

When the Brand Refers to Me, I Prefer Going Green

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Introduction

When confronted to different food items at the supermarket, consumers' choices may be determined by different processes. Individuals can choose a product after considering specific goals, values, and beliefs. Alternatively, they might grab items from the shelves simply on an impulse because they like the package. In other words, processes leading to food choice can be controlled, rational, or automatic, impulsive (Shiffrin & Schneider, 1977; Lieberman, 2003; Epstein, 1994). In psychology, dual-process models have provided a theoretical framework for the investigation of impulsive and controlled behavior defining two systems with different processes and capacities (e.g., Fazio & Towles-Schwen, 1999; Gawronski & Bodenhausen, 2006; Strack & Deutsch, 2004). The Impulsive system (Strack & Deutsch, 2004) or System 1 (Evans, 2003, 2008; Kahneman, 2011) integrates information in an automatic and cognitively efficient way based on associative processes whereas the Reflective system or System 2 involves slow and controlled processes that require time and cognitive resources. In the last few years, consumer researchers, economic psychologists, and economists have started to adopt the perspective of dual-process models (Alós-Ferrer & Strack, 2014; Samson & Voyer, 2012). For instance, Fudenberg & Levine's Dual Selves Model (2006) identifies different processes as reflecting the image of either a long-run or a short-run player, where a rational/controlled long-run self controls the impulses of a short-run self tempted by immediate rewards.

The general idea that human behavior can be explained by different processes has influenced attitude research and assessment (see Gawronski & Bodenhausen, 2011). In other words, the increased focus on implicit consumer cognition (Brunel, Tietje, & Greenwald, 2004) has led research to use indirect measures designed to tap into automatic processes (Frieze, Hofmann, & Wänke, 2009). Among them, the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998) is the most used and reliable. For example, using a low/high calorie IAT, Maison, Greenwald, & Bruin (2001, Study 2) reported that women who prefer high-calorie over low-calorie products in terms of taste have nevertheless implicit preferences for low-calorie products. It thus shows a dissociation between implicit and explicit food preferences and underscores the importance of assessing both. Empirical evidence demonstrates the validity of the IAT to predict individuals' food choices (Conner, Perugini, O'Gorman, Ayres, & Prestwich, 2007; Frieze, Hofmann, & Wänke, 2008; Perugini, 2005, study2; Richetin, Perugini, Prestwich, & O'Gorman, 2007; for a review see Greenwald,

Poehlman, Uhlmann, & Banaji, 2009), although some studies failed to do so (Karpinski & Hilton, 2001; Roefs & Jansen, 2002). In sum, because theoretical and empirical work support the importance of implicit attitudes in food related behaviors and cognitions, it seems key to consider them when examining food related cognitions. Moreover, if implicit attitudes are significant predictors of food choices, it becomes important to find procedures through which they can be changed. On the basis of theoretical considerations, an associative-based procedure (e.g., pairing food with positive stimuli) appears to be an ideal candidate (Bodenhausen & Gawronski, 2013). In the general food domain, pairing information such as sensory information or valenced images with food items through co-occurrence in space and time (i.e., evaluative conditioning procedure, see Hofmann et al., 2010 for a review) induced implicit attitude change toward such food items (Hollands, Prestwich, & Marteau, 2011; Lebens et al., 2011; Verhulst, Hermans, Baeyens, Spruyt, & Eelen, 2006).

Another important determinant of preferences and a main focus of research is the self. For example, self-image congruity refers to people's attempt to evaluate a brand by matching the brand-user image with their self-concept (Sirgy, 1982). On the one hand, people prefer brands that have an image compatible with the way they perceive or idealize themselves (Zinkhan, 1991; Graeff, 1996; Malhotra, 1988). On the other hand, the possession of an object contributes in the formation of what Belk (1988) defined as the 'extended self' (see also Rochberg-Halton, 1984). The interplay between one's self and a brand also results in identification processes with the latter (Fournier, 1998) and this in turn strengthens the consumer-brand relationship. For instance, brand-attachment is defined as the strength of the bond connecting a brand with the self (Whan Park, MacInnis, Priester, Eisingerich, & Iacobucci, 2010). Brand identification influences consumer loyalty (Bhattacharya & Sen, 2003; He, Li, & Harris, 2012), consumer satisfaction, likelihood of repurchase (Kuenzel & Halliday, 2008), positive word of mouth (del R o, V azquez, & Iglesias, 2001; Kuenzel & Halliday, 2008), and consumers' willingness to pay a price premium (del R o et al., 2001). In sum, people can be connected to a brand because it represents who they are or because it is meaningful for their goals.

Not only the self is relevant in terms of connection with a brand, but also as directly affecting attitudes and behaviors (e.g., Debevec & Romeo, 1992). Starting from the fact that the majority of people has a high self-esteem and a general positive view of themselves (e.g., Yamaguchi et al., 2007), the self has been demonstrated to affect liking towards self-related objects (Hoorens & Nuttin, 1993; Nuttin, 1985). People extend their own positivity to what they possess (Hoorens & Nuttin, 1993). In economic psychology literature, this effect has

been defined as the endowment effect (e.g., Kahneman, Knetsch, & Thaler, 1990) or more recently in terms of ownership. For example, ownership is supposed to be the underlying mechanism of people's willingness to accept exceeding willingness to pay for the same good (Morewedge, Shu, Gilbert, & Wilson, 2009). Gawronski, Bodenhausen, & Becker (2007) showed that this self-anchoring effect occurs also at the associative level with more positive implicit attitudes towards objects chosen or experimentally assigned (e.g., postcards). Therefore, the transfer of valence from the self to targets can result from processes that do not require necessarily higher-order propositional and deliberative reasoning.

