Deceived Or Not Deceived: How Food Consumers Perceive Deception
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This research shows how deceptive marketing communication can be determined empirically through changed consumer expectations. It reveals that consumers are only able to perceive a deception after product trial for experience and not for credence attributes. Unexpectedly, the ability to detect deception is independent of education, nutrition- and persuasion knowledge.

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INTRODUCTION

From misleading package sizes to photoshopped pictures of frozen food that do not look like the actual prepared food, use of deception in product packaging and advertising is quite widespread. For example, product names containing a region that does neither reflect where the product was manufactured nor the origin of its ingredients may mislead the consumer. Our study extends the prior literature by employing an experimental method to empirically determine the process by which advertising material (e.g., images on product packages or package inserts) may deceive the consumer. Since many types of misleading communication are not technically illegal, it is imperative to identify situations in which consumers are able to detect deception on their own. At a broader level, knowledge about consumers’ vulnerability to deception can help to develop new public policy strategies to protect them wherever necessary. Moreover, a better understanding of consumer detection of deception and their reactions to it can provide marketers insights into how their communication can be designed in a truthful but favorable manner. Our research thus attempts to investigate the conditions under which consumers are able to detect deceptive claims in food marketing. Also, we aim to show the effects of deceptive claims once they have been uncovered compared with deceptive claims that go unnoticed.

LITERATURE REVIEW

In the consumer behavior literature, two main types of objective deception are discussed: regulatory or legal deception and behavioral deception (Xie and Boush 2011). Our research is based on the behavioral aspect. The behavioral perspective focuses on the gap between fact and belief and thus on misleading aspects of communication (Russo, Metcalf, and Stephens 1981). Most definitions of deception focus on false, marketer induced beliefs through advertisements (Gardner 1975; Olson and Dover 1978). We refer to ‘marketing communication’ instead of advertisements and thus cover various types of marketing techniques (advertisements, packaging, public relations, sponsorship etc.). Formally, we define “deception” as follows: Deception occurs when a marketer tries to deceive a consumer by setting or maintaining a wrong expectation (i.e. an expectation that the product or service cannot objectively fulfill) through marketing communication.

The extant literature has proposed various techniques that can be applied to determine deceptive advertising (rating by judges and experts, asking consumers on an advertisement’s potential to mislead, or various techniques centering on consumer beliefs) (Grunert and Dedler 1985). Techniques focusing on consumer beliefs have been widely discussed (Gardner 1975; Jacoby and Small 1975) but rarely applied in consumer research (exceptions can be found in Grunert and Dedler (1985); Olson and Dover (1978); Russo et al. (1981)). This research adds to the literature on techniques focusing on consumer beliefs. It applies an experimental approach similar to the one in Olson and Dover (1978) to determine whether an advertising communication is deceptive. Following Olson and Dover’s (1978) assumption, “… that deception in advertising can be experimentally created and measured…” (Olson and Dover 1978, 31), the first study should determine if an advertising material is deceptive. It is said to be so, if consumers confronted with it form different (e.g., more positive) expectations of a product’s attribute than consumers who are confronted with non-deceptive communications.

