An Audience of One: Behaviorally Targeted Ads as Implied Social Labels

CHRISTOPHER A. SUMMERS
ROBERT W. SMITH
REBECCA WALKER RECZEK

"Behavioral targeting" is an Internet-based targeting strategy that delivers digital ads to individuals based on their online behavior (e.g., search, shopping). This research explores the unique ways in which consumers respond to ads using this type of targeting (vs. to ads that use more traditional forms of targeting), demonstrating that a behaviorally targeted ad can act as a social label even when it contains no explicit labeling information. Instead, when consumers recognize that the marketer has made an inference about their identity in order to serve them the ad, the ad itself functions as an implied social label. Across four studies, behaviorally targeted ads lead consumers to make adjustments to their self-perceptions to match the implied label; these self-perceptions then impact behavior including purchase intentions for the advertised product and other behaviors related to the implied label. Importantly, these effects only hold when the label is plausibly connected to consumers' prior behavior (i.e., when the targeting is at least moderately accurate).

Keywords: social labeling, self-perceptions, behaviorally targeted advertising, online advertising, digital marketing

To communicate effectively with different groups of consumers, firms have long relied on targeting—the segmentation of a market into smaller groups based on a meaningful variable and selection of a particular segment as the target (Aaker, Brumbaugh, and Grier 2000; Blattberg, Buesling, and Sen 1980). Commonly used segmentation variables include demographic variables like ethnicity (Deshpandé and Stayman 1994) or gender (Stafford 1996) and psychographic variables such as values, personality, and lifestyle (Wells 1975). Due to widespread Internet use and advances in technology that tracks online behavior, a new form of targeting has emerged.

"Behavioral targeting" is an Internet-based targeting strategy that uses several elements of a consumer's online behavior (e.g., purchases and browsing history) to piece together a user profile that determines the ads displayed to the specific individual (Yan et al. 2009). It is a unique process because consumers are not shown ads based solely on broad demographic or psychographic variables; nor are they presented with ads for the same products they have already viewed or clicked on (as is the case with retargeting; Lambrecht and Tucker 2013). Instead, Web sites display digital advertisements to consumers that reflect marketers' inferences about the type of person they are, based on their previous individual-level behavior. For example, a marketer's behavioral targeting algorithm may identify a consumer who purchases energy-saving light bulbs online as the type of person who is interested in environmental sustainability more generally, and, consequently, that user may be served with an ad for a different environmentally friendly product or service. As this practice becomes increasingly common, it is important to

understand how consumer response to behaviorally targeted advertisements might differ from the response to ads using more traditional forms of targeting.

This research introduces the notion that behaviorally targeted advertisements act as *implied social labels*. We propose that when consumers know that an ad has been behaviorally targeted, they recognize that the marketer has made an inference about their identity based on their past online behavior. Across four studies, we demonstrate that the behaviorally targeted ad functions as an implied social label, leading consumers to adjust their self-perceptions to match the implied label. These self-perceptions then impact behavior including purchase intentions for the advertised product and other behaviors related to the implied label (e.g., donating to an environmental charity after receiving an ad for an environmentally friendly product). Further, we show that these effects on purchase intentions can persist at least two weeks after initial exposure to a behaviorally targeted ad. Importantly, however, we find that the effects of behaviorally targeted ads on both self-perceptions and purchase intentions only hold when the label is plausibly connected to consumers' prior behavior (i.e., when the targeting is at least moderately accurate). We end by discussing how our findings can help marketers understand why behaviorally targeted ads are effective and also shed new light on the current debate about whether marketers should disclose that a given digital ad has been behaviorally targeted.

THEORETICAL DEVELOPMENT

How Is Behaviorally Targeted Advertising Unique?

Behaviorally targeted advertising differs from advertising that uses more traditional targeting (e.g., based on demographic or psychographic variables) in two important ways. First, behaviorally targeted ads are person specific, meaning the ads that appear on a Web page are customized to each user who visits the site. This is in contrast to conventional forms of targeting, in which the same ad is presented to everyone who encounters a particular piece of media, be it on broadcast television or in a magazine or in online contexts that do not use behavioral targeting. Consumers can identify whether a given digital ad has been behaviorally targeted because marketers and Web sites are increasingly adopting the AdChoices icon, a small blue symbol shown in the upper right-hand corner of the behaviorally targeted ad, to indicate it as such (Digital Advertising Alliance 2014).

Second, behaviorally targeted ads are distinct from other forms of advertising because they are based on consumers' past individual-level behavior. By placing data onto consumers' hard drives (i.e., cookies), firms are able to collect information about consumers' viewing and clicking patterns, Web searches, purchase histories, and social media use, from both their personal computers and mobile devices (Yan et al.

2009). Advertising networks then create a user profile from this data and deliver ads for products that their software predicts will be appealing to the individual consumer. In contrast, other marketing communications draw on broad classifications of people using demographic variables like ethnicity (Deshpandé and Stayman 1994), psychographic traits such as values, personality, and lifestyle (Wells 1975), or social identities (e.g., athletes; Forehand and Deshpandé 2001), under the assumption that members of these groups share certain characteristics, preferences, and behaviors. We next discuss how these unique characteristics of behaviorally targeted ads cause them to function as implied social labels.

Social Labels, Self-Perceptions, Identity, and Behavior

Social labels have generally been defined as explicit characterizations of individuals based on their behavior, beliefs, or personality (Goffman 1963). Past research has demonstrated that people behave consistently with a variety of explicit social labels (Kraut 1973; Miller, Brickman, and Bolen 1975; Tybout and Yalch 1980). For example, Kraut (1973) found that people who were explicitly labeled "charitable" after donating to a charity were more likely to contribute to a second charity than people who had also donated but were not labeled. These findings are consistent with self-perception theory (Bem 1972), which proposes that people perceive themselves to have certain qualities as a result of observing their own behavior and act according to the traits they believe they possess. Explicit social labels reinforce this tendency to learn about the self and evaluate the implications of one's behavior by providing a characterization of the self from an external source.

Although no past research has explored whether simply receiving an ad can act as a social label, a few researchers have explored the effect of explicit social labels contained in advertising copy. In one of these investigations, Allen (1982) found that a commercial containing an explicit social label (i.e., "American consumers are willing participants in solving the energy problem") was more effective at increasing energy conservation behaviors than a commercial containing a persuasive argument (i.e., "American consumers must be more energy conscious"). He also joins Miller et al. (1975) in suggesting that persuasive statements like "American consumers must be more energy conscious" can serve as implicit social labels, whereas "American consumers are not energy conscious" would be an explicit social label. Notably, even when a social label is implicit—in that it requires the consumer to fill in a small gap in a message about themselves to complete the label—it still contains explicit descriptive information about the consumer (or his or her group) and a focal behavior. For example, even though an American consumer could perceive an implicit label ("We, as Americans, are

not currently energy conscious") from the advertising copy, "American consumers must be energy conscious," such an ad explicitly addresses "American consumers" and overtly suggests that they engage in more "energy-conscious" behavior. Thus past research has explored how the messages within advertising copy can serve as social labels. We seek to extend past research by focusing on a different type of implied social label—one implied through mere receipt of an ad rather than through descriptive information about the ad's recipients contained in the ad copy.

We propose that when consumers recognize that an ad is behaviorally targeted, they recognize that the marketer has made an inference about their characteristics based on their past online behavior. In other words, we argue that a behaviorally targeted ad can act as an *implied social label*, defined as a characterization of the self that is implied to be held by an external agent in the absence of explicit information about the self. The receipt of a behaviorally targeted ad signals to consumers that some information about the self was used to generate the ad. In the absence of an explicit social label within the ad (i.e., most behaviorally targeted ads do not directly state "you are this type of consumer"), the consumer must infer what the ad implies about them. Most directly, receipt of the ad signifies that one is expected to like the featured product. The implications may be broader, however, because receipt of the ad can imply that one is viewed as a specific type of person. When one recognizes an external characterization of one's identity in this way, we predict that consumers adjust both their self-perceptions and behavior to be consistent with the implied label.

It is important to distinguish between the nature and the effects of an implied social label and the activation of an element of a consumer's identity. Current work in consumer identity explicitly defines identities as social category labels, with Reed et al. noting that "a category label becomes an identity once the consumer has begun to incorporate it into his or her sense of who he or she is and has initiated the process to become that kind of person" (2012, 312). An identity, then, is a label that the consumer has come to accept about oneself, whether it is a personal identity (e.g., being sophisticated or outdoorsy) or a social identity (e.g., being an American or a parent; Oyserman 2009). Advertisements can prime identities, such as when an ad featuring an image of the Great Wall of China makes a Chinese consumer's Chinese identity more salient (Forehand, Deshpandé, and Reed 2002).

Unfortunately, little research has clarified the commonalities and distinctions between identity priming and social labeling. It is clear from past research that advertising can successfully execute both processes (Allen 1982; Forehand et al. 2002) and that both processes can increase purchase and behavioral intentions (Allen 1982; Reed 2004). The critical difference between these two constructs is that making an identity salient temporarily heightens the

consumer's *internal* awareness that he or she has a specific trait (i.e., a consumer applies a label to the self), whereas social labeling serves as an *external* recognition that one has exhibited a pattern of behavior that reflects a specific trait (i.e., another person or entity applies a label to the consumer). Behaviorally targeted ads provide the consumer with information about the self that comes from an external source: the marketer. Thus the key distinction between an advertisement making an identity salient and one that implies a social label lies in whether the information the ad provides about the self stems from a characterization that is generated internally, by the self, or from an external source.

This internal versus external distinction shares some commonality with the literature in judgment and decision making on stated versus revealed preference. Revealed preferences are "revealed" by observing actual choice (vs. simply asking consumers to state their preferences). Both types of preferences provide useful information for marketers (Hensher and Bradley 1993), but revealed preferences are generally more reliable in predicting future behavior (Carson et al. 1996). The notion of revealed preferences parallels that of constructed preferences, which are constructed on the fly as a result of the interaction between the (internal) properties of the human decision making system and the (external) properties of the environment in which a decision is made (Bettman, Luce, and Payne 1998). We propose that the effects of a social label implied by a behaviorally targeted ad are akin to informing a consumer of their revealed preferences (based on past choices that are affected by the external environment), and those of identity priming are akin to reminding a consumer of their stated preferences (generated from accessing internal information).

Consumers therefore receive information about what others (i.e., the marketer) think about them (based on observing their choices and other past behavior) when they receive a behaviorally targeted ad, a process distinct from making an identity salient (Reed 2004) because it involves an external indication that one has a trait or set of traits. Thus, in contrast to much of the identity literature, which suggests that consumers may respond best to identity appeals when they are embedded within the advertising context and serve as unconscious cues (Kirmani 2009; Oyserman 2009), we propose that a central aspect of behaviorally targeted advertising is consumers' conscious reflection about how and why the marketer is delivering an ad to them. Awareness of behavioral targeting prompts cognition about the basis of the advertisement and leads consumers to extrapolate from the marketplace norm of being shown ads for products that marketers think they will like to the implied social label ("The marketer thinks I have a particular identity") and an understanding that this characterization represents information about the self from an external source. Given that consumers have a

well-established desire to learn about themselves (Festinger 1954; Wu, Cutright, and Fitzsimons 2011), such cognitions are precipitated by individualized information. Thus a key distinction between our research and past work on identity in advertising (Bhattacharjee, Berger, and Menon 2014; Forehand et al. 2002; Oyserman 2009) is consumers' conscious recognition that the marketer has made an inference about them based on their individual-level behavior.

Such "marketplace metacognition," or thoughts about the marketplace and the actions of marketers (Wright 2002), has been demonstrated to shape consumer response to a wide variety of marketing variables including pricing strategies (Hamilton and Srivastava 2008), choice architecture (Brown and Krishna 2004), and persuasion (Bolton, Bloom, and Cohen 2011; Campbell and Kirmani 2000; Williams, Fitzsimons, and Block 2004). We propose that the effects of behaviorally targeted advertising on self-perceptions and behavior stem from the marketplace metacognition that the marketer has made an individual-level inference about the consumer and not simply from making an identity salient (an alternative account that we rule out empirically), and we directly measure the extent to which consumers believe the marketer has made an inference about them when receiving a behaviorally targeted ad. Thus, whereas prior work on identity has shown that making an identity salient can increase the likelihood that consumers engage in identity-consistent behavior (Forehand and Deshpandé 2001; Forehand et al. 2002; Reed 2004), we propose and demonstrate that the effects of behaviorally targeted ads on behavior occur through a different process, one that depends on the recognition that the marketer has made an individual-level inference about the consumer based on his or her past behavior and the adjustments in self-perception that result. Our primary hypotheses can therefore be stated as follows:

> **H1:** Behaviorally targeted advertisements can act as implied social labels, resulting in adjustments to self-perceptions and behavior consistent with the label.

> **H2:** Changes in consumer behavior in response to behaviorally targeted ads are mediated by the recognition that the ad implies information about the consumer based on his or her past behavior and the subsequent self-perception adjustments that result as a function of recognizing this implied label.