The role played by the self appears quite relevant for organic food products or brands, whose presence in the food market during the last few decades has had one of the biggest growths in the food industry. Many research indeed demonstrate the great importance of self-identity in determining beliefs and behavior toward organic food (e.g., Sparks & Shepherd, 1992; Aertsens, Verbeke, Mondelaers, & Huylenbroeck, 2009; Grunert & Juhl, 1995). People have also been shown to be willing to pay a price premium on eco-labelled food products (Roheim, Asche, & Santos, 2011; Zhang, Epperson, Huang, & Houston, 2009). However, many consumers are still reluctant to give up their usual products in favor of alternative ones produced by organic brands (e.g., Young, Hwang, McDonald, & Oates, 2010). Presumably, as suggested above, one main reason is their unwillingness to pay a price premium for organic products but, given the ample empirical evidence that food choices can be affected by uncontrolled associative processes, it would seem that an important role could be played also by implicit attitudes. Yet, very few studies have considered implicit attitudes as a predictor of eco-brand choice (e.g., Vantomme, Geuens, de Houwer, & de Pelsmacker, 2005), none for organic or eco-brand food choice and, as far as we are aware, no study has tried to change them.

Aims of the contribution

Literature demonstrates the important role played by implicit attitudes in predicting food choices on the one hand and by the self on brands and in organic food related cognitions on the other hand. We thus argue that focusing on implicit attitudes and considering the properties of the self could constitute an important avenue for changing attitudes toward organic food. In other words, we wish to capitalize on previous findings to change attitudes in the domain of organic food products using the self. One procedure that might be effective in doing so is the self-referencing (SR) task (Perkins & Forehand, 2012; Prestwich, Perugini, Hurling, & Richetin, 2010). The SR task is an associative attitude change paradigm that uses

the self as a source to induce positive attitude towards a certain target. In particular, the SR task requires participants to perform a common action (i.e., pressing the same key) for categorizing stimuli related to the self and to a target, and an alternative common action for the categorization of stimuli belonging to the category ‘Others’ and to another target. This simple commonality of actions provides the context within which the positivity of the self can be transferred to the target that has been paired with it, hence resulting in more positive implicit and explicit attitudes towards that target object (e.g., Perugini, Zogmaister, Richetin, Prestwich, & Hurling, 2013). In this context, our aims are fourfold. First, we aim to increase implicit and explicit preferences towards an organic food brand (“eco-brand” for simplicity’s sake) by pairing it with the self through the SR task (Study 1 & 2). We use the Implicit Association Test (Greenwald et al., 1998) for assessing implicit preferences and semantic differential for assessing explicit ones. We also aim at testing whether the SR manipulation affects hypothetical shopping behavior (Study 1). Moreover, because brand identification or perceived closeness is important in brand related cognitions and purchase behavior (e.g., Kuenzel & Halliday, 2008), we investigate the SR effect on identification with an eco-brand (Study 2). Finally, we aim to examine the consequences in terms of evaluation and identification toward the brand if the self, as a source of change, is no longer connected with that product. As a final note, in both studies we measured participant’s recollection of the same response action to classify stimuli related to the self and to a specific eco-brand (target) and ran the main analyses considering only participants who correctly remembered it. There are two main reasons for this strategy. First, theoretically the SR task relies on the principle that the self and a target share the same response to allow the transfer of properties from the self to the target: If people do not notice this regularity, it is unlikely that it can affect their attitudes. Second, empirically previous studies using the SR paradigm have demonstrated that when such memory is incorrect there are no noticeable effects (Perugini, Richetin, & Zogmaister, 2014). Having said that, the analyses performed on the full samples shows a very similar pattern of results, albeit obviously weaker (see Supplementary Material).

Preliminary study

Given the format of the SR task and of the IAT, two categories of organic food products were required. We chose to illustrate these two categories using two fictitious eco-brands to avoid potential effects of previous knowledge or preference and to avoid any influence of familiarity, an element that has been hypothesized as potentially relevant for organic food products (Wheeler, Sharp, & Nenycz-Thiel, 2013). We thus conducted a

preliminary study to identify two alternative eco-brands (i.e., logo and name) and two sets of products similar in valence and ecological meaning.

We preselected fourteen logos and names as potential eco-brands and nine pairs of pictures of similar food products (e.g., two milk bottle pictures). Twenty-seven students (18 women, 9 men, $M_{age} = 23.21$, $SD = 4.21$) took part in a rating task. First, participants rated the 14 pictures of logos and 18 pictures of food products in a random order on 9-point scales from 1 (*I do not like at all*) to 9 (*I like very much*). Participants had to answer within 4 seconds after which they were prompted to reply more quickly. Second, participants indicated the extent to which each of the 14 logos represented an ecological/organic dimension on 7-point scales from 1 (*not at all*) to 7 (*very much*). We chose two logos that were neutral in valence ($M = 5.33$, $SD = 2.04$ and $M = 5.37$, $SD = 2.02$) $t(26) = .85$, $p = .403$ and $t(26) = .95$, $p = .350$, respectively and not different from each other, $t(26) = .09$, $p = .932$. They were also well representing the ecological dimension ($M = 5.59$, $SD = 1.18$ and $M = 5.44$, $SD = 1.16$), $t(26) = 6.98$, $p < .001$ and $t(26) = 6.50$, $p < .001$) to a similar extent, $t(26) = .66$, $p = .515$. We named these two logos “Ecove” and “Ambio” as in Italian both names evoked an ecological dimension. Concerning the pictures of products, we elaborated two similar groups of products that did not differ in valence to be used later for the SR task ($M = 5.66$, $SD = 1.22$ and $M = 5.68$, $SD = 1.25$, respectively), $t(26) = -.11$, $p = .910$, and for the IAT ($M = 5.67$, $SD = 1.19$ and $M = 5.62$, $SD = 1.61$, respectively), $t(26) = .31$, $p = .756$.

Study 1

Study 1 investigates the self-referencing effect on cognitions related to organic food products. We test whether pairing self-related stimuli and a neutral eco-brand through a classification task leads to increased liking towards this brand and its products as well as increased choice in a hypothetical shopping behavior. For this purpose, we use the SR paradigm and, as target objects, we use the two fictitious eco-brands (i.e., Ambio & Ecove) selected in the preliminary study.