Prior empirical studies have focused on the negative consequences of deception. More specifically, perceived deception leads to negative attitude toward the brand, and has a negative effect on purchase intention (Darke and Ritchie 2007; Newell and Goldsmith 1998). It also decreases trust and increases skepticism, and leads to generalized distrust (Darke and Ritchie 2007). However, other studies addressing deception did not find an effect on consumer attitudes toward the brand and purchase intention (Olson and Dover 1978). Consumer perception of deception may be one explaining factor for these mixed findings. Not every objective deception is necessarily detected. For this reason, drawing a distinction between objective deception and consumers’ subjective feelings of perceived deception is crucial (Armstrong, Gurrol, and Russ 1980). Perceived deception can be the result of a consumer’s own feeling about the ad (Newell and Goldsmith 1998), or of what consumers have heard through media or other sources (Darke and Ritchie 2007). The various causal factors and measurement techniques of perceived deception can be a second explanation for the mixed findings. To improve reliability, our study thus compares two approaches to measure perceived deception: a scale and a projective technique. What is more, it focuses only on consumers’ own ability to detect deception and not on cases in which deception is pointed out by other sources (the media, other consumers etc.). Research must draw a further distinction between the attribute types that characterize the deception. It can be assumed that the consumer will not detect misleading credence attributes, as the consumer cannot verify whether the information given about them is correct, at least not without considerable cost (Darby and Karni 1973). “For credence qualities, the perception of quality after purchase will still be based on making inferences from cues.” (Grunert 2005, 379). For experience attributes, which can be assessed after having tried the product (Nelson 1970), consumers should be able to determine a deception. Thus:

Hypothesis 1: For experience attributes, deceived consumers experience deception after having assessed the performance of the product, while non-deceived consumers will not. For credence attributes, there is no difference in the level of perceived deception for consumers who have been objectively deceived and those who haven’t.

It is evident that in the case of deception through advertising communication, not all consumers are equally likely to detect the deception. For this reason, research needs to identify the individual processes that underlie the detection of a deception (Craig et al. 2009). While potential moderators on the ability to detect advertising deception are often proposed in the literature, they are rarely the subject of empirical investigation. Educated consumers should generally have better critical thinking skills and thus be better able to detect advertising deception (Aditya 2001). Furthermore, domain-specific knowledge is proposed as a potential moderator for detecting objective deception (Newell and Goldsmith 1998). Consumers with more elaborate knowledge about the persuasion agent’s goals and tactics should also be more capable of detecting a deception (Friestad and Wright 1994).
Hypothesis 2: Education, domain-specific knowledge and persuasion knowledge have a positive effect on people’s ability to detect a deception.

The literature assumes that it is crucial for consumers to detect deceptive advertising in order to protect themselves from deceptive persuasive attempts and activate defense mechanisms (Martin and Smith 2008). Public awareness of a marketer’s deception has a negative financial impact on the firm (Tipton, Bharadwaj, and Robertson 2009). These findings suggest that there are only negative effects on the marketer if the consumer detects the deception. Deception thus does not have a direct effect on negative evaluation (Olson and Dover 1978), but an indirect effect through perceived deception. Clearly, this indirect effect only occurs when the deception is discovered. Since deception influences expectations, we draw on the existing literature and use dissatisfaction as a dependent variable (Oliver 1980).

Hypothesis 3: Deceived consumers do not experience a higher level of dissatisfaction than their non-deceived counterparts. Even for experience attributes, dissatisfaction does not depend on the fact of being deceived, but solely on the subjective experience of being deceived.