The Role of Accuracy in Determining the Effects of Behavioral Targeting

In order for consumers to adjust their self-perceptions and behaviors in response to the receipt of a behaviorally targeted ad, they must accept the social label implied by the ad. We propose that acceptance of the label will depend on the accuracy of the targeting—that is, the extent to which the label is plausibly connected to consumers' past

behavior. Prior research on social labeling suggests that two conditions must be met for social labels to affect behavior. First, people must engage in behavior that can be used as the basis for self-perception (Bem 1972). This could include filling out a survey about attitudes toward voting (Tybout and Yalch 1980), donating (or not) to a charitable organization (Kraut 1973) or, in the context of behaviorally targeted advertising, engaging in a variety of activities online, from shopping to search. Second, people must receive information from an external source that somehow characterizes this behavior. In the context of our research, this information is the receipt of a behaviorally targeted ad. We propose that the influence of this implied label on consumers' self-perceptions depends on the extent to which the consumer believes the label accurately reflects his or her past behavior. Specifically, if someone has never expressed any interest in outdoor activities like camping, being labeled as an outdoor enthusiast would be perceived as inconsistent with his or her past actions. In such a situation, consumers would not perceive the label to be generated as a result of their own behavior and, as a result, that label would not be accepted and would therefore not impact their self-perceptions and future actions (Bem 1972; Miller and Turnbull 1986). However, if there is a plausible connection between the label and past behavior, the label is accepted and consumers adjust self-perceptions and behavior in line with that label.

We therefore predict that when the label implied by a behaviorally targeted advertisement is plausibly connected to the consumer's prior behavior (i.e., the targeting is at least moderately accurate), consumers perceive that the marketer has labeled them correctly and respond accordingly, altering their self-perceptions and hence behavior to be consistent with the identity implied by the ad. In contrast, when the label is unconnected with their prior behavior (i.e., targeting is inaccurate), consumers will not accept the implied label and will not adjust their self-perceptions and behavior. Formally:

> **H3:** The effects proposed in hypotheses 1 and 2 only hold when the implied label is plausibly connected to consumers' prior behavior (i.e., when behavioral targeting is at least moderately accurate).

OVERVIEW OF STUDIES

We test our hypotheses across four studies. Study 1 compares the effects of a behaviorally targeted ad to an ad identified as having been targeted using more traditional demographic variables and to a nontargeted ad. The results show that behaviorally targeted ads result in increased purchase intentions for the advertised product, an effect mediated by consumers' recognition of the ad as an implied social label. Study 2 demonstrates that the effects of behavioral targeting on purchase intentions are mediated

by the recognition that the ad implies something about the consumer's identity and the subsequent adjustments in self-perceptions that result from recognizing this implied label. Study 2 also provides evidence that behaviorally targeted ads have unique effects relative to an identity salience prime and demonstrates that the effects of behaviorally targeted ads on purchase intentions persist over time. Study 3 shows that the serial mediation tested in study 2 holds not just for purchase intentions for the advertised product but also for other behaviors conceptually related to the label. Finally, study 4 shows that implied social labels only affect self-perceptions and behavior when there is a plausible connection between the label and past behavior (i.e., when targeting is at least moderately accurate).

STUDY 1

Study 1 was designed to test whether an ad that is purportedly behaviorally targeted acts as an implied social label and whether this implied label results in greater purchase likelihood for the advertised product compared to when the product appears either within an ad that is purportedly demographically targeted or nontargeted.

Participants and Procedure

A total of 188 undergraduate students (47% females; $M_{age} = 21.1$) participated in this study for course credit. At the start of the study session, all participants were asked to indicate their age and gender. They were then directed to the focal study that consisted of two parts. In part 1, everyone was asked to put together a plan for a visit to Atlanta, Georgia, as part of a study ostensibly about creation of travel itineraries. Participants browsed the Internet to find a flight, hotel, restaurant, and activities for the dates listed in the instructions. All participants were given 10 minutes to complete the task and were informed that they could browse the Internet if they finished early because the computer screen that would move them to the next task would not advance until the allotted 10 minutes had elapsed. The timing was set at 10 minutes to ensure that the majority of participants finished the task, and the lab manager and research assistants confirmed that participants used the extra time to browse the Internet. This procedure was designed to create a "browsing history" that could plausibly be used to generate a behaviorally targeted advertisement in the next part of the study.

Participants were then directed to part 2, described as an "advertisement evaluation" study. We manipulated the type of targeting purportedly being used to deliver the ad to participants using a 3 cell (Type of targeting: behavioral vs. demographic vs. control, nontargeted ad) between-subjects design. In the behaviorally targeted condition, the ad was described as "targeted specifically to you based on

your online activity in today's session, including the websites you looked at while planning your trip to Atlanta and other websites you may have visited." In the demographically targeted condition, participants were informed that the advertisement was "targeted specifically to you based on your demographic information, including the gender and age you indicated at the beginning of the survey." Participants in the control condition were not given any information indicating that the ad was targeted in any way and were simply shown the ad.

Next, all participants were presented with an advertisement for a fictitious restaurant called Eatery 21 (appendix A), which advertised "Refreshingly Sophisticated American Classics." This ad was not matched to the browsing behavior or demographic responses in either of the targeted conditions; this allowed us to test the effects of participants' perceptions of being targeted while holding the advertisement constant across conditions. After indicating how much they liked the advertisement (1 = Not at all, 7 = Very much; $M_{behavioral} = 3.29$ vs. $M_{demographic} = 3.39$ vs. $M_{nontargeted} = 3.31$; $F(2, 185) = .08$, $p = .93$), all participants were shown a fictitious Groupon for Eatery 21 (i.e., a deal that offers participants the chance to prepay for food at the restaurant for a discounted price) and asked how likely they would be to purchase it (1 = Very unlikely, 7 = Very likely) (appendix A). To assess the degree to which participants recognized an implied label, participants responded to the following statements (1 = Strongly disagree, 7 = Strongly agree): "The advertiser thinks I am the kind of person who would like Eatery 21," "This advertisement implies something about my tastes," and "The algorithm that presented me with an advertisement inferred that I have sophisticated food preferences." These items were collapsed into a single labeling index ($\alpha = .82$, $M = 4.26$, standard deviation [SD] = 1.33). Finally, as a manipulation check, participants rated their agreement (1 = Strongly disagree, 7 = Strongly agree) with this statement: "The ad was matched to information about me provided earlier in the session."

Results

Manipulation Check. An analysis of variance (ANOVA) on perceptions of whether the ad was matched to the participant's information revealed a significant effect of condition ($F(2, 185) = 5.87$, $p < .01$, $\eta^2 = .06$). Bonferroni-adjusted contrasts revealed that participants in the behaviorally targeted condition ($M = 4.35$) believed that the advertisement was matched to information collected about them during the study session more than participants in the nontargeted condition ($M = 3.50$; $F(1, 185) = 11.73$, $p < .001$, $\eta^2 = .06$) but not more than those in the demographic targeting condition ($M = 3.95$; $F(1, 185) = 2.57$, $p = .11$). Participants in the demographic targeting condition also believed the ad was matched to their

information to a marginally greater extent than those in the nontargeted condition ($F(1, 185) = 3.27, p = .07, \eta^2 = .02$), indicating that our manipulations were successful.

Implied Social Labels. An ANOVA on the labeling index revealed a significant difference between conditions ($F(2, 185) = 7.11, p < .01, \eta^2 = .07$). Bonferroni-adjusted contrasts revealed that participants in the behaviorally targeted condition ($M_{\text{behavioral}} = 4.80$) recognized an implied label to a greater extent than did participants in the demographically targeted ($M_{\text{demographic}} = 4.34; F(1, 185) = 4.02, p < .05, \eta^2 = .02$) and nontargeted conditions ($M_{\text{nontargeted}} = 3.95; F(1, 185) = 14.21, p < .001, \eta^2 = .07$). Participants in the demographically targeted condition recognized an implied label marginally more than those in the nontargeted condition ($F(1, 185) = 3.06, p = .08, \eta^2 = .02$). Thus, as expected, consumers in the behaviorally targeted ad condition recognized that the ad implied a social label to a greater extent than those in the other conditions.

Implied Social Labels Mediate Purchase Intentions. An ANOVA on purchase intentions for the restaurant Groupon revealed a significant difference between the conditions ($F(2, 185) = 3.81, p < .05, \eta^2 = .04$). Bonferroni-corrected contrasts revealed that participants in the behaviorally targeted ($M = 4.18$) condition were more likely to purchase the Groupon than participants in the demographically targeted ($M = 3.39; F(1, 185) = 6.90, p < .05, \eta^2 = .04$) and nontargeted conditions ($M = 3.56; F(1, 185) = 4.24, p < .05, \eta^2 = .02$). There was no difference in willingness to purchase the Groupon between participants in the demographically targeted and nontargeted conditions ($F(1, 185) = .35, p = .56$) (figure 1).

To test whether the effect of behavioral targeting on purchase intentions is driven by recognition of an implied social label, we conducted a mediation analysis using PROCESS Model 4 (Hayes 2013). The model estimated a significant indirect effect (b = .06, standard error [SE] = .04, 95% confidence interval [CI], .0046–.1719), indicating that behavioral targeting increases purchase intentions for the advertised product through the recognition of the implied social label.

Discussion

The results from study 1 provide support for the hypothesis that behaviorally targeted advertisements can act as implied social labels, resulting in adjustments to behavior consistent with the label. Consumers in the behaviorally targeted and the demographically targeted condition felt equally that the ad was matched to personal information from earlier in the experimental session (to a significantly greater extent than participants in the control, nontargeted condition). However, participants in the behaviorally targeted condition recognized a label from the marketer as a result of this individual-level information matching to a greater extent than participants in the demographic targeting

PURCHASE INTENTIONS BY ADVERTISEMENT CONDITION
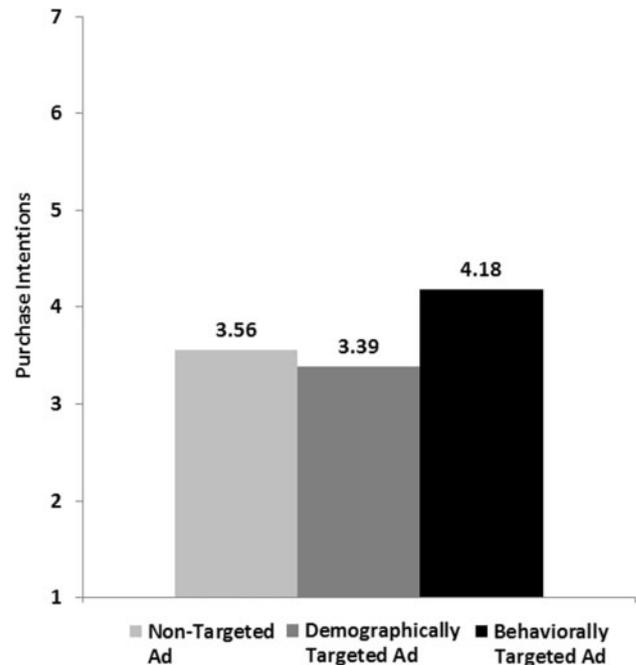
and nontargeting condition and demonstrated higher willingness to purchase the advertised product because of its consistency with this implied identity. These results suggest that mere awareness of being targeted does not drive the observed effects on purchase intentions because this feature was present in the demographically targeted condition; such awareness must be coupled with a behavior-based characterization in order for an ad to function as an implied social label. Demographic targeting, while based on the notion that others in one's broad demographic group share the same behaviors, does not imply a social label because it is not directly based on one's own individual-level behavior. The data also show that the effects of behavioral targeting are not due to differences in liking for the advertisement because consumers liked the ad equally in all conditions.

Unanswered questions about the nature of the label implied by a behaviorally targeted ad remain. Does the implied label simply indicate that the consumer is someone who would like the advertised offering, or does it speak to something deeper about the consumer's identity? Study 2 sheds light on this process by measuring consumers' self-perceptions.

STUDY 2

The purpose of study 2 was threefold. First, in order to test the full serial mediation proposed in hypothesis 2, we measure both the extent to which consumers recognize an

implied social label when receiving a behaviorally targeted ad (vs. a non-behaviorally targeted ad) and their subsequent self-perceptions. Second, we increase the external validity of our work by manipulating awareness of whether the ad is behaviorally targeted using the industry-standard AdChoices icon. Finally, given that activating an identity can lead to identity-consistent behavior, such as buying an identity-consistent product (Reed 2004), we also seek to provide evidence to distinguish empirically the effects of an implied social label stemming from receiving a behaviorally targeted ad from the effects of identity salience. We also collect two behavior measures: one collected at the time of the main study and one collected 7 to 14 days later. Simply making an identity salient during the initial study should not produce effects on behavior more than one week later because identity salience is a temporary state (Forehand et al. 2002; Reed 2004). In contrast, if consumers adjust self-perceptions in response to behaviorally targeted ads, then behavior consistent with these adjusted self-perceptions should persist after a time delay.

Participants and Procedure

A total of 197 undergraduate students (56% females; $M_{age} = 20.7$) participated in exchange for course credit. The study involved two phases: a behavioral lab session and a follow-up online survey made available to participants one week later that remained open for seven days. We separately detail the procedure for these phases.

