Contents

Journal of Consumer Behaviour

Information for Subscribers

Journal of Consumer Behaviour (Print ISSN 1472-0817; Online ISSN 1479-1838) at Wiley Online Library, wileyonlinelibrary.com) is published in 6 issues per year. Institutional subscription prices for 2017 are:
Print & Online: US$1007 (US) US$1007 (Rest of World), €651 (Europe), £555 (UK). Prices are exclusive of tax. Asia-Pacific GST, Canadian GST and European VAT will be applied at the appropriate rates. For more information on current tax rates, please go to www.wileyonlinelibrary.com/tax-vat. The price includes online access to the current and all online back files to January 1st 2012, where available. For other pricing options, including access information and terms and conditions, please visit www.wileyonlinelibrary.com/access.

Delivery Terms and Legal Title

Where the subscription price includes print issues and delivery is to the recipient's address, delivery terms are Delivered at Place (DAP); the recipient is responsible for paying any import duty or taxes. Title to all issues transfers FOB our shipping point, freight prepaid. We will endeavour to fulfil claims for missing or damaged copies within six months of publication, within our reasonable discretion and subject to availability.

Contact Details

Journal Customer Services: For ordering information, claims and any enquiry concerning your journal subscription please go to www.wileycustomerhelp.com/ask or contact your nearest office:
Americas: Email: cs-journals@wiley.com; Tel: +1 781 388 8598 or 1 800 835 6770 (toll free in the USA & Canada).
Europe, Middle East and Africa: Email: cs-journals@wiley.com; Tel: +44 (0) 1243 779777, Fax: +44 (0) 1243 775878
Asia Pacific: Email: cs-journals@wiley.com; Tel: +65 6511 8000
Japan: For Japanese speaking support, Email: cs-japan@wiley.com; Tel: +65 6511 8010 or Tel (toll-free): 005 316 50 480. Visit our Online Customer Get-Help available in 7 languages at www.wileycustomerhelp.com/ask.

Services

Advertisements

Advertisement Sales Department, John Wiley & Sons, Ltd.,
The Atrium, Southern Gate, Chichester, West Sussex PO19 8SQ, UK.
Tel: + 44 (0) 1243 770254,
Fax: +44 (0) 1243 770432,
E-mail: adsales@wiley.co.uk

Commercial Reprints

E-mail: corporatesaleseurope@wiley.com; corporatesalesusa@wiley.com; or corporatesalesaustralia@wiley.com

Author Reprints (50-300 copies):

Order online: http://offprint.cosprinters.com/blackwell
Email: offprint@cosprinters.com

General Enquiries

Tel: +44 (0) 1243 779777
Fax: +44 (0) 1243 775878

Backstock Agents

PSC
Back issues: Single issues from current and recent volumes are available at the current single issue price from cs-journals@wiley.com. Earlier issues may be obtained from Periodicals Service Company, 11 Main Street, Germantown, NY 12526, USA.
Tel: +1 518 537 4700, Fax: +1 518 537 5899,
Email: psc@periodicals.com

Copyright & Photocopying

Disclaimer

The Publisher and Editors cannot be held responsible for errors or any consequences arising from the use of information contained in this journal; the views and opinions expressed do not necessarily reflect those of the Publisher and Editors, neither does the publication of advertisements constitute any endorsement by the Publisher and Editors of the products advertised.

Abstracting and Indexing

The *Journal of Consumer Behaviour* is abstracted and indexed in ABI/INFORM and PsycINFO, and indexed in the Elmar moderated listserv at elmar.ama.org.

Production Information

For manuscripts that have been accepted for publication, please contact:

Ruthima D. Tunggal
E-mail: rtunggal@wiley.com

Production Details

Typeset by SPi Global, Philippines Printed and bound in Singapore by Markono Print Media Pte Ltd.

Identification Statement

Journal of Consumer Behaviour (Print ISSN 1472-0817; Online ISSN 1479-1838) is published bi-monthly, US mailing agent: Mercury Media Processing, LLC 1850 Elizabeth Avenue, Suite #C, Rahway, NJ 07065 USA. Periodical postage paid at Rahway, NJ. POSTMASTER: Send all address changes to JOURNAL OF CONSUMER BEHAVIOUR, Journal Customer Services, John Wiley & Sons Inc. 350 Main St, Malden, MA 02148-5020 USA.
For submission instructions, subscriptions and all other information visit: wileyonlinelibrary.com

Wiley's Corporate Citizenship Initiative Statement

Wiley's Corporate Citizenship initiative seeks to address the environmental, social, economic, and ethical challenges faced in our business and which are important to our diverse stakeholder groups. Since launching the initiative, we have focused on sharing our content with those in need, enhancing community philanthropy, reducing our carbon impact, creating global guidelines and best practices for paper use, establishing a vendor code of ethics, and engaging our colleagues and other stakeholders in our efforts.

Follow our progress at www.wiley.com/go/citizenship

Received: 12 July 2016 | Revised: 17 December 2016 | Accepted: 2 January 2017

DOI: 10.1002/cb.1639

WILEY

ACADEMIC PAPER

Low-price guarantees as advertisement strategy and compensation policy: The more, the better?