Method

Participants and procedure

One hundred and ninety-six students (120 women, 76 men, $M_{age} = 22.60$, $SD = 2.83$) took part to a one-session study. The study was presented as a research assessing the opinion of people on two potential lines of organic food products with lower environmental impact compared to classic food brands (eco-brand) in order to choose the best one to be launched on the market. After reading a brief description of the two lines, participants completed a short

learning task and the self-referencing task. For half of them, the manipulation consisted of pairing the eco-brand “Ambio” with the self, and for the other half it consisted of pairing the eco-brand “Ecove” with the self. Then, half of participants completed first an IAT followed by a hypothetical behavioral choice in a shopping task and the other half completed first the behavioral measure followed by the IAT. Finally, all participants indicated their explicit evaluation of the eco-brands and products and completed a self eco-brand memory test. After that, the experimenter thanked, debriefed, and gave course credit to the participants. Note that the use of two brands each paired with the self in one of the two SR conditions provides a distinctive methodological and theoretical advantage and allows for a strong experimental control. First, participants in both conditions performed the exact same task and therefore the two conditions are equalized over all relevant details (e.g., the cognitive activities involved are the same). Second, given that both eco-brands are paired with the self, the results can be generalized to both; therefore one can exclude potential theoretically irrelevant effects due to some idiosyncratic features of a brand.

Materials

Learning task. On each trial, a food product picture (e.g., box of cookies, milk) appeared in the center of the screen. Participants indicated, as quickly as possible, the eco-brand to which the product belonged by pressing one of two keys on the keyboard (i.e., ‘E’ and ‘I’). The eco-brands labels and corresponding keys remained on the left or right upper portion of the screen throughout the task. The familiarization consisted of 20 trials divided into two blocks of 10. In each block, the trials featured products of each eco-brand (five pictures for each), intermixed at random. The response keys for the two eco-brands were switched after one block. This prevents the keys from being paired with specific responses. The order in which participants completed these blocks was counterbalanced. In case of incorrect classification, a red-X appeared on screen and remained until correction. The inter-trial interval was 400ms. Each set of five products was “Ambio” for half participants and “Ecove” for the other half to prevent any effect of the set of products. We proceeded in the same way for the other tasks (i.e., SR, IAT, and shopping task).

Self-referencing task. Participants categorized in two blocks of 40 trials, as quickly as possible, “Ambio” [“Ecove”] pictures and words related to self (self, me, my, mine, I) to one response key (e.g., ‘E’) and “Ecove” [“Ambio”] pictures and words relating to others (they, them, their, his, her) to a different response key (e.g., ‘I’). Participants then repeated the two blocks of 40 trials but with switched keys, i.e., “Ambio” [“Ecove”] and self assigned to the ‘I’ key, and “Ambio” [“Ecove”] pictures and other-related words to the ‘E’ key. The order in

which participants completed these two sets of blocks was counterbalanced. In case of incorrect classification, a red-X appeared on screen and remained until correction. The inter-trial interval was 400ms.

IAT. Participants classified words and pictures individually presented in a random order in the middle of the screen, using two keys (i.e., ‘E’ and ‘I’). The target concept was “Ambio” and its contrast was “Ecove”, whereas the attribute categories were “Positive” and “Negative”. The order of the two critical blocks was counterbalanced between participants, with half of the participants having the combination “Ambio” and “Positive” being presented first and the other half having the combination “Ecove” and “Positive” being presented first. All practice blocks consisted of 20 trials and each critical block consisted of 81 trials (80 + 1 initial dummy trial). A red X appeared in the middle of the screen for 200ms in case of incorrect response but without requiring correction (no built-in penalty). The inter-trial interval was of 500ms, and the category labels stayed on the upper part of the screen throughout the task. For each attribute category, we used five stimuli. The D score with 600ms of penalties for errors was calculated (Greenwald, Nosek, & Banaji, 2003) such that positive values indicated an automatic positive preference for “Ambio” over “Ecove”. The reliability of the IAT score was good ($\alpha = .90$).

Shopping task. Participants had to imagine they needed to shop for a series of 6 food items (e.g., rice, coffee). For each item, they had to choose between two products (of equivalent price) the one they would purchase. The two products of the same food type were accompanied with a short description (for example for the rice of one eco-brand: “*a rice that never sticks, ideal for all recipes*” and for the rice of the other eco-brand: “*a rice always al dente to please every cook*”). None of the products was presented in the previous tasks. The order of presentation (left vs. right) of the two products was fixed random in a way such that 4 “Ambio” products were presented on the left side of the screen and 4 “Ecove” products were presented on the right side of the screen. We computed a shopping task score by summing the number of times Ambio was chosen over Ecove.

Explicit Evaluation of the brands and products. There were two types of explicit evaluation for both eco-brands and their set of products, one single and one relative. First, participants rated each brand and each set of products separately (“Ambio” first when first presented with positive in the IAT vs. “Ecove” first when first presented with positive in the IAT) on four bipolar dimensions (ugly-nice, unpleasant-pleasant, worthless-valuable, useless-useful) on 7-point scales from 1 to 7. Then, participants rated one brand relative to the other and one set of products relative to the other on 4 dimensions (interesting, pleasant, attractive,

beneficial) on 7-point scales from 1 (e.g., “Ecove” more interesting) to 7 (e.g., “Ambio” more interesting). For brands and sets of products taken together, an overall relative explicit attitude score was calculated. First, for brands and products separately we computed four difference scores for each bipolar dimension then we included these scores with the relative evaluations (sixteen scores in total) in a Principal Components Analysis that revealed one factor accounting for 54.91 % (factor loadings ranging from .50 to .84) ($\alpha = .94$). Higher factor scores indicated a more positive evaluation for “Ambio” over “Ecove”.

Self eco-brand memory test. Participants indicated which eco-brand of the two was paired with the words linked to the self by responding to the following question: “One of the tasks that you have done consisted in classifying with the same key words related to the self and pictures related to one eco-brand. Do you remember which eco-brand?” Participants indicated one of the two eco-brands or the option “I don’t know”. Participants were categorized as having a correct (correct response) or incorrect (no recollection or incorrect response) memory.