STUDY 1

Study 1 tested whether the manipulations were appropriate to change consumers’ expectations, in addition to testing the applicability of Olson and Dover’s (1978) claim of experimentally verifying the deceptiveness of an advertising material. In an online experiment, we displayed a picture of the front package of a fruit tea. We used packaging because it is a very influential communication tool for low-involvement goods (Underwood and Klein 2002). Since Grunert and Dedler (1985) called for using real product packaging, we used a tea packaging from a German discount supermarket, which we modified based on our experimental conditions. We renamed the product and pretested knowledge of the product to make sure respondents were not familiar with it. We designed a 2 x 2 matrix (type of attribute: credence/experience; deception: yes/ no) between group design with a control group (no packaging, only a list of ingredients). The credence attribute was operationalized by the product’s name which presumably leads to different expectations, concerning the non-verifiable country of origin of the product. The experience attribute was operationalized by the type of fruits displayed on the packaging, which presumably lead to different taste expectations. An overview of the different packages is given in figure 1. Consumer expectations were the primary dependent variable. From a sample (mean age 32 years, 60.7 % female), 147 participants were randomly assigned to one of the five groups, and were shown the front of the tea package and the list of ingredients. Five cases were eliminated because their answering times were either too long or too short. Other cases were eliminated due to contradictory (illogical) responses. For the deception treatment with the credence attribute (concerning country of origin), we used verbal deception (misleadingness due to semantic confusion Hastak and Mazis 2011) by naming the product “north German mixture”. In the non-deceptive condition, we explained that “north German mixture” means that 20% of the fruits in the tea are from Germany. For the deception treatment with the experience attribute (taste), we manipulated the graphics. In the deceptive treatment, we used a package design that highlighted either red fruits or yellow fruits in a tea. The deceptive packaging showed more types of red fruits than were actually found in the ingredients. In the non-deceptive treatment, the packaging depicted the fruits in line with their actual percentage in the product. Thus yellow fruits like apple and hibiscus where prominent. Even though Hastak and Mazis (2011) only categorized deceptive verbal claims, the depiction of different fruits might lead to intra-attribute misleadingness (Hastak and Mazis 2011). In the control group, participants only saw the list of ingredients and the name of the product: “fruit mix” with-

FIGURE 1
Experimental Manipulation for Deception (Yes/ No) and for Type of Attribute (Experience/Credence)

Control group Ingredients: apple, hibiscus, blackberry leaves, adidifier: citric acid, flavor, (strawberry flavor, strawberry juice concentrate**), black current concentrate, black current fibers (1%), blackberry flavor
** strawberry juice concentrate 0,04% equals 0,31% strawberry juice
out the addition of “north German mixture”. After having seen the manipulation, participants were asked about their predictive expectations of the tea based on the following attributes: red color, berry flavor, apple smell and percentage of fruits from Germany (Oliver and Burke 1999), their attitude toward the packaging with four items (one liking item from the Aad scale from Derbaix 1995 and three additional items (α=0.806)), and a measurement of perceived deception (following Maddox 1982 accurate/misleading, truthful/deceptive, factual/distorted) (α=0.847). All items were answered on a seven-point Likert scale or seven-point semantic differential scale. Additionally, perceived deception was measured more implicitly with a projective technique (a cartoon test) and coded by two trained raters according to deception (yes/no) (Soley 2006) (r=0.498** with perceived deception).

STUDY 1: RESULTS

Consistent with Olson and Dover’s (1978) assumption participants in the deception condition had different expectations from the non-deceptive condition and from the control group (for berry taste: F (2, 139) = 44.8, p = 0.000, α = .62; for percentage of German origin: F (2, 139) = 8.00, p = .001, α = .30). Mean differences are shown in table 1. With an ANOVA analysis, planned contrasts revealed significant different expectations between the deceptive condition and the non-deceptive condition for the “taste” experience attribute (M deceptive picture = 6.24 vs. M non-deceptive picture = 3.04; t (79) = -8.787; r = 0.70; p = .000). Planned contrasts showed that the expectation of a berry flavor was significantly higher in participants who saw the deceptive packaging than in those who saw only the list of ingredients (M control group = 5.14; t (82) = 3.908; r=0.4; p = .000). Planned contrasts indicated that for the credence attributes the expectation on the percentage of German origin of the fruits was significantly higher in the deceptive condition than in the non-deceptive group, which included an explanation of the name (M deceptive naming = 46.60% vs. M non-deceptive naming (with explanation) = 31.12%; t (72) = -2.195; r = 0.25; p = .031). The difference between the control group (list of ingredients without “German mixture”) and the deceptive condition was highly significant (M control group = 22.48%; t = (66) = 3.61; r = 0.40; p = .001). Attitude towards the packaging was controlled as a possible confound and no significant difference between the packages was found (F (3, 80) = 1.163; p = .329; α = 0.076).