Lab Session. The behavioral lab study included two parts. In part 1, all participants were instructed to create a WishList (i.e., a list of products they would like to own) composed of items from identity-relevant product categories that we provided (e.g., footwear, books, and clothes; Berger and Heath 2007). Participants browsed the Internet to find these items and pasted links to their chosen products into provided textboxes. In part 2 of the lab session, all participants were directed to an "advertisement evaluation" study. The procedure for this task was manipulated between subjects within a 3 cell design (Condition: behaviorally targeted ad vs. identity salience vs. control, nontargeted ad). Participants in all conditions read information about behaviorally targeted ads and how to identify when an ad has been behaviorally targeted using the AdChoices icon (appendix B) and then viewed an ad for Movado brand watches; the ad copy was designed to highlight the product's sophistication (appendix C). Sophistication was chosen as our focal trait after a pretest revealed that participants in this population valued it as a positive characteristic—59 participants were asked to respond to the following statement: "If someone were to describe you as sophisticated, would you consider that a negative or positive description of yourself? (1 = Very negative, 7 = Very positive)." As expected, participants

viewed sophistication as significantly more positive than the midpoint of the scale ($M = 5.83$, SD = 1.26; $t(58) = 11.15, p < .0001$). The ad in the behaviorally targeted condition included the AdChoices icon and was purportedly "based on the websites you visited during the WishList task." The ad in the other two conditions was presented without this information and did not include the AdChoices icon.

Before reading the information about behavioral targeting and seeing the ad, participants in the identity salience condition completed an additional step in the study procedure. They were first asked to write about what being sophisticated means to them and to write (for at least two minutes) about an event in which they felt sophisticated in order to activate this aspect of their identity (adapted from Reed 2004).

Recall that our theoretical model proposes that consumers' response to behaviorally targeted ads is a conscious process involving recognition that the ad being delivered to them is being shown because of a marketer's inference about their identity. This awareness of being characterized by an external agent is a key distinction between our proposed process and the process that occurs when an identity is made internally salient. Therefore, to ensure that participants correctly understood the nature of the advertisement shown to them, we excluded 50 participants who failed an instructional manipulation check (administered after exposure to the ad but before measuring the dependent variables) by incorrectly identifying the ad they received as behaviorally targeted or not, which depended on the experimental condition to which they were assigned ("Is this ad behaviorally targeted?" [yes/no]), resulting in a sample of 147 (59% females; $M_{age} = 20.6$) for all analyses.

After responding to the instructional manipulation check, all participants then reported their liking for the advertisement (1 = Not at all, 7 = Very much; $M_{behavioral} = 4.74$ vs. $M_{identity\ salience} = 4.44$ vs. $M_{nontargeted} = 4.15$; $F(2, 144) = 1.97, p = .14$) and indicated how likely they would be to purchase a Movado watch (1 = Not at all likely, 7 = Very likely). All participants then rated the extent to which they agreed with the following items as a measure of their self-perceptions of their own sophistication (1 = Strongly disagree, 7 = Strongly agree): "I am a sophisticated consumer," "I seek out sophisticated versions of most products because I enjoy being refined," "I would describe myself as a sophisticated consumer," and "When it comes to the products I buy and the situations in which I use them, I like to cultivate a sense of refinement." These items were collapsed into a sophistication index that served as our self-perception measure ($\alpha = .86$, M = 4.59, SD = 1.27). To assess the degree to which participants recognized an implied label, participants responded to the following statements (1 = Strongly disagree, 7 = Strongly agree): "The advertiser thinks I am the kind of person who likes sophisticated

products," "I received this ad because the marketer inferred that I have sophisticated taste in products," and "The advertisement I received was selected for me based on an inference about the type of person I am." These items were collapsed into a single labeling index ($\alpha = .88$, $M = 4.49$, $SD = 1.51$). Finally, participants completed the same manipulation check used in study 1 to assess perceptions that the ad was matched to their personal information.

Follow-up Survey. Everyone who completed the lab session was invited to participate in a follow-up online survey one week later. The cover story indicated that researchers were interested in participants' memory for the WishList items they selected during the lab session. Thus everyone was asked to recall as many WishList items as they could and to respond to several related filler questions. The real purpose was to assess participants' response to the question, "To what extent are you 'in the market' for (i.e., thinking about buying) a Movado watch?" ($1 = $ Not at all, $7 = $ Very much). Overall, 108 participants (61% females; $M_{age} = 20.7$) completed the follow-up survey; these response rates varied marginally by condition ($n_{behavioral} = 27$, $n_{nontargeted} = 45$, $n_{identity\ salience} = 36$; $\chi^2 (2,147) = 4.77$, $p = .09$).

Results

Manipulation Check. An ANOVA on the targeting manipulation check yielded a significant difference between conditions ($F(2, 147) = 15.47$, $p < .0001$, $\eta^2 = .18$). Bonferroni-corrected contrasts revealed that participants in the behaviorally targeted condition ($M_{behavioral} = 5.00$) believed that the ad was matched to their information to a greater extent than did participants in either the identity salience ($M_{identity\ salience} = 3.25$; $F(1, 147) = 22.18$, $p < .0001$, $\eta^2 = .13$) or control, nontargeted condition ($M_{nontargeted} = 3.07$; $F(1, 147) = 28.24$, $p < .0001$, $\eta^2 = .17$); these latter two conditions did not differ from one another ($F(1, 147) = .38$, $p = .81$).

Implied Social Labels. An ANOVA on the labeling index yielded a significant difference between conditions ($F(2, 144) = 8.19$, $p < .001$, $\eta^2 = .10$). Bonferroni-adjusted contrasts revealed that participants in the behaviorally targeted condition ($M_{behavioral} = 5.41$) recognized an implied label to a greater extent than did participants in the identity salience ($M_{identity\ salience} = 4.37$; $F(1, 144) = 10.28$, $p < .01$, $\eta^2 = .07$) and nontargeted conditions ($M_{nontargeted} = 4.15$; $F(1, 144) = 15.70$, $p < .001$, $\eta^2 = .10$); the latter conditions did not differ from one another ($F(1, 144) = .69$, $p = .41$). Thus participants recognized that receipt of the ad implied a social label to a greater extent in the behaviorally targeted condition.

Self-Perceptions. An ANOVA with participants' scores on the sophistication index as the dependent variable revealed a significant difference between conditions ($F(2,$

$144) = 4.18$, $p < .05$, $\eta^2 = .05$). Bonferroni-corrected contrasts revealed that participants in the behaviorally targeted condition ($M_{behavioral} = 5.15$) perceived themselves as consumers with more sophisticated preferences than did participants in the identity salience ($M_{identity\ salience} = 4.54$; $F(1, 144) = 4.70$, $p < .05$, $\eta^2 = .03$) and nontargeted conditions ($M_{nontargeted} = 4.36$; $F(1, 144) = 8.21$, $p < .01$, $\eta^2 = .05$), which did not differ from one another ($F(1, 144) = 0.61$, $p = .44$) (figure 2).

Implied Social Labels and Self-Perceptions Mediate Purchase Likelihood for Advertised Product. We conducted three mediation analyses to test separately the components of our conceptual model. First, using PROCESS Model 4, we assessed whether condition affected purchase intentions for the advertised product because participants recognized an implied label about their identity; as expected, condition affected purchase intentions for the advertised watch through the labeling index (b = .07, SE = .04, 95% CI, .0130–.1832). Next, using the same model, we examined whether condition affected purchase intentions by increasing self-perceptions of sophistication. As predicted, the model estimated a significant indirect effect of condition on purchase intentions through higher self-perceptions of sophistication (b = .04, SE = .03, 95% CI, .0006–.1295). Finally, we analyzed whether these effects occurred sequentially by

FIGURE 2

CONSUMER SELF-PERCEPTIONS OF SOPHISTICATION BY CONDITION
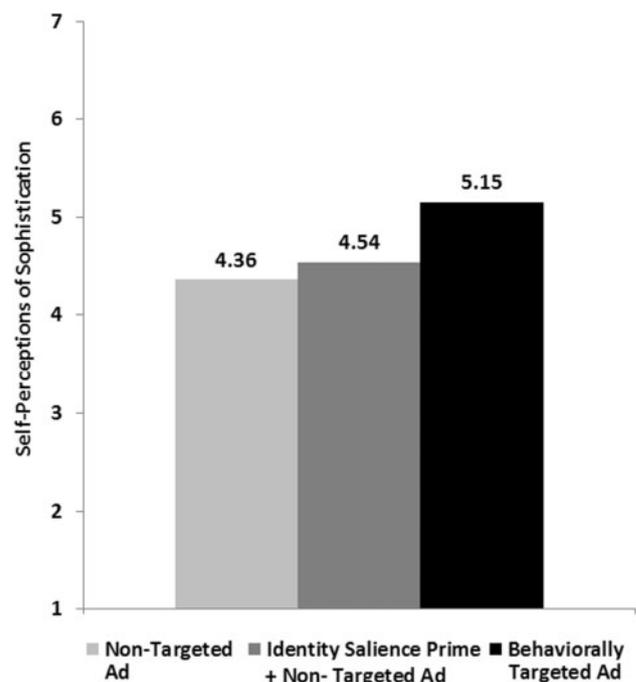
conducting a serial mediation analysis using PROCESS Model 6, with the labeling index entered as the primary mediator and self-perceptions of sophistication entered as the secondary mediator. In support of our hypothesized process, this serial mediation was significant (b = .01, SE = .01, 95% CI, .0003–.0560), whereas mediation was not present when the order of the mediators was reversed (b = .0123, SE = .0115, 95% CI, −.0001 to .0501).

Effects of Behaviorally Targeted Ads on Purchase Intentions After a Time Delay. An ANOVA on the extent to which participants reported being in the market for a Movado watch in the online survey conducted after the initial lab session revealed a significant difference between conditions ($F(2, 105) = 3.05$, $p = .05$). Bonferroni-corrected contrasts revealed that participants in the behaviorally targeted condition ($M_{\text{behavioral}} = 3.07$) were more likely to be "in the market" for buying a Movado watch than were participants in the identity salience ($M_{\text{identity salience}} = 2.28$; $F(1, 105) = 5.41$, $p < .05$, $\eta^2 = .05$) and nontargeted conditions ($M_{\text{nontargeted}} = 2.40$; $F(1, 105) = 4.24$, $p = .08$, $\eta^2 = .04$), which did not differ from one another ($F(1, 105) = .17$, $p = .69$). A serial mediation analysis with the labeling index entered as the primary mediator and self-perceptions of sophistication entered as the secondary mediator revealed significant mediation of these purchase intentions (b = .01, SE = .01, 95% CI, .0003–.0618).

Discussion

The results of study 2 show that consumers recognize an implied social label to a greater extent when receiving a behaviorally targeted ad versus a non-behaviorally targeted ad and demonstrate that this recognition prompts adjustments to self-perceptions that serially mediate behavioral intentions, as proposed in hypothesis 2. Importantly, given that activating an identity can lead to identity-consistent behavior like buying an identity-relevant product (Reed 2004), study 2 also provides empirical evidence that the effects of recognizing the implied label from receipt of a behaviorally targeted ad are distinct from the effects of making an identity salient. We observe the predicted changes in self-perceptions only in the behaviorally targeted ad condition and not in the condition in which the related identity was made salient using a traditional identity salience manipulation (Coleman and Williams 2013; Reed 2004).

We also note that the identity salience manipulation did not produce increased self-perceptions of sophistication relative to the control, nontargeted ad condition. We believe that this is because an identity salience prime serves as an internal reminder of one's level of sophistication but does not lead to a change in one's perceptions of one's sophistication. It is only when an implied social label

introduces information about how an external agent views one's level of sophistication that self-perceptions change (in this case, being adjusted upward as a result of a marketer's characterization that one is sophisticated). This explanation for our results is consistent with our finding that behaviorally targeted ads result in higher purchase intentions for the advertised product after a one- to two-week time delay, whereas making a relevant identity temporarily salient does not. However, given the lack of a significant effect in the identity prime condition (relative to the control), we conducted a posttest to ensure that the prime was successful.

A total of 147 English-speaking undergraduates from the same population as participants in the main study were asked to complete either the sophisticated identity prime described earlier or a control prime that directed them to write about the geography of their home state (adapted from Wheeler and Berger 2007). Immediately afterward, we asked all participants to indicate their interest (1 = Not at all interested, 7 = Very interested) in participating in potential future studies on eight topics, four of which were intended to be relatively more sophisticated (i.e., classical music, fine dining, international travel, and high fashion) and four of which were intended to be less sophisticated (i.e., popular music, fast food, local travel to destinations in state, and fast fashion). An ANOVA revealed that participants in the sophisticated (vs. control) prime condition were more interested in the studies on sophisticated topics ($M_{\text{sophisticated}} = 4.83$, $M_{\text{control}} = 4.41$, $F(1, 145) = 4.27$, $p < .05$, $\eta^2 = .03$) but were equally interested in the studies on less sophisticated topics ($M_{\text{sophisticated}} = 4.89$, $M_{\text{control}} = 4.87$, $F(1, 145) = .01$, $p = .91$). To ensure that the options varied in perceived sophistication as intended, participants were subsequently asked to rate how sophisticated each activity was on a 7 point scale (1 = Not at all sophisticated, 7 = Very sophisticated). Perceptions of sophistication were not differentially affected by priming condition for either the sophisticated options ($M_{\text{sophisticated}} = 5.71$, $M_{\text{control}} = 5.89$, $F(1, 145) = 1.31$, $p = .25$) or the unsophisticated options ($M_{\text{sophisticated}} = 2.93$, $M_{\text{control}} = 2.97$, $F(1, 145) = .09$, $p = .77$). As expected, the sophisticated options were rated, on average, as more sophisticated than the scale midpoint ($M = 5.80$, $t = 22.3$, $p < .0001$), whereas the unsophisticated options were rated as less sophisticated than the scale midpoint ($M = 2.95$, $t = −13.13$, $p < .0001$). These results therefore show that the identity prime used in the main study was successful in at least temporarily increasing interest in sophisticated activities, even though we did not observe an effect of the prime on purchase intentions in the main study.