Results and discussion

The data of six participants were excluded because of a large proportion of errors (over 25%) in either the SR task or the IAT, indicating random responding. Of the remaining 190 participants, 128 (67.4%) correctly recollected the eco-brand for which the response action for classifying its stimuli was the same than for self-related stimuli (self eco-brand test). We only present the analyses relative to these participants (see Supplementary Material for the analyses on the full sample).

The main analyses involved a 2 (SR Condition: “Ambio” + “Self” vs. “Ecove” + “Self”) x 2 (Order of measures: IAT first vs. Shopping task first) analysis of variance (ANOVA). There was a significant main effect of the SR manipulation on the implicit attitude (IAT), $F(1, 124) = 21.15, p < .001, \eta_p^2 = .14$, and on explicit attitude, $F(1, 124) = 7.16, p = .008, \eta_p^2 = .06$ (this effect was also present when considering the explicit attitude toward the brands and the products separately, $p = .002$ and $p = .045$, respectively). Moreover, this SR manipulation also resulted in a significant effect on the shopping task score, $F(1, 124) = 4.09, p = .045, \eta_p^2 = .03$. The eco-brand and its products paired with the self were evaluated more positively at both the implicit and explicit level and chosen more frequently in the shopping task compared to the eco-brand paired with others (see Table 1 for means and standard deviations for each SR condition). There was no main effect of Order of measures on the implicit attitude nor on the shopping task score, $F(1, 124) = .37, p = .547$ and $F(1, 124) = .66, p = .419$, respectively. We found no interaction effect between the manipulation and the Order of measures on the

implicit attitude, $F(1, 124) = .17, p = .679$ nor on the shopping task score, $F(1, 124) = .46, p = .500$.

	Study 1		Study 2	
	Ambio Self $n = 68$	Ecove Self $n = 60$	Ambio Self $n = 51$	Ecove Self $n = 49$
IAT score	.26 (.49)	-.16 (.55)	.32 (.53)	-.19 (.51)
Explicit Attitude score	.22 (.88)	-.25 (1.07)	.30 (.88)	-.31 (1.03)
Identification score	NA	NA	.45 (1.99)	-.47 (1.87)
Shopping Task score	3.12 (1.20)	2.67 (1.31)	NA	NA

Table 1. Means and Standard Deviations for Study 1 and 2 for each SR condition. Higher scores indicate a preference towards Ambio.

	1	2	3	4
1. SR manipulation	1			
2. Implicit Attitude score	.38**	1		
3. Explicit Attitude score	.23**	.46**	1	
4. Shopping Task score	.18*	.43**	.41**	1

Table 2. Correlations for Study 1 ($N = 128$). SR manipulation is coded 1: Ambio+Self, 0: Ecove+Self. ** $p < .01$. * $p < .05$.

Finally, the three dependent variables were correlated (see Table 2). These significant correlations, as well as the fact that the SR manipulation affected significantly all three criteria, led us to hypothesize two potential mediation effects. We tested the two hypotheses with mediation analyses using the Process macro (Hayes, 2012). First, we investigated whether the SR effect on explicit attitude was mediated by the implicit attitude change (see Figure 1, left panel). The analysis revealed a full mediation with a non significant effect of the SR manipulation on the explicit attitude score when controlling for the effect of the implicit attitude score (direct effect $\beta = .07, p = .438, 95\% \text{ CI } [-.10, .24]$) with a significant indirect or mediated effect, $M = .16, 95\% \text{ CI } [.08, .27]$. The effect of the SR manipulation on the explicit attitude score was thus fully mediated by the implicit attitude score.

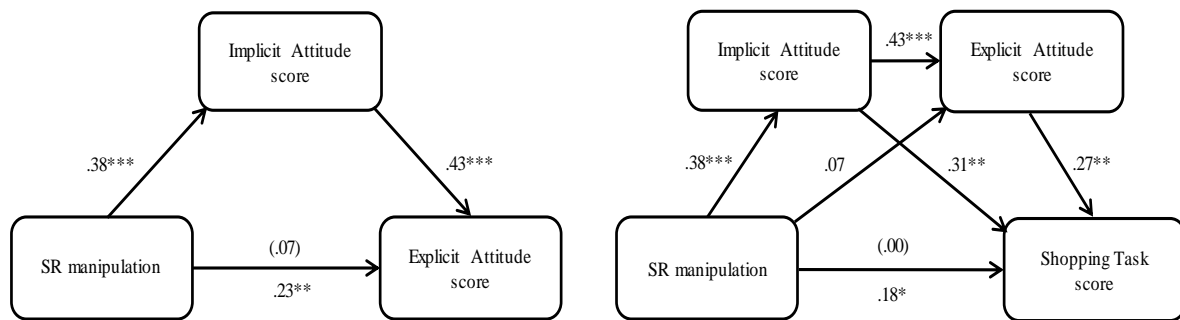


Figure 1. Mediation of SR manipulation effects (Study 1). The left panel illustrates the mediation of the SR effect on the explicit attitude by the implicit attitude. The right panel illustrates the serial mediation of the SR effect on the shopping task score through the implicit attitude and the explicit attitude.

