when French consumers encounter an unpleasurable food item, the salient cultural mindset might not be applicable and the devaluation effects triggered by the presence of nutrition information might disappear. Further studying these issues seems worthy of research.
References


Figure 1. Risk Estimates as a Function of Cultural Group and Presence of Nutrition Information – Study 1.
Figure 2. Anticipated Enjoyment and Product Evaluation as a Function of Cultural Group and Presence of Nutrition Information – Study 2
Figure 3. Mediating role of anticipated food enjoyment on the effect of the presence of nutrition information (present or absent) on French (vs. American) consumers’ evaluation of the foods – Study 2

\[ \text{Cultural Group} \rightarrow \text{Anticipated Food Enjoyment} \]

\[ a = .12 \text{ (Americans)} \\ a = -.48^* \text{ (French)} \]

\[ \text{Presence of Nutrition Information} \rightarrow \text{Anticipated Food Enjoyment} \]

\[ c = -.14 \text{ (Americans)} \\ c = -.45^* \text{ (French)} \]

\[ \text{Indirect effect = .09 (Americans)} \\ \text{Indirect effect = -.34^* (French)} \]

* Coefficient is significant, \( p < .05 \)
Figure 4. Processing Fluency as a Function of Cultural Group and Salient Identity – Study 3
Appendix A

Product stimuli used in Study 1:

Nutrition Information Present Condition:
Nutritional value per 100g:
Calories: 451 Kcal
Proteins: 7.4 g
Carbohydrates: 69.9 g
Fat: 15.7 g

Nutrition Information Absent Condition:
Keep these cookies at room temperature in a dry place
Appendix B

Product descriptions used in Study 2:

Hedonic Product Condition:
This cake provides all the pleasures of chocolate: a smooth chocolate cake with a creamy chocolate filling and a rich flavor of strong cocoa.
This product is sold in the refrigerated section of grocery stores in a packaging comprising two cakes of 3 ounces each.
Preparation: heat 10 minutes in an oven.
Preservation: keep refrigerated.
Ingredients: eggs, sugar, dark chocolate 18% (cocoa mass, sugar, emulsifier, soy lecithin, vanilla flavor), wheat, butter, water, cocoa powder 2%.

Nutrition Information Present Condition:
Nutrition value (per serving): - Calories: 362 - Proteins: 7.3 g - Carbohydrates: 45 g - Fat: 17 g

Utilitarian Product Condition:
This fresh fruit mix is made with delicious and juicy fresh fruits. Packaged in single portion sizes, this product is convenient to eat and easy to carry it anywhere.
This product is sold in the refrigerated section of grocery stores in a packaging containing 6 ounces of fresh fruit mix.
Preparation: Can be consumed directly from the package.
Preservation: keep refrigerated.
Ingredients: apple, pineapple, cantaloupe, orange, grapefruit.

Nutrition Information Present Condition:
Nutrition value (per serving): - Calories: 49 - Proteins: 0.6 g - Carbohydrates: 10.5 g - Fat: 0.1g
Appendix C

*Product descriptions used in Study 3:*

Below you will see the nutrition information for a fresh pasta carbonara. Please look at the information carefully.

**Utilitarian Product Condition:**

<table>
<thead>
<tr>
<th>Serving Size 300 g</th>
<th>Amount Per Serving</th>
<th>% Daily Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>393</td>
<td>20%</td>
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<tr>
<td>Protein (g)</td>
<td>21</td>
<td>42%</td>
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<tr>
<td>Carbohydrates (g)</td>
<td>57</td>
<td>21%</td>
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<tr>
<td>Fat (g)</td>
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<td>13%</td>
</tr>
<tr>
<td>Dietary fiber (g)</td>
<td>5.7</td>
<td>23%</td>
</tr>
<tr>
<td>Salt (g)</td>
<td>1.2</td>
<td>20%</td>
</tr>
</tbody>
</table>

**Hedonic Product Condition:**

<table>
<thead>
<tr>
<th>Serving Size 300 g</th>
<th>Amount Per Serving</th>
<th>% Daily Value</th>
</tr>
</thead>
<tbody>
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<td>Calories</td>
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<td>Fat (g)</td>
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<td>39%</td>
</tr>
<tr>
<td>Dietary fiber (g)</td>
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<td>5%</td>
</tr>
<tr>
<td>Salt (g)</td>
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<td>47%</td>
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