The results of study 2 therefore support our proposition that the effect of receiving a behaviorally targeted ad is distinct from that of successful identity salience manipulations, but they do not necessarily imply that targeted ads are more impactful under all circumstances. We speculate

on the conditions that strengthen and weaken each of these processes in the general discussion section. We also note that the results of this study reflect only those participants who correctly identified whether the ad they were shown was behaviorally targeted. This may have inflated effect sizes relative to a real-world scenario in which not all participants correctly identify a behaviorally targeted ad as such. However, effect sizes are likely to have also been lowered relative to a completely naturalistic setting because we do not use actual targeting software and instead show all participants the same ad.

STUDY 3

In study 3 we examine whether receiving a behaviorally targeted ad for an environmentally friendly green product causes consumers to adjust their self-perceptions of their own environmental values, which may then affect their subsequent donation behavior for an environmental charity. We also include an additional control condition with an ad that has ostensibly been behaviorally targeted but that does not imply a label that is diagnostic of the self-perceptions and behavior we measure.

Participants and Procedure

Undergraduate students (n = 178, 48% females, M_{age} = 20.8) participated in the study for course credit and were randomly assigned across conditions in a 2 (Ad identified as behaviorally targeted: yes vs. no) × 2 (Product: environmentally friendly vs. control) between-subjects design. In part 1 of the study, participants completed a simulated shopping task in which they were asked to choose one product from a set of four options from eight different product categories (e.g., light bulbs, laundry detergent; appendix D). Five of these choice sets contained options that a pretest (n = 45 from same population as the main study) indicated were perceived as relatively environmentally friendly. Once participants completed the initial shopping task, they were directed to an "advertisement evaluation" study.

In this purportedly unrelated study, participants were shown an advertisement for a Houd brand wooden acoustic speaker that was manipulated to either highlight the speaker's environmentally friendly attributes or not (appendix E). In the environmentally friendly condition, the speaker was advertised as a "Green, energy-free speaker crafted from sustainably sourced Colombian wood," whereas in the control condition it was described as a "sleek, powerful speaker crafted from the hollow body of Colombian wood." We also manipulated whether the ad was identified as behaviorally targeted. In the behaviorally targeted condition, participants were informed that "Our software will customize an advertisement for you based on your responses from the shopping task you completed earlier,"

and they were then presented with an ad including the AdChoices icon. In the nontargeted condition, participants were directed to an ad that did not include the AdChoices icon and was not preceded by any information about software matching the ad to their choices. Participants then indicated their liking for the advertisement (1 = Not at all, 7 = A lot) and purchase likelihood for the speaker (1 = Very unlikely, 7 = Very likely).

After viewing the ad, all participants completed the six-item Green Consumption Values scale (Haws, Winterich, and Naylor 2014). This scale assesses consumers' tendency to express the value of environmental protection through purchases and consumption behaviors. The six scale items were averaged to form an overall Green Consumption Values score (α = .92, M = 4.37, SD = 1.15) that serves as our measure of self-perceptions. As a check of our manipulations, participants completed the same item assessing whether their information was used to deliver an ad to them as in prior studies and rated their agreement that Houd speakers are an eco-friendly product (1 = Strongly disagree, 7 = Strongly agree). As in previous studies, participants' liking for the ad did not differ across conditions because there was neither a main effect of targeting ($M_{behavioral}$ = 4.15, $M_{nontargeted}$ = 4.16; $F(1, 174)$ = .01, p = .94) nor product positioning ($M_{environmentally\ friendly}$ = 4.21, $M_{control}$ = 4.09; $F(1, 174)$ = .27, p = .60), and no interactive effect ($F(1, 174)$ = .36, p = .55) of these factors. Finally, everyone completed the following items assessing the extent to which they recognized an implied label of environmental friendliness (α = .91, M = 4.04, SD = 1.47): "The advertiser thinks I am the kind of person who likes environmentally friendly products," "The advertisement was selected for me based on an inference about the type of person I am," and "The algorithm that presented me with an advertisement inferred that I have environmentally friendly preferences."

All participants then proceeded to an ostensibly unrelated survey that informed them that the committee in charge of the behavioral lab "has decided to feature a different charity each month during lab studies" and that the current "Charity of the Month" was the Rainforest Alliance, an environmental charity focused on rainforest protection. Everyone was given information about the mission of the Rainforest Alliance and was then directed to a new screen that displayed the following:

> All participants in today's study will automatically be entered into a drawing to receive $10.00. Five winners will be randomly chosen from participants in this study. If you are selected as one of the winners, you may choose to donate some of the winnings to the Rainforest Alliance (http:// www.rainforest-alliance.org/). The rest will be given to you in cash. The researchers will match any donation that you make to the charity, so you could, for example, keep $5 of

your winnings and cause $10 in rainforest-protecting donations.

Participants then indicated what they would prefer to do if selected as a winner of the raffle ("have all of the winnings given to you in cash" or "make a donation to the Rainforest Alliance"), and if they selected "make a donation," they were asked to specify how much money they wished to donate on a sliding scale from $0 to $10. Participants who declined to donate were recorded as donating $0. Winners were randomly selected, and the prize money was distributed to participants and the charity.

Results

Manipulation Checks. A 2 (Ad identified as behaviorally targeted: yes vs. no) × 2 (Advertised product: environmentally friendly vs. control) ANOVA on the manipulation check for how "eco-friendly" the advertised speaker was revealed only a main effect of product positioning, such that participants viewed the speaker as more "eco-friendly" in the environmentally friendly positioning condition ($M_{\text{environmentally friendly}} = 4.97$, $M_{\text{control}} = 3.79$; $F(1, 174) = 24.68$, $p < .0001$, $\eta^2 = .12$), indicating that this manipulation was successful. The same ANOVA on the targeting manipulation check item revealed only a main effect of targeting ($M_{\text{behavioral}} = 4.37$, $M_{\text{nontargeted}} = 3.46$; $F(1, 174) = 14.37$, $p < .001$, $\eta^2 = .08$).

Implied Social Labels. An ANOVA on the labeling index revealed that participants recognized an implied green label to a greater extent in the behaviorally targeted condition ($M_{\text{behavioral}} = 4.35$, $M_{\text{nontargeted}} = 3.76$; $F(1, 174) = 7.98$, $p < .01$, $\eta^2 = .04$) and when the product was positioned as environmentally friendly ($M_{\text{environmentally friendly}} = 4.48$, $M_{\text{control}} = 3.64$; $F(1, 174) = 15.96$, $p < .0001$, $\eta^2 = .16$). There was no significant interactive effect of these factors ($F(1, 174) = .31$, $p = .58$).

Self-Perceptions. A two-way ANOVA on the Green Consumption Values Scale yielded neither a main effect of behavioral targeting ($M_{\text{behavioral}} = 4.47$, $M_{\text{nontargeted}} = 4.30$; $F(1, 174) = .90$, $p = .34$) nor a main effect of product positioning ($M_{\text{environmentally friendly}} = 4.44$, $M_{\text{control}} = 4.33$; $F(1, 174) = .38$, $p = .54$). However, as expected, a significant interaction qualified these results ($F(1, 174) = 4.89$, $p < .05$, $\eta^2 = .03$). Simple effects analyses revealed that, when the speaker was advertised as environmentally friendly, behavioral targeting had a significant positive effect on consumers' self-perceptions of greenness ($M_{\text{behavioral}} = 4.71$, $M_{\text{nontargeted}} = 4.17$; $F(1, 174) = 4.88$, $p < .05$, $\eta^2 = .06$) (figure 3). In contrast, when the speaker was not positioned as environmentally friendly, there was no difference in self-perceptions of greenness as a function of behavioral targeting ($M_{\text{behavioral}} = 4.22$, $M_{\text{nontargeted}} = 4.44$; $F(1, 174) = .82$, $p = .37$). Additionally, the effect of behavioral targeting on green consumption values was

FIGURE 3

GREEN CONSUMPTION VALUES BY ADVERTISEMENT CONDITION AND PRODUCT POSITIONING
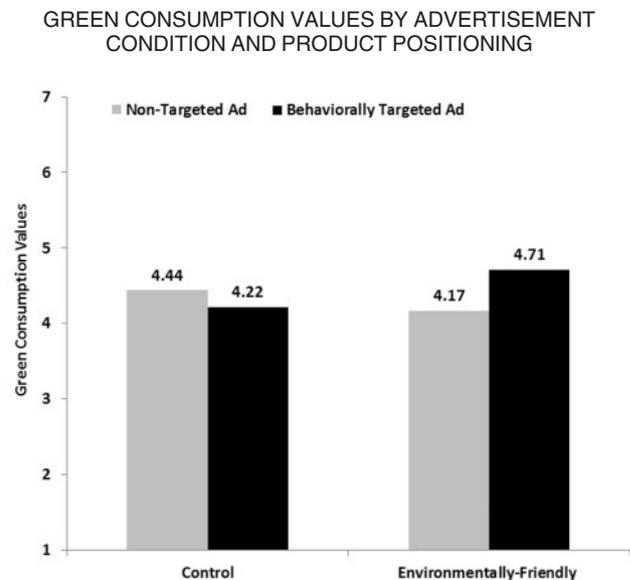
marginally higher in the environmentally friendly positioning condition (vs. the control positioning condition) ($F(1, 174) = 3.14$, $p = .08$, $\eta^2 = .02$).

Implied Social Labels and Self-Perceptions Mediate Purchase Intentions. To test the components of our conceptual model, we conducted several mediation analyses. First, we used PROCESS Model 7 to test whether targeting affected purchase intentions for the advertised speakers through the labeling index, but only when the speakers were positioned as environmentally friendly. As expected, the effect of targeting on willingness to purchase the speakers was mediated by the labeling index in the environmentally friendly condition (b = .09, SE = .05, 95% CI, .0179–.2027) but not in the control condition (b = .06, SE = .04, 95% CI, −.0034 to .1722). Next, we used the same model to test whether behavioral targeting affected purchase intentions by boosting participants' self-perceptions of greenness, but only in the environmentally friendly positioning condition. The analyses revealed that self-perceptions of greenness significantly mediated the effect of behavioral targeting on purchase intentions when the speaker was positioned as environmentally friendly (b = .14, SE = .06, 95% CI, .0396–.2932) but not in the control positioning condition (b = −.06, SE = .07, 95% CI, −.2011 to .0682).

Finally, we sought to identify whether the effect of behavioral targeting on purchase intentions was driven by serial mediation through the labeling index and self-perceptions, as in study 2. We conducted a serial mediation analysis using PROCESS Model 6 with the labeling index

as the primary mediator and self-perceptions as the secondary mediator. As expected, behavioral targeting affected purchase intentions through recognition of being labeled and the resultant self-perceptions of greenness (b = .06, SE = .04, 95% CI, .0106–.1966]). This effect was not present when the order of the mediators was reversed (b = .0046, SE = .02, 95% CI, −.0297 to .0607).

Implied Social Labels and Self-Perceptions Mediate Donation Behavior. To analyze the effects of behavioral targeting on donation behavior, we followed a similar procedure as with purchase intentions. First, using PROCESS Model 7, we tested whether behavioral targeting affected donation amounts to the Rainforest Alliance through the labeling index, but only when the advertised product was positioned as environmentally friendly. As expected, the effect of behavioral targeting on donation amount was mediated by the labeling index in the environmentally friendly condition (b = .17, SE = .12, 95% CI, .0079–.4907) but not in the control condition (b = .11, SE = .09, 95% CI, −.0142 to .3684). Next, we used the same model to test whether behavioral targeting affected donation amount by boosting participants' self-perceptions of greenness, but only in the environmentally friendly positioning condition. The analysis revealed that self-perceptions significantly mediated the effect of behavioral targeting on donation amount when the speaker was positioned as environmentally friendly (b = .25, SE = .12, 95% CI, .0685–.5482) but not in the control condition (b = −.10, SE = .13, 95% CI, −.4455 to .0980). Finally, we also sought to identify whether the effect of targeting on donation amount was driven by serial mediation through the labeling index and self-perceptions, just as it was for purchase intentions for the advertised speaker. Serial mediation analysis using PROCESS Model 6 with the labeling index as the primary mediator and self-perceptions as the secondary mediator revealed that, as was true with purchase intentions for the speaker, behavioral targeting affected donation amounts through recognition of being labeled and the resultant self-perceptions of greenness (b = .06, SE = .04, 95% CI, .0132–1966), and this effect was not present when the order of the mediators was reversed (b = .0046, SE = .02, 95% CI, −.0297 to .0607).

Discussion

The results of study 3 replicate previous results by showing that ads identified as behaviorally targeted can affect consumer self-perceptions and hence behavior. Specifically, consumers receiving a behaviorally targeted ad for an environmentally friendly "green" product viewed themselves as possessing stronger green consumption values. These increased self-perceptions of greenness mediated their willingness to purchase the advertised product and the amount they wished to donate to an environmental

charity. This effect did not occur within the control condition in which the ad had purportedly been behaviorally targeted but which featured a product positioning that did not imply a label diagnostic of green consumption values or pro-environmental behavior. Although we designed this study to demonstrate that not all behaviorally targeted ads result in adjustments to self-perceptions by including a condition in which a behaviorally targeted ad did not communicate a clear trait label, it is still possible that the ad in which the speaker was not positioned as environmentally friendly implied a different trait label to some participants, albeit not one captured by our measures of self-perceptions of greenness. We return to this issue in the general discussion section where we address the potential for behaviorally targeted ads to communicate different types of labels to different consumers.