Second, we tested a serial mediation hypothesis in which both implicit and explicit attitude mediated serially the SR effect on the choice in the shopping task (see Figure 1, right panel). Because behavior can be determined by both automatic and deliberate processes, a behavioral change could be mediated by a change at both implicit and explicit levels. Moreover, because the effect of the SR manipulation on the explicit attitude was mediated by the implicit attitude, an indirect or mediated effect of the SR manipulation on the shopping task through implicit and explicit attitude in serial is more likely than two mediated effects operating in parallel. Note that the shopping task was taken prior to the assessment of implicit attitudes for half of the sample. We thus acknowledge this double mediation model, while theoretically sound, is hypothetical. However, the lack of interaction between the SR manipulation and the order of tasks (IAT first vs. shopping task first) on the IAT score and on the shopping score provides a rationale for considering the full sample, hence achieving greater statistical power, regardless of the order of tasks. The analysis revealed a non significant direct effect of the SR manipulation on the shopping task score ($\beta = -.004$, $p = .968$, 95% CI [-.17, .16]), indicating a full mediation. There was a significant indirect effect of the SR manipulation on the shopping task score through the IAT score, $M = .12$, 95% CI [.05, .21], indicating the mediating role of the IAT. There was no significant indirect effect of the SR manipulation on the shopping task score through the explicit attitude score, $M = .02$, 95% CI [-.04, .08], indicating the lack of mediation by the explicit attitude. Moreover, there was a significant indirect effect of the SR manipulation on the shopping task score through the implicit attitude score and the explicit attitude score in sequence, $M = .04$, 95% CI [.01, .11], indicating a serial mediation. In other words, the effect of SR manipulation on the shopping task score was mediated by the IAT and by the explicit attitude in a serial manner.

With this study, we aimed to provide empirical evidence of the efficacy of the self as a source to increase the positivity of implicit and explicit attitudes toward a brand of organic food products. Results showed that the self-referencing manipulation influences both implicit and explicit attitudes toward an eco-brand and its products. These findings confirm the usefulness of the self for changing attitudes toward food products (Perugini et al., 2013; Prestwich et al., 2010). Moreover, this study provides preliminary direct evidence that the SR effects might extend on buying organic food products, although hypothetically. In other words, performing a simple common action (i.e., pressing the same key) for categorizing stimuli related to the self and to a brand of organic food products can be sufficient to lead not only to an implicit and explicit preference toward this brand but also to choose its products more often. The results from the mediation analyses showed that changing implicit attitude toward a brand of organic food mediated a change in explicit attitude. Moreover, the serial mediation of the SR effect on the choice in the shopping task through the implicit and the explicit attitude, together with the lack of mediation by the explicit attitude, support the idea that, once implicit attitudes toward organic food products are changed, explicit attitudes and behavior can follow suit.

Study 2

To explore further the SR effects obtained in Study 1, the aims of Study 2 are twofold. First, brand identification plays a role in determining brand pleasantness (Burnkrant & Unnava, 1995), consumer loyalty (Bhattacharya & Sen, 2003; He, Li, & Harris, 2012), consumer satisfaction, and likelihood of repurchase (Kuenzel & Halliday, 2008), and might also facilitate storage and later retrieval of brand-relevant information (Rogers, Kuiper, & Kirker, 1977; Symons & Johnson, 1997). It seems therefore important to investigate for means of increasing the identification toward a brand. We thus test whether participants' identification (or closeness) would be stronger for an eco-brand paired with the self than with an eco-brand paired with others. Second, this study addresses the issue of the persistence of the attitude change driven by the self. If the self is a source of change for the attitude towards a product, what happens if this source is no longer connected with that product? For example, what would have happened to Nespresso® if George Clooney had disappeared from the ads after a few days? To test this hypothesis experimentally, we investigate whether after the SR manipulation, a subsequent simple classification of the eco-brand products without being paired anymore with the self would lead to a decline in the liking of and the identification with the brand initially paired with the self. Finally, we introduce a minor methodological

modification with the aim of increasing the proportion of participants who correctly recall the commonality of response between the self and a specific eco-brand. If participants make a percentage of errors superior to 20% in the SR task, they complete 2 additional blocks of classification before passing to the next task. Moreover, we administer the self eco-brand memory test immediately after the SR task rather than at the end of the experimental procedure.

Method

Participants and procedure

One hundred and twenty-eight participants took part to this study (40 men and 88 women, $Mage = 22.17$, $SD = 2.46$). We used the same cover story as for Study 1. Different from Study 1 though, participants completed the tasks by providing their responses through a response box instead of using the keyboard. Participants first read a description of the two eco-brands and then completed the Self Referencing task. The first manipulation consisted of pairing stimuli belonging to the eco-brand “Ambio” [“Ecove”] with the self and the eco-brand “Ecove” [“Ambio”] with stimuli belonging to the category “other”. Participants then indicated their recognition of the source-target pairing. The second manipulation consisted of the removal of the pairing between the self and the eco-brands. Half of participants completed an “Ambio”/“Ecove” categorization task (simple brand categorization task group), whereas the other half did not perform such task (control group). After that, all participants performed an IAT and filled in the explicit evaluations of the brands and products as well as a measure of inclusion of the eco-brands in the self. Finally, participants were thanked, debriefed, and given course credit.

Materials

Learning task. Participants completed the same learning task used in Study 1.

Self-referencing task. The task was identical to the one used in Study 1 with one exception. In the last block of 40 trials, the number of correct responses was calculated. If this proportion of errors was above 20%, participants were informed of their poor performance and completed two additional blocks of 20 trials (one block for each key assignment).

Self eco-brand memory test. The measure was the same than the one used in Study 1.

Simple brand categorization task. Participants completed a task that consisted of classifying products into the two eco-brand categories. The task had the same structure and the main features than the learning task (i.e., same response keys, same number of blocks, same number of trials), but with different products pictures for the two brands used in the learning and SR tasks.

IAT. The procedure was identical to the one used in Study 1. The IAT score was transformed into the D_6 as it was done in Study 1 ($\alpha = .89$).

Explicit evaluation. The procedure was identical to the one used in Study 1. As done in Study 1, we used the factor scores from a Principal Component Analysis that extracted one factor accounting for 57.95 % of variance (factor loadings ranging from .60 to .88) ($\alpha = .95$).

Brand Identification. We adapted the Inclusion of other in the self scale (Aron, Aron, & Smollan, 1992) to assess brand identification with the eco-brand. Participants evaluated their level of identification with each eco-brand indicating a pair of circles representing the self and the eco-brand on a scale ranging from 1 (very distant circles) to 7 (overlapping circles). An identification score was calculated for each participant by subtracting the score for the brand “Ecove” to the one for “Ambio”, with positive score indicating an advantage for “Ambio”.