STUDY 2

In the second study we conducted an offline experiment in which the manipulation was identical to that of Study 1, to examine whether consumers felt deceived after having tried the product. This time, consumers could actually see and touch the tea packaging. We added a control group in which participants did not see any packaging. In addition to presenting the tea packaging, participants tasted the same apple fruit tea in every experimental condition. After having tried the tea, 419 participants (non-student sample, mean age 39 years, 62.7 % female) obtained the questionnaire and a debriefing afterwards. The dataset used in this study contains only 311 cases, as we strictly eliminated cases with contradictory (illogical) responses, or where too many answers were missing. Participants were asked to rate their impression of the tea’s performance (red color, berry flavor, and apple smell), what they expected in terms of the percentage of fruits contained from Germany, their level of satisfaction (Tsiros and Mittal 2000) (α=0.798) and their buying intention. They were

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Deceptive experience attribute</th>
<th>Non deceptive experience attribute</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expectations of berry flavor</td>
<td>M SD</td>
<td>M SD</td>
<td>M SD</td>
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<tr>
<td>Expectations of red color</td>
<td>M SD</td>
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<td>Attitude toward the packaging</td>
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<td>Perceived deception (scale)</td>
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<tr>
<td>Perceived deception (cartoon test)</td>
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<tr>
<td>Expectation on percentage of fruits from Germany</td>
<td>M SD</td>
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<td>Attitude toward the packaging</td>
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1 Result from study 1; 2 Results from study 2

Note.—Planned contrast results for the same subscripts (a, b, c) indicating mean differences significant on the 5% level.
also asked to indicate their level of perceived deception (Maddox 1982) \( (\alpha = 0.881) \) and to fill out a scale for persuasion knowledge (items derived from Dallongeville et al. 2001; Dickson-Spillmann, Siegrist, and Keller 2011; Parmenter and Wardle 1999). Participants were shown the cartoon from Study 1, and deceptive thoughts (yes/no) were coded by two independent raters \( (\alpha = 0.354**) \) with perceived deception.

**STUDY 2: RESULTS**

An independent t-test confirmed hypothesis 1. Results revealed that for experience goods, consumers in the deceptive condition were more likely to perceive deception than in the non-deceptive condition \( (M_{\text{deceptive\,picture}} = 4.6, \ SE = 0.16 \, vs. \, M_{\text{non-deceptive\,picture}} = 3.61, \ SE = 0.14; \ t(247) = 4.657, \ p = .000; \ r = 0.28, \ d = 0.59) \). We confirmed these findings with the implicit measure of deceptive thoughts in the cartoon test. A t-test showed that in the deceptive condition deception was coded significantly more often than in the non-deceptive condition \( (t(172) = 3.557; \ p = .000; \ r = 0.26, \ d = 0.5) \). For the credence attribute “origin” we did not find differences in perceived deception between the deceptive conditions and the non-deceptive \( (M_{\text{deceptive\,naming}} = 3.88, \ SE = 0.155; \ M_{\text{non-deceptive\,naming\,(with\,explanation)}} = 4.24, \ SE = 0.154, \ t(247) = -1.633, \ p = .104; \ r = 0.10, \ d = 0.21) \). Moderation analysis using the Hayes’ “Process” procedure (Model 1) did not support hypothesis 2. Education, persuasion knowledge and food knowledge did not interact with deception of experience attributes on perceived deception (interaction term for education: \( b = 0.1064, \ SE = 0.2595, \ t = 0.4101, \ p = .6821 \), interaction term for persuasion knowledge \( b = 0.1393, \ SE = 0.2140, \ t = 0.6508, \ p = .5158 \), interaction term for nutrition knowledge \( b = 0.0775, \ SE = 0.1091, \ t = 0.7102, \ p = .4783) \). For credence attributes, the potential moderators also showed non-significant interaction terms. To test hypothesis 3, we conducted a mediation analysis with Preacher and Hayes’ “Process” procedure (Model 4) and controlled for perceived deception. Results, displayed in figure 2, showed no significant direct effect of deception of an experience attribute on satisfaction \( (b = 0.1187, \ t(2) = 0.635, \ p = .5251) \). The direct effect of deception of an experience attribute on perceived deception was significant \( (b = 0.9855, \ t(1) = 4.6566, \ p = .000) \). As proposed in hypothesis 3, the analysis revealed a significant indirect effect of deception of an experience attribute on satisfaction through perceived deception with 95% bootstrap confidence interval \( (b = -0.3333; -0.5640 \, and \, -0.1707) \). The standardized \( \beta \) for the indirect effect is \( \beta^* = 0.111, 95\% \text{ BCA CI} [0.0569, 0.1808] \). Furthermore, satisfaction significantly influences purchase intention \( (F(1,309) = 66.05; \ p = .000; \ \beta = 0.42) \).