The next study investigates whether acceptance of a social label implied by a behaviorally targeted ad (and subsequent adjustments to self-perceptions and behavior) depends on the accuracy of the targeting by including choices during the initial shopping task as an independent variable. Although the current study was not designed for this purpose, the same analysis could theoretically be conducted here. Unfortunately, participants did not perceive the items used in this initial shopping task as uniformly green or not. The variance for greenness ratings in the pretest was high, as the midpoint of the 7 point scale (1 = Not at all green, 7 = Very green) fell within 1 SD of the mean in 90% of the product options. As a result, these perceptual differences created a plausible manipulation of behavioral targeting based on prior choices but did not provide enough differentiation to test our hypothesis about the role of accuracy on the effects of behaviorally targeted ads. In study 4, we directly test hypothesis 3 by using choice sets with options that are clearly differentiable on the relevant trait.

STUDY 4

The primary purpose of study 4 is to test hypothesis 3 by exploring whether acceptance of an implied social label depends on the accuracy of the behavioral targeting—that is, the extent to which the label is plausibly connected to consumers' past behavior.

Participants and Procedure

A total of 269 adults (46% females, M_{age} = 34.9) were recruited on Mechanical Turk and were paid for their participation. In the first part of the study, participants were asked to engage in a shopping task. They were presented with 20 binary choice sets from a variety of product categories (e.g., boots, blankets; appendix F), 10 of which featured a choice between an item associated with outdoor activities like camping and hiking and an item not associated with the outdoors (e.g., hiking boots vs. fashion

boots). A pretest (n = 49 undergraduate students) confirmed that the items significantly differed in how outdoors-related they were perceived to be (appendix F provides details). This allowed us to create a scale from 0 to 10 for the number of outdoors-related products each participant selected ($M = 5.90$, $SD = 2.17$). The purpose of this task was not only to collect data to make the behavioral targeting manipulation plausible, as in prior studies, but also to measure participants' a priori interest in the outdoors.

All participants were then presented with an advertisement for hot chocolate. The hot chocolate ("A comforting, creamy cup of hot chocolate from a premier chocolatier") was manipulated to be positioned as appropriate for enjoying indoors ("Perfect for the great indoors") or outdoors ("Perfect for the great outdoors;" appendix G). As in prior studies, the ad was identified as behaviorally targeted or not. In the behaviorally targeted condition, participants read the following: "The advertisement you view will be behaviorally targeted. In this session, the advertisement you see will be based on the choices you made in the previous task." In the nontargeted condition, participants were immediately directed to the ad without reading any additional information. Thus we utilized a 2 (Ad identified as behaviorally targeted: yes vs. no) × 2 (Hot chocolate positioning: outdoors vs. indoors) between-subjects design. Since participants were randomly assigned to an ad, some participants with a very low a priori interest in the outdoors were shown an outdoors positioned ad and vice versa. We were therefore able to create conditions in which participants received either accurate or inaccurate behaviorally targeted ads. We elaborate on this element of the study design in the results section.

After viewing their assigned ad, all participants were then asked to rate how likely they would be to purchase the hot chocolate (1 = Very unlikely, 7 = Very likely). All participants then rated the extent to which they agreed with the following items as a measure of their self-perceptions of their own outdoorsiness (1 = Strongly disagree, 7 = Strongly agree): "Camping and hiking are my idea of a good time," "I like to explore nature whenever possible," "I am someone who chooses products that are suitable for an outdoorsy lifestyle," and "I am an outdoorsy person." These items were collapsed into an outdoorsiness index that served as our measure of self-perceptions ($\alpha = .90$, $M = 5.09$, $SD = 1.67$). Everyone then completed the labeling measures from study 1 (adapted for an outdoorsy product context; $\alpha = .81$, $M = 4.57$, $SD = 1.53$) and the same manipulation check used in prior studies to assess perceptions of whether the advertisement was believed to be matched to the information they had provided during the shopping task. Finally, at the end of the study, participants were shown a real Groupon for a portable solar charger designed for outdoor use and asked to indicate how likely they were to purchase it (1 = Not at all likely, 7 = Very likely). Thus

we assessed purchase likelihoods for two different products that vary in how associated they are with the focal self-perception of outdoorsiness: hot chocolate (which can be positioned as suitable for indoor or outdoor consumption) and the solar charger (intended for outdoor use).

Results

Manipulation Check. A 2 (Ad identified as behaviorally targeted: yes vs. no) × 2 (Advertised product positioning: indoors vs. outdoors) ANOVA on the targeting manipulation check revealed a main effect of targeting condition ($M_{behavioral} = 5.31$, $M_{nontargeted} = 4.24$, $F(1, 263) = 26.64$, $p < .0001$, $\eta^2 = .09$) and product positioning ($M_{outdoors} = 4.99$, $M_{indoors} = 4.57$, $F(1, 263) = 4.06$, $p < .05$, $\eta^2 = .02$), such that participants felt that the hot chocolate ad was targeted to them based on their choices to a greater extent in the behaviorally targeted condition and when they saw an ad featuring the outdoors positioning. These results were not qualified by a significant interaction ($F(1, 263) = .73$, $p = .39$).

Implied Social Labels. We regressed scores on the labeling index on targeting (ad identified as behaviorally targeted: yes vs. no), hot chocolate positioning (indoors vs. outdoors), a priori interest in outdoors-related products (i.e., number of outdoors-related choices in the binary shopping task, mean centered), and the interactions of these variables. This analysis revealed that participants recognized an implied outdoorsy label to a greater extent in the behaviorally targeted condition ($b = .27$, $t(259) = 3.39$, $p < .001$, $\eta^2 = .04$) and when the hot chocolate was positioned as appropriate for the outdoors ($b = .66$, $t(259) = 8.20$, $p < .0001$, $\eta^2 = .21$). Participants also recognized an implied outdoorsy label to a greater extent when they had higher a priori interest in outdoors-related products ($b = .13$, $t(259) = 3.35$, $p < .001$, $\eta^2 = .04$). A significant interaction between targeting and positioning qualified these results ($b = .25$, $t(259) = 3.15$, $p < .01$, $\eta^2 = .04$; all other interactions $p > .28$). When the hot chocolate was positioned as appropriate for the outdoors, participants recognized an implied outdoorsy label to a greater extent in the behaviorally targeted (vs. nontargeted) condition ($b = .52$, $t(262) = 4.64$, $p < .0001$, $\eta^2 = .07$); however, participants' recognition of an implied label that they were outdoorsy did not differ by targeting condition in the indoors ad condition ($b = .02$, $t(262) = .24$, $p = .81$), which is in accord with the fact that the labeling items assessed the extent to which participants felt labeled as outdoorsy (and not indoorsy).

Given that there was not a significant three-way interaction between the factors and that we wished to examine the role of accuracy on recognizing an implied label, we next examined the results separately in the indoors and outdoors positioning conditions. We note that a greater a

priori interest in outdoors-related products corresponded to increasingly accurate targeting when the hot chocolate was positioned as appropriate for the outdoors, whereas this pattern reversed when the hot chocolate was positioned as appropriate for the indoors.

In the outdoors positioning condition, regressing the labeling index on targeting, a priori interest in outdoors products, and their interaction revealed that participants recognized an outdoorsy label to a greater extent in the behaviorally targeted (vs. nontargeted) condition (b = .53, $t(131) = 5.14$, $p < .0001$, $\eta^2 = .17$) and as their a priori interest in outdoors products increased (b = .09, $t(131) = 2.03$, $p < .05$, $\eta^2 = .03$). An interaction did not qualify these results (b = −.05, $t(131) = −1.08$, $p = .28$). Floodlight analysis using the Johnson-Neyman technique (Spiller et al. 2013) revealed a significant positive effect of behavioral targeting on participants' self-perceptions of outdoorsiness among participants who made nine or fewer outdoors-related purchase choices ($B_{JN} = .36$, SE = .18, $p = .05$).

The same regression model within the indoors positioning condition revealed only a significant positive effect of a priori interest in outdoors products (b = .15, $t(132) = 2.69$, $p < .01$; all other $p > .60$). Floodlight analysis using the Johnson-Neyman technique revealed no significant effect of behavioral targeting on participants' self-perceptions of outdoorsiness among participants at any level of accuracy. Thus receiving an ad positioning hot chocolate as appropriate for the indoors did not cause participants to feel labeled as outdoorsy regardless of whether the ad was behaviorally targeted. We note that if the measure of feeling labeled had instead asked about feeling labeled as indoorsy, we would expect to see differences by targeting condition, such that those who received a behaviorally targeted indoors positioned ad would recognize being labeled as indoorsy to a greater extent.

Self-Perceptions. We regressed self-perceptions of outdoorsiness on targeting (Ad identified as behaviorally targeted: yes vs. no), hot chocolate positioning (indoors vs. outdoors), a priori interest in outdoors products (i.e., number of outdoors-related choices in the binary shopping task, mean centered), and their interactions. This analysis revealed that participants perceived themselves to be more outdoorsy in the outdoors positioning condition (b = .27, $t(261) = 3.11$, $p < .01$, $\eta^2 = .04$) and when they had greater a priori interest in outdoors products (b = .38, $t(261) = 9.47$, $p < .0001$, $\eta^2 = .26$). There were also significant interactions between targeting and product positioning (b = .30, $t(261) = 3.44$, $p < .001$, $\eta^2 = .04$) and between positioning condition and a priori interest in outdoors products (b = −.09, $t(261) = −2.32$, $p < .05$, $\eta^2 = .02$); all other main or interactive effects were nonsignificant (all $p > .29$).

To test hypothesis 3 and interpret these interactions, we examined the impact of targeting accuracy on self-perceptions by running separate regressions within the outdoors and indoors conditions. In the outdoors positioning condition, regressing the self-perception index on targeting condition, a priori interest in outdoors-related products, and their interaction revealed that participants felt more outdoorsy in the behaviorally targeted (vs. nontargeted) condition (b = .32, $t(131) = 2.76$, $p < .01$, $\eta^2 = .06$) and as their a priori interest in outdoors-related products increased (b = .29, $t(131) = 5.31$, $p < .0001$, $\eta^2 = .18$). An interaction did not qualify these results (b = .02, $t(131) = .43$, $p = .66$). Floodlight analysis using the Johnson-Neyman technique revealed a significant positive effect of behavioral targeting on participants' self-perceptions of outdoorsiness only among participants who made four through nine outdoors-related choices in the shopping task (i.e., at moderate and high levels of accuracy; $B_{JN} = .28$, SE = .14, $p = .05$). Simple effects analyses using three levels of a priori interest in outdoors-related products confirmed this pattern (figure 4). The lack of significance at the top of the scale (i.e., 10 of 10 choices) likely reflects either a ceiling effect (due to the fact that participants who made 10 outdoors-related choices already perceive themselves as so outdoorsy that there is no room for movement as a result of an implied social label) or a lack of power (as only seven people made 10 outdoors-related choices: $M_{behavioral} = 6.80$, $M_{nontargeted} = 7.00$; $F(1, 5) = .36$, $p = .58$). Thus changes in self-perception as a result of behavioral targeting only occur when targeting is at least moderately accurate.

The same regression model within the indoors positioning condition revealed that participants viewed themselves as less outdoorsy when the ad was identified as behaviorally targeted (b = −.27, $t(134) = −2.16$, $p < .05$, $\eta^2 = .01$) and when they had made fewer outdoors-related prior choices (b = .47, $t(134) = 8.03$, $p < .0001$, $\eta^2 = .33$). These results were not qualified by a significant interaction (b = .06, $t(134) = 1.03$, $p = .30$). A floodlight analysis revealed that there was a negative effect of behavioral targeting on self-perceptions of outdoorsiness among participants who selected one to six outdoors products in the shopping task (i.e., at moderate and high levels of accuracy; $B_{JN} = −.25$, SE = .13, $p = .05$). Follow-up simple effects analyses at each level of the trichotomous measure of a priori outdoor product choices confirmed this pattern (figure 5). These results indicate that receiving an ad accurately targeted for someone who does not like outdoor activities can lead the consumer to feel even less like they like outdoor activities. Thus implied social labels appear to be able to lower participants' self-perceptions on a trait as long as the behavioral targeting is at least moderately accurate.