Results and discussion

The data from one participant was excluded from further analyses because of high number of errors in the SR task ($> 25\%$). We also eliminated the data from one participant because of extreme values on both attitudes ($z > |3|$) and identification measures ($z > |2.89|$). Finally, we ran the analyses by considering only participants who correctly remembered the eco-brand for which the response action was the same than for the self ($N = 100, 78.1\%$).

To test the SR effects and their strength on implicit and explicit attitudes and identification, we ran a 2 (SR condition: Ambio+Self vs. Ecove+Self) x 2 (Pairing removal: brand categorization task vs. control) analysis of variance (ANOVA) on each dependent variable. For the implicit attitude score, a main effect of SR manipulation was observed, $F(1, 96) = 24.09, p < .001, \eta_p^2 = .20$. Like in Study 1, the eco-brand paired with the self in the SR task resulted in a more positive implicit attitude compared to the eco-brand paired with others (see Table 1 for descriptive statistics in each SR condition). This effect was not qualified by an interaction with the Pairing removal condition, $F(1, 96) = .10, p = .757$ and this latter factor was not significant, $F(1, 96) = 1.10, p = .296$. For the explicit attitude, the pattern was the same. There was a main effect of the SR manipulation, $F(1, 96) = 10.05, p = .002, \eta_p^2 = .10$ indicating an explicit preference for the eco-brand paired with the self (this effect was also present when considering the explicit attitude toward the brands and the products separately, $p = .002$ and $p = .005$, respectively). Again, there was no significant interaction between SR manipulation and the Pairing removal manipulation, $F(1, 96) = 1.16, p = .284$, and no effect of the Pairing removal, $F(1, 96) = .84, p = .361$. For participants' relative identification, the pattern was also identical. There was a significant effect of the SR manipulation, $F(1, 96) =$

5.60, $p = .020$, $\eta_p^2 = .05$ with no interaction with the Pairing removal, $F(1, 96) = .37$, $p = .546$, nor a main effect of the latter, $F(1, 96) = .62$, $p = .434$. Participants identified themselves more with the eco-brand that was paired with the self than with the other eco-brand.

	1	2	3	4
1. SR manipulation	1			
2. Implicit Attitude score	.45**	1		
3. Explicit Attitude Score	.31**	.56**	1	
4. Identification score	.23*	.52**	.80**	1

Table 3. Correlations between measures (Study 2, $N = 100$). SR manipulation is coded 1: Ambio+Self, 0: Ecove+Self. ** $p < .01$. * $p < .05$.

Like in Study 1, the correlations between the three dependent variables were significant (see Table 3) and the SR manipulation affected significantly all three. We thus tested two mediation hypotheses. First and like in Study 1, we investigated whether the SR effect on explicit attitude was mediated by the implicit attitude (see Figure 2, left panel). The analysis revealed a full mediation with a non significant effect of the SR manipulation on the explicit attitude score when controlling for the effect of the implicit attitude score (direct effect $\beta = .08$, $p = .424$, 95% CI [-.11, .26]) and a significant indirect effect, $M = .23$, 95% CI [.13, .39]. The results corroborated the ones obtained in Study 1. Second, we tested a serial mediation hypothesis in which both implicit and explicit attitudes mediated the SR effect on the identification score (see Figure 2, right panel). The analysis revealed a non significant direct effect of the SR manipulation on the identification score ($\beta = -.05$, $p = .424$, 95% CI [-.19, .08]) indicating a full mediation. There was a significant indirect effect of the SR manipulation on the identification score through the IAT score, $M = .06$, 95% CI [.003, .13], indicating a mediation effect by the implicit attitude. There was a non significant indirect effect of the SR manipulation on the shopping task score through the explicit attitude score, $M = .06$, 95% CI [-.08, .19], indicating a lack of mediation by the explicit attitude. Finally, there was a significant indirect effect of the SR manipulation on the shopping task score through the implicit attitude score and the explicit attitude score, $M = .17$, 95% CI [.11, .29]. Like in Study 1 for the shopping task choice, the SR effects on identification were mediated by the implicit and the explicit attitude serially.

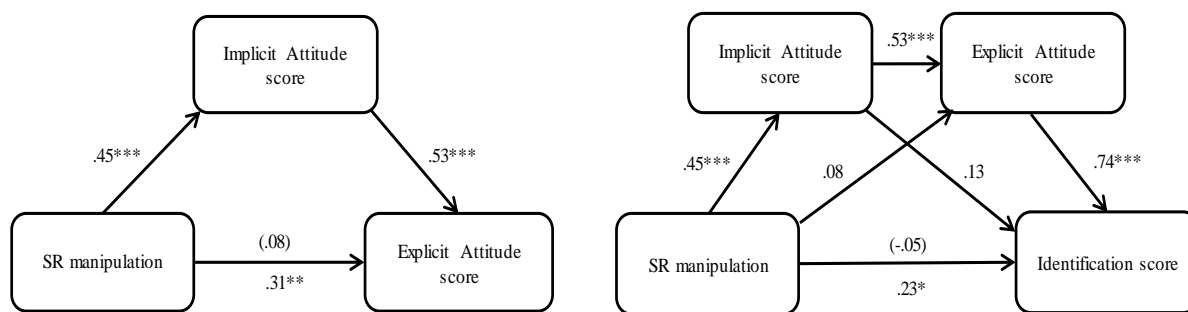


Figure 2. Mediation SR manipulation effects (Study 2). The left panel illustrates the mediation of the SR effect on the explicit attitude by the implicit attitude. The right panel illustrates the serial mediation of the SR effect on the identification by the implicit and explicit attitudes.