**FIGURE 2**

PERCEIVED DECEPTION AS MEDIATOR BETWEEN DECEPTION AND SATISFACTION

\[
\begin{align*}
& b = 0.9855 \\
& p = .000 \\
& b = 0.1187 \\
& p = .5261 \\
& b = -0.3382 \\
& p = .000
\end{align*}
\]

Indirect effect \( \beta = -0.3333, 95\% \text{ CI} [-0.5640, -0.1707] \)

**DISCUSSION, IMPLICATION AND FUTURE RESEARCH**

This research contributes to the literature by applying an experimental approach to determine whether an advertising communication is deceptive or not (similar to Olson and Dover 1978) based on its effect on consumer expectations. Until now, most studies have investigated verbal deception (Xie and Boush 2011, 307). The contribution of this study is to show that deception through graphical elements is possible as well. Our results reveal that the fruits displayed on a package influence the formation of consumer expectations for taste and color. Surprisingly, our results showed that taste expectations based on the list of ingredients \( (M = 5.14) \) were more similar to the deceptive material \( (M = 6.24) \), than to the realistic packaging \( (M = 3.04) \) that displayed fruits according to the actual list of ingredients. The same was true for redness. It seems as if many consumers know that red fruits give the tea its taste and color even though the tea only contains a small amount of the former. Future research is needed to explain this connection.

Thus far, research has explained the consequences of deception. The differences between manipulating deceptions and perceived deceptions have not yet been shown. Our key finding in study 2 is as follows: If a consumer does not perceive the marketer’s deception, there will be no negative consequences for the latter. Our study contributes to the existing literature in explaining perceived deception as a mediator between objective deception and dissatisfaction, which leads to lower purchase intention. The study adds to the existing literature by manipulating not only deception for experience attributes but also for credence attributes. Our results revealed that a deception was detected after product use for experience attributes but not for credence attributes. The fact that the detection of the deception does not depend on persuasion knowledge, nutrition knowledge or education is alarming. Even though it was stated by prior research, we were not able to identify this effect empirically. Future research should identify the moderators of this process. Strengthening those factors within the consumer would then increase his ability to detect a deception. One possible factor could be food literacy. It is a more global construct in the domain of food behavior and does not only involve nutritional knowledge but also food information processing and responsible and self-determined food choices (Held and Germelmann 2014).

Overall, consumers only perceive deceptions for experience attributes and not for credence attributes. Combined with the mediating effect of perceived deception on dissatisfaction, this implies that deception for credence attributes does not lead to negative behav-
ioral consequences for the marketer. Media reports and consumer complaints about deception thus become more and more relevant. Consumers are only capable of detecting deception for credence attributes through external sources. To determine whether those second-hand experiences have the same effects as self-detected deception is a promising area of research.

Due to the negative consequences of perceived deception, a firm’s aim should be to avoid deception. With the methods applied in this research, marketers and public policy makers are now able to determine whether their advertising communication is deceptive from a behavioral point of deception. It is important to note that deception not only occurs verbally, but also graphically.

REFERENCES