SELF-PERCEPTIONS OF OUTDOORSINESS AFTER
RECEIVING OUTDOORS POSITIONED AD BY TARGETING
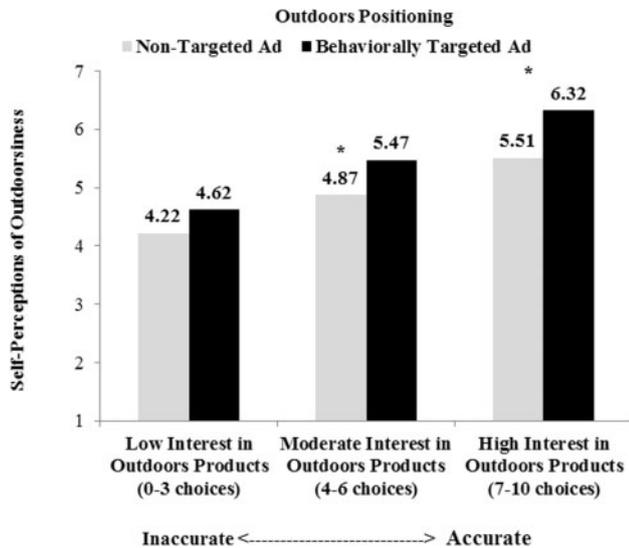CONDITION AND PRIOR OUTDOORS-RELATED SHOPPING
CHOICES

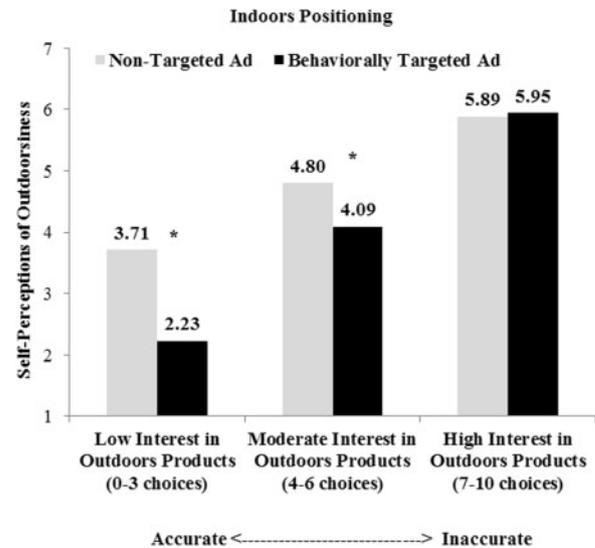*$p < .05$

SELF-PERCEPTIONS OF OUTDOORSINESS AFTER
RECEIVING INDOORS POSITIONED AD BY TARGETING
CONDITION AND PRIOR OUTDOORS-RELATED SHOPPING
CHOICES

*$p < .05$

Implied Social Labels and Self-Perceptions Mediate Purchase Likelihood. Next, we sought to test our prediction that recognizing an implied outdoorsy label would mediate the effect of targeting on purchase intentions for the portable solar charger, a product that is clearly associated with being outdoorsy, but not for the hot chocolate, a product that may be enjoyed by people across a wide variety of outdoorsiness (regardless of its positioning in a particular ad). We tested this by conducting two separate mediation analyses using PROCESS Model 4. In support of our expectation, the analyses revealed that the outdoorsy labeling index mediated the effect of targeting on purchase intentions for the solar charger (b = .04, SE = .02, 95% CI, .0064–.1146]) but not the hot chocolate (b = −.01, SE = .02, 95% CI, −.0578 to .0309).

Next, we tested whether acceptance of the implied social label (i.e., self-perception adjustments) mediated the effect of targeting on purchase intentions for both products. We first considered the results for hot chocolate separately by positioning. In the condition in which the hot chocolate was positioned as appropriate for the outdoors, we expected significant mediation only at moderate and high levels of a priori interest in outdoors products (i.e., when targeting was at least moderately accurate). In contrast, in the condition in which the hot chocolate was positioned as appropriate for the indoors, purchase intentions should be noncontingent on self-perceptions at any level of a priori

interest in outdoorsy products because perceiving oneself as more or less outdoorsy should not have much influence on interest in purchasing hot chocolate for indoor use—even outdoorsy people may drink hot chocolate indoors. We tested both of these predictions using PROCESS Model 7 and found that, within the outdoors condition, the effect of targeting on willingness to purchase the hot chocolate was mediated by increases in self-perceptions of outdoorsiness at moderate (b = .08, SE = .05, 95% CI, .0129−.2175) and high levels of accuracy (b = .11, SE = .07, 95% CI, .0189−.2784), but not when the ad was inaccurate (b = .05, SE = .08, 95% CI, −.0711 to .2711), as predicted. Further, in the indoors positioning, self-perceptions did not mediate willingness to purchase the hot chocolate at any level of accuracy (all CIs contained zero).

We then conducted the same analysis on purchase intentions for the portable solar charger, a product for which higher and lower self-perceptions of outdoorsiness have clearer implications for behavior. We expected that mediation of purchase intentions by self-perceptions would occur only at moderate and high levels of accuracy. We tested this using PROCESS Model 7 and found that, in the outdoors positioning condition, the effect of targeting on willingness to purchase the solar charger was mediated by increases in self-perceptions of outdoorsiness at moderate (b = .11, SE = .06, 95% CI, .0203–.2459) and high levels

of accuracy (b = .14, SE = .06, 95% CI, .0390–.2991), but not when the ad was inaccurately targeted (b = .08, SE = .11, 95% CI, −.1003 to .3221). In short, greater purchase intentions were mediated by higher self-perceptions of outdoorsiness. Within the indoors positioning condition, the effect of targeting on willingness to purchase the solar charger was mediated by decreases in self-perceptions of outdoorsiness at moderate (b = −.15, SE = .07, 95% CI, −.2933 to −.0356) and high levels of accuracy (b = −.31, SE = .13, 95% CI, −.5902 to −.0953), but not when the ad was inaccurate (b = .02, SE = .06, 95% CI, −.1106 to .1414). That is, lower purchase intentions were mediated by lower self-perceptions of outdoorsiness.

Finally, we also sought to identify whether the effect of targeting on purchase likelihoods was driven by serial mediation through the labeling index and self-perceptions as in prior studies. We conducted a serial mediation analysis on purchase intentions for the hot chocolate using PROCESS Model 6, with the labeling index and self-perceptions entered as primary and secondary mediators, respectively. In support of our hypothesized process, this serial mediation was significant in the outdoors positioning condition (b = .07, SE = .03, 95% CI, .0256–.1498), in which there were differences in perceptions of labeling by targeting, but not the indoors positioning condition (b = −.0047, SE = .01, 95% CI, −.0476 to −.0095), in which there were no differences in perceptions of being labeled as outdoorsy, as expected. Further, the significant mediating effect in the outdoors condition was not present when reversing the order of the mediators (b = −0082, SE = .01, 95% CI, −.0484 to .0088). For purchase intentions for the portable solar charger, the serial mediation path was significant in the outdoors condition (b = .08, SE = .03, 95% CI, .0373–.1769) but not in the indoors condition (b = .01, SE = .02, 95% CI, −.0318 to .0610), and the significant mediating effect in the outdoors condition was not present when the order of the mediators was reversed (b = −.0083, SE = .01, 95% CI, −.0433 to .0029).

Discussion

The results of study 4 demonstrate that the accuracy of a behaviorally targeted ad moderates the direct effect on self-perceptions and the mediated effect on behavior through self-perceptions. Specifically, we found that labels that are unconnected to prior behavior (i.e., inconsistent with consumers' a priori interest in trait-related products) do not prompt adjustments to self-perceptions and affect behavior; low levels of accuracy yield no effect, whereas moderate to high levels of accuracy produce social labeling effects. The results further indicate that while consumers recognize even inaccurate behaviorally targeted ads as implied social labels, it is accuracy (i.e., the match between this prior behavior and the implied label) that determines whether this label is perceived to be relevant to the self,

leading to adjustments in self-perceptions that play a mediating role in subsequent trait-related behavior.

GENERAL DISCUSSION

Evidence from the field suggests that behavioral targeting enhances advertising response rates, with click-through rates increased by as much as 670% relative to online ads that are not behaviorally targeted (Beales 2010; Yan et al. 2009). Given its effectiveness and the growing frequency with which it is used, it is important to understand how consumers' psychological responses to behaviorally targeted ads may differ from responses to non-behaviorally targeted ads and to ads that use more traditional forms of targeting (e.g., demographics) and whether measures like click-through rates adequately capture the consequences of this growing form of advertising.

Across four studies, we demonstrate that behaviorally targeted ads can act as implied social labels, leading consumers to adjust their self-perceptions and draw on these adjusted self-perceptions to determine not only purchase intentions for the advertised product, but also their willingness to engage in other label-consistent behavior, as we show in studies 3 and 4. Importantly, however, we find that adjustments in consumer self-perceptions in response to behaviorally targeted advertisements depend on the plausibility of the connection between the label and past behavior. When their past behavior is not at all indicative of the label (i.e., the behavioral targeting is inaccurate), consumers do not treat the implied label as a valid source of self-information and do not alter their self-perceptions to be consistent with the label.

Theoretical and Managerial Implications

Our findings offer several important theoretical contributions. First, we provide an early inquiry into the effects of behaviorally targeted ads. We identify how behavioral targeting is distinct from traditional forms of targeting and empirically demonstrate the conditions under which these characteristics prompt unique psychological consequences for consumers. Whereas prior work has examined the inferences consumers make about firms (e.g., Aaker, Vohs, and Mogilner 2010; Morales 2005), we investigate the effects of consumer awareness of the inferences firms make about consumers. Specifically, by showing that consumers viewing a behaviorally targeted ad recognize an implied label from a marketer, we integrate the literatures on marketplace metacognition (Brown and Krishna 2004; Hamilton and Srivastava 2008; Williams et al. 2004; Wright 2002) and consumer response to firms' digital marketing efforts (e.g., Hoffman and Novak 2011; Lambrecht and Tucker 2013; Naylor, Lamberton, and West 2012; Schumann, von Wangenheim, and Groene 2014; Stephen and Galak 2012; Tucker 2014; Yadav and Pavlou 2014). We also add to the

growing body of literature exploring how consumers' on-line behavior can affect their self-concept (Belk 2013; Wilcox and Stephen 2013).

In addition, our work contributes to the literature on social labeling (Allen 1982; Kraut 1973; Miller et al. 1975; Tybout and Yalch 1980) by introducing a new type of implied social label. Specifically, we show that mere receipt of a behaviorally targeted ad can cause consumers to recognize that the marketer has labeled them as a particular type of consumer, even when the ad itself contains no descriptive information about the individual consumer. In doing so, we contribute to the literature by demonstrating that labels do not have to reference the consumer to have an effect (as has been shown in past research), but that consumers can be affected by implied labels supplied by external sources. We also contribute to the broader literature on self-learning (Baumeister 1998; Wu et al. 2011) by demonstrating that implied social labels such as those from behaviorally targeted ads can be a source of self-learning and that such learning is contingent on the connection between this implied information and a person's prior behavior.

This research also adds to the literature on identity marketing. Specifically, we complement past work on identity, which has explicitly defined identities as social category labels (Oyserman 2009; Reed et al. 2012), by empirically demonstrating that behaviorally targeted ads provide consumers with information about themselves from an external source, which is different than reminding consumers about possessing a given trait through other forms of identity marketing. Further, while much research within the identity literature has investigated the effects of identity appeals that are embedded within the advertising context and are unconsciously processed (Kirmani 2009; Oyserman 2009), the results of our studies show that a key driver of the effects of behaviorally targeted advertising is consumers' conscious reflection about the marketers' tactics in delivering the ad to them. Behavioral targeting may, therefore, be a way for marketers to circumvent consumers' feelings of reactance to explicit identity referencing (Bhattacharjee et al. 2014; Wu et al. 2011) in advertising because such labels are merely implied versus explicit.

Our findings also have implications for managers because we find that consumer responses to behaviorally targeted ads are sensitive to several variables under managerial control. First, although there is increasing pressure from consumer privacy advocates to disclose when an ad is behaviorally targeted, disclosure is not currently mandated by law (Dave 2013). The results of our studies suggest that online advertisers should adopt the AdChoices icon to disclose when an ad has been behaviorally targeted and continue to educate consumers on its meaning. Given that behaviorally targeted ads act as implied labels only when consumers know that the ad was behaviorally targeted, the icon can prompt positive effects among consumers whose past behavior is plausibly connected to an implied label.

Second, our results also suggest that when an ad has been identified as being behaviorally targeted through the use of the AdChoices icon, it is critical that the targeting be at least moderately accurate in order for the behaviorally targeted ad to be effective at changing self-perceptions. The results of study 4 suggest that investing in technology that ensures that ads are accurately targeted is a worthwhile managerial expenditure. One of the challenges in delivering accurately targeted ads is that many household computers are shared by multiple users. Managers may be able to deal with this challenge by (1) tailoring ads based only on browsing history from a single browsing session, (2) allowing for multiple user profiles on a single computer, or (3) utilizing behavioral targeting to a greater extent on smart phones, which are less likely to have multiple users. It seems likely that perceived accuracy plays an even bigger role than objective accuracy in determining consumer's acceptance of behaviorally targeted ads as a valid social label, so marketers could also benefit from informing consumers about the basis of individual behaviorally targeted ads or about the accuracy of behaviorally targeted ads in general.

Third, our research suggests that behaviorally targeted ads are likely to be more lucrative for companies with a large share of a category associated with a personality attribute, such as Whole Foods (being "healthy") or NorthFace (being "rugged" or "outdoorsy"). This is likely easier to accomplish for lifestyle brands (Chernev, Hamilton, and Gal 2011) and brands with strong personalities (Aaker 1997).