Study 2 offers further evidence to the effectiveness of the SR paradigm in increasing eco-brands positive evaluations at both the implicit and explicit levels and extends it to the identification with the brand. Moreover, this study shows that the SR has a strong effect on both attitude change and identification with the brand once paired with the self. The lack of interaction observed between SR condition and Pairing removal suggests that the positivity of and the identification to the brand paired with the self is unaffected by a subsequent removal of that pairing. Finally, as shown in Study 1, the SR effect on explicit attitude was mediated by the implicit attitude and the SR effect on the identification was mediated by the implicit and the explicit attitude serially and not in parallel. This shows once again the possibility of a snowball effect (i.e., a change in implicit attitude produces a change in explicit attitudes, which in turn produce a change in brand identification).

General discussion

The advent of organic food in the market has received great attention the last decades. However, few if any study focusing on organic food has taken into consideration the important role of implicit preferences that already have been demonstrated to predict food-related behavioral choices (e.g., Conner et al., 2007; Richetin et al., 2007). In the present contribution, capitalizing on the positive valence of the self and its role in brands and pro-environmental related cognitions, we tested the possibility to induce implicit and explicit preferences, as well as choice in a shopping task and identification toward organic food using the self.

The results from two studies indicate that the SR is effective in generating both implicit and explicit attitude change towards organic food brands: Both the brand paired with the self and the products belonging to that specific brand were more liked than those paired with the

category ‘others’. These results are in line with previous studies on other food items such as drinks (Prestwich et al., 2010) and crisps (Perugini et al., 2013). To determine the consistency of the different effects of the SR manipulation on the implicit and explicit attitudes across the two studies, we meta-analyzed the results using the software Comprehensive Meta Analysis (Borenstein, Hedges, Higgins, & Rothstein, 2005). For the implicit attitude, Cochran’s Q statistic yielded a non significant effect, $Q(1) = 0.37, p = .543$, indicating homogeneity and therefore suggesting to apply a fixed-effect model. The overall effect was significant ($z = 6.35, p < .001$) with an average effect size $d = 0.88$ (95% CI: 0.61, 1.16). For the explicit attitude, Cochran’s Q statistic yielded also a non significant effect, $Q(1) = 0.32, p = .570$, indicating homogeneity. The overall effect was significant ($z = 4.07, p < .001$) with an average effect size $d = 0.55$ (95% CI: 0.29, 0.82). These meta-analysis results revealed substantial effect sizes for the implicit attitude and for the explicit attitude, providing therefore robust empirical evidence of the SR effect on implicit and explicit preferences toward brands of organic food. Together with the consistent mediation of the SR effect on explicit attitude by the implicit one, the results strongly underscore the necessity of taking into account implicit preferences when studying issues related to organic food.

Moreover, we demonstrated that the SR effect can be extended to hypothetical behavioral choices and that a brand can become incorporated in the extended concept of the self (Belk, 1988) after a SR task. This identification can lead to the enactment of a series of mechanisms typical of the self, such as for example, defending the brand when it is threatened (Lisjak, Lee, & Gardner, 2012). Moreover, given that brands seen as closer to the individuals are more likely purchased than other brands (Malhotra, 1988), the effect on identification might be an additional indicator for potential influence on behavior. Note that the serial mediations of the SR effects on both choice and identification by the implicit and explicit attitudes and the single mediations of the same effects by the implicit attitude provide additional support for the importance of implicit attitudes toward organic food. In short, the results suggest that, once an implicit attitude towards an organic food brand is changed, this effect can ramify further it in a snow-ball like manner.

Finally, this work provides initial evidence the positive nudge given by pairing the self with an organic food brand still persists after the pairing is removed. This removal has been done on a short time scale, hence illustrating the resistance of the attitude change but arguably limiting its implications to a relatively short span. Future studies could investigate whether a more substantial duration of the removal of the pairing (e.g., multiple simple brand categorization tasks performed during some days) would lead to a decline in the positivity of

the attitude or it will instead persist. One could even imagine studies where this issue is explored systematically to find approximate temporal thresholds of decline.

The significant results on all criteria in the two studies indicated the breadth of the effects of the self-referencing paradigm. It might be worth noting two features. First, the food items used in the manipulation task were different to the ones used for the assessment of implicit and explicit attitudes and for the shopping task. Second, the SR effects on the explicit preferences were observed considering both the brand and the products. These procedural and measurement details suggest that the self-referencing effects could in principle generalize to a full range of products belonging to one brand. In other words, once a brand is paired with the self, its positivity might spread to all newly encountered products of the same brand. Future studies specifically focused on this issue might be interesting.

Two methodological details might be worth mentioning. In the procedure we have used in both studies, participants were exposed an equal number of times to both eco-brands. Hence, familiarity, which is known to be a main factor affecting consumer's choices of eco-products (Wheeler et al., 2013), cannot explain the differential preference for the eco-brand paired with self. We have considered here two organic food brands, each in turn paired with the self. The advantage is that we can exclude that the effects are due to some unwanted subtle difference between the brands and therefore allow us generalizing. The results also provides some insights in what one should do to successfully launch a new brand of organic food products, that is, to foster some associations with the self such that it might be imbued by its positivity. Future research should extend to the effects of pairing a brand of organic food with the self when contrasted with a brand of non-organic food, given that one of the major challenge for the organic food market is to compete against non-organic food products.

Taken together, these findings suggest that the self serves to increase liking, choice, and identification towards organic food. A limitation of this contribution is that we have used a hypothetical, rather than real, choice with no economic implications. Future research should focus on real choices with monetary consequences. Considering the role of ownership on both attitudes (Gawronski et al., 2007) and economic decisions (Morewedge et al., 2009), it is possible, if not likely, that the self-referencing task can have effects also on real-economic behavior.

To conclude, our work suggests that in order to foster positivity towards organic food, one should consider also automatic processes and thus focus on changing implicit attitudes. We have provided all-round evidence that the self can be used successfully to change implicit

and explicit cognitions toward organic food brands by creating some commonality through, for instance, simple actions. This minimal manipulation can have profound effects.