Finally, we suggest that the adjustments to self-perceptions produced by behaviorally targeted ads may not only improve sales of the featured product at the time of ad exposure, but also future sales of the product and, potentially, of the entire category. Specifically, when consumers accept the label they infer from a behaviorally targeted ad, the extent to which they use these self-perceptions as a basis for making a purchase decision increases. This suggests that sales of other related products and services may be expected to increase to the extent that they are consistent with the same label. Thus behaviorally targeted ads may be more beneficial for a company's profits than previously believed, especially for category leaders, and analyzing click-through rates for behaviorally targeted ads (e.g., Yan et al. 2009) may provide a limited measure of their effectiveness.

Avenues for Future Research

The results of our studies suggest several interesting avenues for future research. To people who look for them, the world is full of clues into others' perceptions of them, and each of these implied social labels can affect self-perceptions and behavior. However, little is known about the many potential sources of these implied social labels or the personal or contextual factors that determine sensitivity to them. Future research could explore other sources for implied social labels in addition to behaviorally targeted

ads. For example, word-of-mouth recommendations from friends and compliments from salespeople can both likely act as implied social labels (e.g., "You can really tell a quality product when you see one" could be interpreted as an implied label that one is particularly discerning). However, the compliment would have to clearly imply a trait label of some type in order to have similar effects to those observed in our studies; simple gratitude for the compliment or liking for the salesperson who issued it are unlikely to produce changes in self-perceptions.

Future research is also required to illuminate the intersection between marketplace metacognition, persuasion knowledge, and behaviorally targeted ads. As discussed, some level of marketplace metacognition is required for a behaviorally targeted ad to serve as a social label. However, if a consumer concludes that marketers are purposefully using behaviorally targeted ads as implied social labels to change their self-perceptions, the consumer could react against the attempt, minimizing its effectiveness (Campbell and Kirmani 2000; Friestad and Wright 1994; Wei, Fischer, and Main 2008; Wu et al. 2011). Exploring whether implied social labels from marketers induce the same level of persuasion knowledge as explicit social labels from marketers (Cornelissen et al. 2007) could be worthwhile.

Exploring differences in the labels consumers believe the same behaviorally targeted ad implies would also be an interesting avenue for future research. Consumers could draw different implications about the self from an identical behaviorally targeted ad. For example, a behaviorally targeted advertisement for a Wendy's salad may make some people believe themselves unhealthy (because they have received an ad for a fast-food restaurant) while making others believe they are healthy (because they have received an ad for a salad; Irmak, Vallen, and Robinson 2011). We expect that the consumer will only accept, and subsequently exhibit behavior consistent with, the label that he or she perceives to be most connected to past behavior. We do note, however, that motivated reasoning (Kunda 1990) may also play a role in determining what label consumers believe the ad implies because consumers may be motivated to accept a more socially desirable or positive label.

Additionally, it would be useful to investigate the role of the importance (to the self) of the trait implied from the label (Reed 2004). On one hand, consumers are more interested in information about where they stand on traits and identities that are important to them, which may make the effects of behaviorally targeted ads stronger for important traits (Markus 1977). On the other hand, consumers' self-perceptions on traits that are very important to them are arguably less malleable (Aquino and Reed 2002; Sirgy 1982), which may mute these effects.

Future research is also required to explore the commonalities and distinctions between identity salience and changes in self-perceptions due to social labeling. Given that advertisements can precipitate both processes, it is worthwhile to consider when each process would have more impact on purchase behavior. If the consumer has neither engaged in any trait consistent behavior nor has incorporated the category label as part of her identity, then neither social labeling nor identity priming would likely have an influence. Social labeling only (and not identity salience) should have an effect when the consumer has engaged in trait-relevant and observable past behavior but has not yet incorporated the label as part of their identity (in this case the social label may instigate the identity process), and identity priming likely uniquely has an influence under the opposite circumstances. Research is required to determine which process has more impact when consumers have both engaged in trait-relevant past behavior and have incorporated the label as part of their identity. Our theoretical model suggests that social labels may be more impactful here because they carry additional, externally provided information. The valence of the trait or identity may play a moderating role, with previous research showing that negative social labels have minimal impact (Allen 1982; Kraut 1973) while negative identities can actually be reinforced (Swann 2012). Other potential moderators may also differentially impact the effects of implied social labels and identity salience. For example, source credibility should only moderate the effect of social labels.

Another potential boundary condition that could be fruitfully explored is the degree to which consumers exhibit impression management in their online actions. If consumers know in advance that their browsing or shopping choices are being monitored specifically for the delivery of an ad, they might strategically change their behaviors to receive different ads or might be unwilling to accept a label that has been generated from such inauthentic, impression-managed behaviors. A related possibility is that consumers may engage in behavior designed to be consistent with how others perceive them including changing their behavior to be consistent with targeted ads. This desire for consistency may have contributed to our results.

Finally, future research could explore whether an advertisement has to designate explicitly that it has been behaviorally targeted through words or icons (as we have done in our studies) or if there are more subtle cues that lead consumers to believe that an ad has been behaviorally targeted. Many behaviorally targeted advertisements today are labeled with the AdChoices icon, and this labeling may soon be mandatory (Federal Trade Commission 2010). In the absence of this explicit labeling (or the understanding of it), there could be psychologically interesting predictors of believing a given ad has been behaviorally targeted, including whether the implied label is positive (vs. negative) or relevant to a central identity for that consumer. It is also possible that as consumers become more familiar with behavioral targeting, over time they may come to assume most or all digital ads are behaviorally targeted. Future research could address whether the effects we observe are as

strong when a consumer infers that an ad has been targeted compared to when the marketer discloses targeting. Similarly, future research could also address whether inferring behavioral targeting (vs. seeing that the marketer is disclosing that an ad has been behaviorally targeted) is more likely to raise concerns about privacy and hence potentially to create negative attitudes toward behavioral targeting. The push among industry groups to disclose the use of behavioral targeting using the AdChoices icon suggests that this may well be the case.

DATA COLLECTION INFORMATION

All studies were designed, conducted, and analyzed by the first author under the guidance of the other authors. Studies 1 (October 2014), 2 (September 2015), and 3 (February 2015) were conducted in the Fisher Behavioral Lab at The Ohio State University. Study 4 (January 2015) was conducted with paid participants from Amazon's Mechanical Turk.

APPENDIX A

STUDY 1: ADVERTISEMENT AND GROUPON DEPENDENT VARIABLE FOR EATERY 21
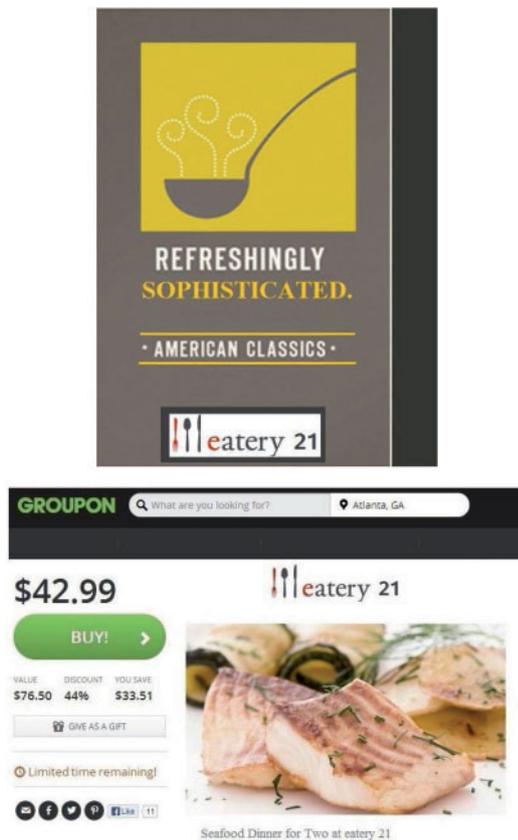
APPENDIX B

STUDY 2: INFORMATION ABOUT BEHAVIORAL TARGETING GIVEN TO PARTICIPANTS IN ALL CONDITIONS

APPENDIX C

STUDY 2: BEHAVIORALLY TARGETED ADVERTISEMENT FOR MOVADO WATCHES

NOTE.—Nontargeted ads did not include the AdChoices icon.

APPENDIX D

STUDY 3: SHOPPING TASK PRODUCT CATEGORIES FOR GREEN AND NON-GREEN PRODUCTS

Category	Brands	Mean "green" rating in pretest (1 = Not at all, 7 = Very)	Standard deviation in pretest
Light bulbs	GE Tiffany Stained Glass	2.74	1.42
	GE Reveal Halogen	3.47	1.35
	GE Energy Smart	5.28	1.41
	GE Energy Smart-Soft White	5.55	1.19
Laundry detergent	Seventh Generation Natural	5.36	1.17
	Tide Total Care	3.48	1.31
	Arm & Hammer Sensitive Skin	3.26	1.12
	Mrs. Meyer's Clean Lavender	3.04	1.84
Digital camera	Nikon COOLPIX S3500	2.74	1.48
	Polaroid 300 Instant	2.48	1.22
	Canon PowerShot Sx-500	2.85	1.62
	PENTAX Optio WG-10	3.00	1.74
Mouthwash	Act Fluoride Rinse	3.28	1.46
	Colgate Phos-Flur Ortho Protect Rinse	2.89	1.35
	Listerine Total Care	3.33	1.38
	Tom's of Maine	3.98	1.78
Notebook	Moleskin Hard Cover	2.78	1.60
	Lang Deluxe Journal	2.85	1.71
	Greenroom Recycled Spiral	5.07	1.69
	Blank Journal Markings	2.98	1.73
Air purifier	Holmes Eco-Friendly	4.39	1.71
	CleanAirBall	4.48	1.41
	Honeywell True HEPA	4.13	1.47
	Vornado AC300 Whole Room	3.96	1.58
Dish scrubber	Scotch-Brite Natural Fiber	5.07	1.39
	O-Cel-O No Scratch	3.07	1.44
	KitchenAid Soap Dispensing Palm Brush	3.48	1.41
	WayClean Mesh	3.39	1.37
Water bottle	Rive Saboy	4.04	1.93
	Ello Pure Fizz	4.17	1.77
	Contigo Double Wall	4.07	1.82
	Aladdin Recycle Travel	5.39	1.76

APPENDIX E

STUDY 3: ADVERTISEMENTS FOR HOUD SPEAKERS ENVIRONMENTALLY FRIENDLY, NONTARGETED CONDITION


CONTROL, BEHAVIORALLY-TARGETED CONDITION

APPENDIX F

STUDY 4: CHOICE BETWEEN OUTDOORS-RELATED PRODUCT AND NON–OUTDOORS-RELATED PRODUCT

Category	Brands	Outdoor product choice	Mean "outdoorsy" rating in pretest (1 = Not at all, 7 = Very)	Standard deviation in pretest	Paired t test results in pretest
Boots	Merrell Mountain Trekker	Yes	6.67	.66	$t(47) = 23.01, p < .0001$
	Louboutin Timeless Urban	No	1.44	1.15	
Blanket	Pier 1 Faux Fur Blanket	No	2.53	1.58	$t(48) = -9.20, p < .0001$
	L.L. Bean Outdoor Blanket	Yes	6.02	1.42	
Hand wipes	Wet Ones Antibacterial Wipes	No	4.14	1.81	$t(48) = -7.48, p < .0001$
	Grime Boss Adventure Wipes	Yes	6.37	1.20	
Folding chair	L.L. Bean Adirondack Camp Chair	Yes	6.45	.94	$t(48) = 7.45, p < .0001$
	Odyssey Folding Chair	No	4.08	1.97	
Portable cooler	KULLAR Cooler Bag	No	4.16	1.72	$t(48) = -9.47, p < .0001$
	Coleman All-Terrain Cooler	Yes	6.55	.82	
Book	*The Writer's Guide to Good Style*	No	1.65	1.02	$t(47) = -19.91, p < .0001$
	How to Survive Outdoors	Yes	6.61	.95	
Flashlight	Coleman Nature Torch Flashlight	Yes	6.65	.59	$t(48) = 9.40, p < .0001$
	Trendsetter Aluminum Light	No	4.27	1.77	
Candle	Yankee Candle: Vanilla Cake Scent	No	2.21	1.56	$t(47) = -11.85, p < .0001$
	Off! Mosquito Repellant Candle	Yes	6.33	1.23	
Electronics charger	Coleman All-weather Charger	Yes	6.45	.82	$t(48) = 12.07, p < .0001$
	Samsung Wireless Charging Station	No	2.88	1.79	
Cookbook	*The Camping Cookbook*	Yes	6.37	1.15	$t(48) = 17.29, p < .0001$
	Everyday Gourmet	No	1.78	1.09	

NOTE.—Participants also made choices in 10 additional nonfocal categories (e.g., between two brands of chocolate, between two board games, etc.) where neither choice was related to the outdoors. Order of presentation of choices was randomized.

APPENDIX G

STUDY 4: BEHAVIORALLY TARGETED ADVERTISEMENTS FOR HOT CHOCOLATE IN INDOORS AND OUTDOORS PRODUCT POSITIONING CONDITIONS
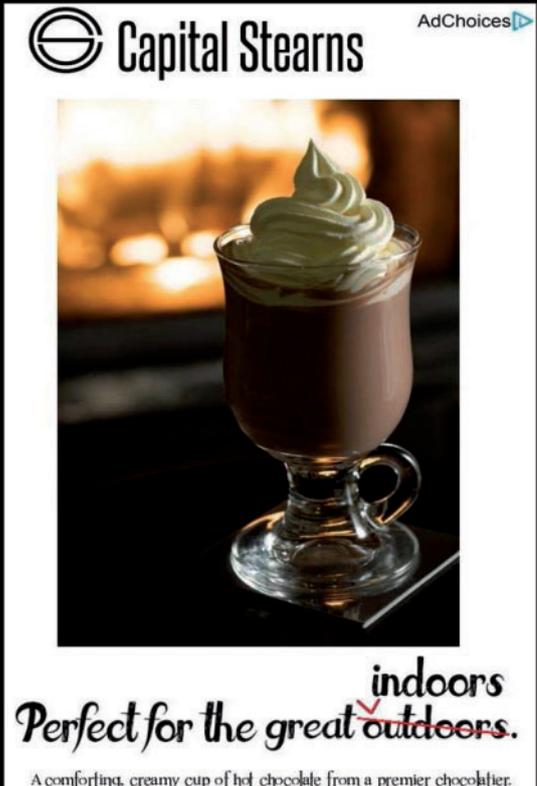
NOTE.—Nontargeted ads did not include the AdChoices icon.

REFERENCES

Aaker, Jennifer (1997), "Dimensions of Brand Personality," *Journal of Marketing Research*, 34 (August), 347–57.

Aaker, Jennifer L., Anne M. Brumbaugh, and Sonya A. Grier (2000), "Nontarget Markets and Viewer Distinctiveness: The Impact of Target Marketing on Advertising Attitudes," *Journal of Consumer Psychology*, 9 (July), 127–40.

Aaker, Jennifer L., Kathleen D. Vohs, and Cassie Mogilner (2010), "Nonprofits Are Seen as Warm and For-Profits as Competent: Firm Stereotypes Matter," *Journal of Consumer Research*, 37 (August), 224–37.

Allen, Chris T. (1982), "Self-Perception Based Strategies for Stimulating Energy Conservation," *Journal of Consumer Research*, 8 (December), 381–90.

Aquino, Karl and Americus Reed (2002), "The Self-Importance of Moral Identity," *Journal of Personality and Social Psychology*, 83 (December), 1423–40.

Baumeister, Roy F. (1998), "The Self," in *Handbook of Social Psychology*, ed. Daniel .T. Gilbert, Susan T. Fiske, and Gardner Lindzey , New York: McGraw-Hill, 680–740.

Beales, Howard (2010), "The Value of Behavioral Targeting," http://www.networkadvertising.org/pdfs/Beales_NAI_Study.pdf.

Belk, Russell W. (2013), "Extended Self in a Digital World," *Journal of Consumer Research*, 40 (October), 477–500.

Bem, Daryl J. (1972), "Self-Perception: An Alternative Interpretation of Cognitive Dissonance Phenomena," *Psychological Review*, 74 (May), 183–200.

Berger, Jonah and Chip Heath (2007), "Where Consumers Diverge from Others: Identity Signaling and Product Domains," *Journal of Consumer Research*, 34 (August), 121–34.

Bettman, James R., Mary Frances Luce, and John W. Payne (1998), "Constructive Consumer Choice Processes," *Journal of Consumer Research*, 25 (December), 187–217.

Bhattacharjee, Amit, Jonah Berger, and Geeta Menon (2014), "When Identity Marketing Backfires: Consumer Autonomy in Identity Expression," *Journal of Consumer Research*, 41 (August), 294–309.

Blattberg, Robert C., Thomas Buesing, and Subrata K. Sen (1980), "Segmentation Strategies for New National Brands," *Journal of Marketing*, 44 (July), 59–67.

Bolton, Lisa E., Paul N. Bloom, and Joel B. Cohen (2011), "Using Loan Plus Lender Literacy Information to Combat One-Sided Marketing of Debt Consolidation Loans," *Journal of Marketing Research*, 48 (November), 51–59.

Brown, Christina L. and Aradhna Krishna (2004), "The Skeptical Shopper: A Metacognitive Account for the Effects of Default Options on Choice," *Journal of Consumer Research*, 3 (December), 529–39.

Campbell, Margaret C. and Amna Kirmani (2000), "Consumers' Use of Persuasion Knowledge: The Effects of Accessibility and Cognitive Capacity on Perceptions of an Influence Agent," *Journal of Consumer Research*, 27 (June), 69–83.

Carson, Richard, Nicholas Flores, Kerry M. Martin, and Jennifer L. Wright (1996), "Contingent Valuation and Revealed Preference Methodologies: Comparing the Estimates for Quasi-Public Goods," *Land Economics*, 72 (February), 80–99.

Chernev, Alexander, Ryan Hamilton, and David Gal (2011), "Competing for Consumer Identity: Limits to Self-Expression and the Perils of Lifestyle Branding," *Journal of Marketing, 77* (May), 66–82.

Coleman, Nicole Verrochi and Patti Williams (2013), "Feeling Like My Self: Emotion Profiles and Social Identity," *Journal of Consumer Research*, 40 (August), 203–22.

Cornelissen, Gert, Siegfried Dewitte, Luk Warlop, and Vincent Yzerbyt (2007), "Whatever People Say I Am, That's What I Am: Social Labeling as a Social Marketing Tool," *International Journal of Research in Marketing*, 24 (December), 278–88.

Dave, Rohit (2013), "BBB Warns Advertisers and Web Publishers to Take Responsibility for Behavioral Advertising Disclosures," http://proskauer.com.

Deshpandé, Rohit and Douglas M. Stayman (1994), "A Tale of Two Cities: Distinctiveness Theory and Advertising Effectiveness," *Journal of Marketing Research*, 31 (January), 57–64.

Digital Advertising Alliance (2014), "The Self-Regulatory Program for Online Behavioral Advertising," http://www.aboutads.info/.

Federal Trade Commission (2010), "Protecting Consumer Privacy in an Era of Rapid Change: A Proposed Framework for Businesses and Policymakers," *FTC Staff Report*, December, https://www.ftc.gov/sites/default/files/documents/reports/federal-trade-commission-bureau-consumer-protection-preliminary-ftc-staff-report-protecting-consumer/101201privacyreport.pdf.

Festinger, Leon (1954), "A Theory of Social Comparison Processes," *Human Relations*, 7 (May) 117–40.

Forehand, Mark R. and Rohit Deshpandé (2001), "What We See Makes Us Who We Are," *Journal of Marketing Research*, 38 (August), 336–48.

Forehand, Mark R., Rohit Deshpandé, and Americus Reed (2002), "Identity Salience and the Influence of Differential Activation of the Social Self-Schema on Advertising Response," *Journal of Applied Psychology*, 87 (December), 1086–99.

Friestad, Marian and Peter Wright (1994), "The Persuasion Knowledge Model: How People Cope with Persuasion Attempts," *Journal of Consumer Research*, 21 (June), 1-31.

Goffman, Erving (1963), *Stigma*, New York: Penguin.

Hamilton, Rebecca and Joydeep Srivastava (2008), "When $2+2$ is Not the Same as $1+3$: Variations in Price Sensitivity Across Components of Partitioned Prices," *Journal of Marketing Research*, 45 (August), 450–61.

Haws, Kelly L., Karen Page Winterich, and Rebecca Walker Naylor (2014), "Seeing the World Through GREEN-tinted Glasses: Green Consumption Values and Responses to Environmentally Friendly Products," *Journal of Consumer Psychology*, 24 (July), 336–54.

Hayes, Andrew F. (2013), *An Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*, New York: Guilford Press.

Hensher, David A. and Mark Bradley (1993), "Using Stated Response Choice Data to Enrich Revealed Preference Discrete Choice Models," *Marketing Letters*, 4 (April), 139–51.

Hoffman, Donna L. and Thomas P. Novak (2011), "Marketing Communication in a Digital Era," *Marketing Management*, 20 (Fall), 37–42.

Irmak, Caglar, Beth Vallen, and Stefanie Rosen Robinson (2011), "The Impact of Food Names on Dieters' and Non-Dieters'

Food Evaluations and Consumption," *Journal of Consumer Research*, 38 (August), 390–405.

Kirmani, Amna (2009), "The Self and the Brand," *Journal of Consumer Psychology*, 19 (July), 271–75.

Kraut, Robert E. (1973), "Effects of Social Labeling on Giving to Charity," *Journal of Experimental Social Psychology*, 9 (November), 551–62.

Kunda, Ziva (1990), "The Case for Motivated Reasoning," *Psychological Bulletin*, 108 (November), 480–98.

Lambrecht, Anja and Catherine Tucker (2013), "When Does Retargeting Work?" Information Specificity in Online Advertising," *Journal of Marketing Research*, 50 (October), 561–76.

Markus, Hazel (1977), "Self-Schemata and Processing of Information About the Self," *Journal of Personality and Social Psychology*, 35 (February), 63–78.

Miller, Dale T. and William Turnbull (1986), "Expectancies and Interpersonal Processes," *Annual Review of Psychology*, 37, 233–56.

Miller, Richard L., Philip Brickman, and Diana Bolen (1975), "Attribution versus Persuasion as a Means for Modifying Behavior," *Journal of Personality and Social Psychology*, 31 (March), 430–41.

Morales, Andrea (2005), "Giving Firms an 'E' for Effort: Consumer Responses to High-Effort Firms," *Journal of Consumer Research*, 31 (March), 806–12.

Naylor, Rebecca Walker, Cait Poynor Lamberton, and Patricia M. West (2012), "Beyond the 'Like' Button: Exploring the Effects of Mere Virtual Presence on Brand Evaluations and Purchase Intentions in Social Media Settings," *Journal of Marketing*, 76 (November), 105–20.

Oyserman, Daphna (2009), "Identity-based Motivation and Consumer Behavior," *Journal of Consumer Psychology*, 19 (June), 250–60.

Reed, Americus II (2004), "Activating the Self-Importance of Consumer Selves: Exploring Identity Salience Effects on Judgments" *Journal of Consumer Research*, 31 (September), 286–95.

Reed, Americus II, Mark R. Forehand, Stefano Puntoni, and Luk Warlop (2012), "Identity-based Consumer Behavior," *International Journal of Research in Marketing*, 29 (December), 310–21.

Schumann, Jan H., Florian von Wangenheim, and Nicole Groene (2014), "Targeted Online Advertising: Using Reciprocity Appeals to Increase Acceptance Among Users of Free Web Services," *Journal of Marketing*, 78 (January), 59–75.

Sirgy, M. Joseph (1982), "Self-Concept in Consumer Behavior: A Critical Review," *Journal of Consumer Research*, 9 (December), 287–300.

Spiller, Stephen A., Gavan J. Fitzsimons, John G. LynchJr., and Gary H. McClelland (2013), "Spotlights, Floodlights, and the Magic Number Zero: Simple Effects Tests in Moderated Regression," *Journal of Marketing Research*, 50 (April), 277–88.

Stafford, Maria Royne (1996), "Demographic Discriminators of Service Quality in the Banking Industry," *Journal of Services Marketing*, 10 (August), 6–22.

Stephen, Andrew T. and Jeff Galak (2012), "The Effects of Traditional and Social Earned Media on Sales: A Study of a Microlending Marketplace," *Journal of Marketing Research*, 49 (October), 624–39.

Swann, William B. (2012), "Self-Verification Theory," in *Handbook of Theories of Social Psychology*, ed. Paul Van Lange, Arie Kruglanski, and E. Tory Higgins, London: Sage, 23–42.

Tucker, Catherine (2014), "Social Networks, Personalized Advertising and Privacy Controls," *Journal of Marketing Research*, 51 (October), 546–62.

Tybout, Alice M. and Richard F. Yalch (1980), "The Effect of Experience: A Matter of Salience?" *Journal of Consumer Research*, 6 (March), 406–13.

Wei, Mei-Ling, Eileen Fischer, and Kelley J. Main (2008), "An Examination of the Effects of Activating Persuasion Knowledge on Consumer Response to Brands Engaging in Covert Marketing," *Journal of Public Policy and Marketing*, 27 (Spring), 34–44.

Wells, William D. (1975), "Psychographics: A Critical Review," *Journal of Marketing Research*, 12 (May), 196–213.

Wheeler, S. Christian and Jonah Berger (2007), "When the Same Prime Leads to Different Effects," *Journal of Consumer Research*, 34 (3), 357–68.

Wilcox, Keith and Andrew T. Stephen (2013), "Are Close Friends the Enemy? Online Social Networks, Self-Esteem, and Self-Control," *Journal of Consumer Research*, 40 (June), 12–57.

Williams, Patti, Gavan Fitzsimons, and Lauren G. Block (2004), "When Consumers Don't Recognize 'Benign' Intention Questions as Persuasion Attempts," *Journal of Consumer Research*, 31 (December), 540–50.

Wright, Peter (2002), "Marketplace Metacognition and Social Intelligence," *Journal of Consumer Research*, 28 (March), 677–82.

Wu, Eugenia, Keisha Cutright, and Gavan Fitzsimons (2011), "How Asking 'Who Am I?' Affects What Consumers Buy: The Influence of Self-Discovery on Consumption," *Journal of Marketing Research*, 48 (April), 296–307.

Yadav, Manjit S. and Paul A. Pavlou (2014), "Marketing in Computer-Mediated Environments: Research Synthesis and New Directions," *Journal of Marketing*, 78 (January), 20–40.

Yan, Jun, Ning Liu, Gang Wang, Wen Zhang, Yun Jiang, and Zheng Chen (2009), "How Much Can Behavioural Targeting Help Online Advertising?" *Proceedings of the 18th International Conference on World Wide Web*, Association for Computing Machinery, 261-70.