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Supplementary Material – Results on the full samples

Study 1 (n Ambio + Self = 92, n Ecove + Self = 98)

The analyses involved a 2 (SR Condition: “Ambio” + “Self” vs. “Ecove” + “Self”) x 2 (Order of measures: IAT first vs. Behavioral choice first) analysis of variance (ANOVA). There was a significant main effect of the SR manipulation on the IAT, $F(1, 186) = 14.52, p < .001, \eta^2 p = .07$.

For the explicit attitude score, a Principal Components Analysis revealed one factor accounting for 55.80 % (factor loadings ranging from .52 to .86). Higher factor scores indicated a more positive evaluation for “Ambio” over “Ecove”. The main effect of SR manipulation on the relative explicit evaluation was marginally significant, $F(1, 186) = 2.95, p = .086, \eta^2 p = .02$. Moreover, this SR manipulation also resulted in a non-significant effect on the shopping score, $F(1, 186) = 1.83, p = .178$. There was no main effect of Order of measures on the IAT score and on the shopping score, $F(1, 186) = .00, p = .985$ and $F(1, 186) = .39, p = .532$, respectively. There was no interaction effect either on the IAT score, $F(1, 186) = .42, p = .518$ or on the shopping score, $F(1, 186) = .00, p = .977$.

The three dependent variables were correlated (all r 's $> .37$). We investigated whether the SR effect on explicit attitude was mediated by the implicit attitude. The analysis revealed a significant indirect effect, $M = .11, 95\% \text{ CI } [.05, .19]$. Moreover, the non significant effect of the SR manipulation on the explicit attitude when controlling for the effect of the implicit attitude (direct effect $\beta = .01, p = .835, 95\% \text{ CI } [-.12, .15]$) indicated a full mediation. Second, we tested a serial mediation hypothesis in which implicit and explicit attitude mediated serially the SR effect on the choice in the shopping task. The analysis revealed a non significant direct effect of the SR manipulation on the shopping task score ($\beta = -.01, p = .934, 95\% \text{ CI } [-.14, .13]$), indicating a full double mediation. There was a significant indirect effect of the SR manipulation on the shopping task score through the implicit attitude, $M = .06, 95\% \text{ CI } [.03, .12]$. There was no significant indirect effect of the SR manipulation on the shopping task score through the explicit attitude, $M = -.004, 95\% \text{ CI } [-.04, .05]$. Moreover, there was a significant indirect effect of the SR manipulation on the shopping task score through the implicit attitude and the explicit attitude, $M = .04, 95\% \text{ CI } [.02, .08]$, indicating a serial mediation. The effect of SR manipulation on the shopping task score was mediated by the implicit and by the explicit attitude in a serial manner.

Study 2 (n Ambio + Self = 61, n Ecove + Self = 65)

For the implicit attitude score, we ran a 2 (SR condition: Ambio+Self vs. Ecove+Self) x 2 (Pairing removal: simple brand categorization vs. control) analysis of variance (ANOVA). A main effect of SR condition was observed, $F(1, 122) = 15.37, p < .001, \eta^2 p = .11$. Neither the SR x

Pairing Removal interaction nor the main effect of the latter factor were significant, $F(1,122) = .16, p = .692$ and $F(1,122) = .61, p = .437$, respectively.

We repeated the same analysis for explicit attitude score. A Principal Components Analysis revealed one factor accounting for 52.62 % (factor loadings ranging from .55 to .85). A main effect of experimental manipulation was found, $F(1,122) = 6.43, p = .013, \eta^2 p = .05$. There was neither a significant interaction between SR manipulation and the pairing removal manipulation, $F(1,122) = 1.80, p = .182$, nor a main effect of the latter factor, $F(1,122) = .42, p = .517$.

We repeated the same analysis for participants' identification with the two brands. There was a borderline significant effect of experimental manipulation, $F(1,122) = 3.14, p = .079, \eta^2 p = .03$; also, there was neither a significant interaction between SR manipulation and pairing removal manipulation, $F(1,122) = 1.20, p = .275$, nor a main effect of the latter factor, $F(1,122) = .36, p = .552$.

The three dependent variables were all significantly correlated (all r 's > .43). We tested two mediation hypotheses. First, we investigated whether the SR effect on explicit attitude was mediated by the implicit attitude. The analysis revealed a full mediation with a non significant effect of the SR manipulation on the explicit attitude score when controlling for the effect of the implicit attitude score (direct effect $\beta = .07, p = .412, 95\% \text{ CI } [-.10, .23]$) and a significant indirect effect, $M = .15, 95\% \text{ CI } [.07, .27]$. Second, we tested a serial mediation hypothesis in which both implicit and explicit attitude mediated the SR effect on the brand identification score. The analysis revealed a non significant direct effect of the SR manipulation of the identification score ($\beta = -.04, p = .545, 95\% \text{ CI } [-.16, .08]$) indicating a full mediation. There was a non significant indirect effect of the SR manipulation on the identification score through the implicit attitude, $M = .03, 95\% \text{ CI } [-.005, .08]$. Also, a non significant indirect effect of the SR manipulation on identification through the explicit attitude emerged, $M = .05, 95\% \text{ CI } [-.06, .17]$. Finally, there was a significant indirect effect of the SR manipulation on the identification through the implicit attitude and the explicit attitude, $M = .11, 95\% \text{ CI } [.06, .21]$, indicating a serial mediation.

Overall SR effect on implicit and explicit attitude on full samples for Study 1 and Study 2

For the implicit attitude, Cochran's Q statistic yielded a non significant effect, $Q(1) = 0.34, p = .562$, indicating homogeneity and therefore suggesting to apply a fixed-effect model. The overall effect was significant ($z = 5.29, p < .001$) with an average effect size $d = 0.61$ (95% CI: 0.38, .84). For the explicit attitude, Cochran's Q statistic yielded also a non significant effect, $Q(1) = 0.73, p = .394$, indicating homogeneity and therefore suggesting to apply a fixed-effect model. The overall effect was significant ($z = 2.90, p = .004$) with an average effect size $d = 0.33$ (95% CI: 0.11, 0.55).