Tessa Haesevoets[1] | Alain Van Hiel[1] | Emma Onraet[1] | Anne Joosten[1] | David De Cremer[2]

[1] Department of Developmental, Personality and Social Psychology, Ghent University, Henri Dunantlaan 2, B-9000 Ghent, Belgium

[2] Cambridge Judge Business School, University of Cambridge, Trumpington Street, Cambridge CB2 1AG, UK

Correspondence
Tessa Haesevoets, Department of Developmental, Personality and Social Psychology, Henri Dunantlaan 2, B-9000, Ghent, Belgium.
Email: tessa.haesevoets@ugent.be

Funding information
National Fund for Scientific Research-Flanders, Grant/Award Number: G095912 N

Abstract

Companies sometimes employ a "lowest price or more than the difference back" policy (i.e., a price-beating guarantee). We investigated whether such a policy is more effective to attract and retain customers than when the exact price difference is promised (i.e., a price-matching guarantee). The first study revealed that about 60% of the marketers and shop owners in our sample thought that beating price differences is a more effective strategy than matching price differences. However, the four subsequent studies challenged this assumption. Specifically, the advertisement as well as the provision of price-beating refunds did not have an incremental positive effect on customers' general attitudes in terms of trust, brand perception, loyalty, and shopping intentions beyond the level that was already reached by price-matching refunds. Moreover, our mediation analyses revealed that the null effect of price-matching versus price-beating was mediated by fairness perceptions. From a theoretical perspective, these results are in line with a fairness account, which holds that people do not only evaluate the economic value of an outcome, but also take equality considerations into account. Because price-beating is literally more expensive than price-matching, from a practical point of view, companies should be informed that the employment of a price-beating guarantee is a cost-ineffective advertisement strategy and compensation policy.

KEYWORDS

fairness, general attitudes, low-price guarantees, price-beating, price-matching, refund depth

1 | INTRODUCTION

Imagine that you can buy a new refrigerator in two stores in your neighborhood. The first store advertises that when you find the same fridge for a lower price in any other store, you will get paid back the exact amount of the price difference. The second store, however, advertises that in case of a price difference, you will be compensated twice the price difference. Which of these two stores would you prefer? Now imagine that there is a third store that advertises to triple or even tenfold the price difference. Would you be more inclined to go to this third store? From the viewpoint of a "homo economicus" the latter store should be preferred because it offers the highest refund and thus also the highest monetary profit.

The strategy to promise customers to pay more than the difference when another store sells the exact same item for a lower price has been employed by many companies for a long time. For example, the baby products retailer Babies"R"Us has published an advertisement on its website, which stated the following: "Spot a lower price for baby gear? We will beat it by 10%." The Good Guys, a chain of consumer electronics retail stores in Australia, currently employs a similar low-price guarantee, beating price differences by 20%. Yet, there are also companies that employ larger low-price guarantees. For instance, the car repair shop Tires Plus employs a double-the-difference-insurance policy. That is, this company advertises that: "If you find a better price within 30 days of purchase, we'll give you twice the amount of the difference back." Furthermore, in reaction to the price war among supermarkets in 2011, Tesco promised to reimburse shoppers twice the difference for products found cheaper at Wal-Mart owned Asda. Some companies promise customers to triple price differences. The Walking Company, for example, advertises: "If you purchase shoes from us at regular price and see them advertised for less, we'll give you triple the difference in store credit." Similar strategies have been employed in the past. On January 13, 1982, in an advertisement published in the newspaper The Palm Beach Post from West Palm Beach, the American drug store SupeRx announced to triple the price difference in cash when customers found a product cheaper in any other store

in town by advertising: "Lowest overall prices guaranteed every day or you get triple-the-difference in cash!" Some companies even go a step further. At the end of 2014, in two of its Belgian stores, the French grocery giant Carrefour advertised to pay shoppers five times the difference if beaten on price by the Dutch supermarket chain Albert Heijn. Similarly, during the summer of 2016 Carrefour promised customers to pay them back five times the price difference on school material. Earlier, Carrefour even offered customers up to ten times the price difference for toys bought during the Christmas season.

A low-price guarantee can be defined as a policy in which a company announces to offer the lowest possible price for certain products and promises to match or beat competitors' lower prices for these products (see Biswas, Pullig, Yagci, & Dean, 2002; Sivakumar & Weigand, 1996). Two types of low-price guarantees can thus be identified: (a) The price-matching guarantee, where the customer is refunded the exact price difference, and (b) the price-beating guarantee, where the customer is refunded more than the price difference. The examples mentioned above illustrate that in the last few decades companies worldwide have employed "lowest price or more than the difference back" advertisement strategies in the battle to attract new and maintain existing customers. In spite of the widespread use of such price-beating refunds, empirical work on this topic is rather scarce (see Kukar-Kinney, 2006; Kukar-Kinney & Walters, 2003; Kukar-Kinney, Walters, & MacKenzie, 2007a, for some notable exceptions). The aim of the present research was to gain a deeper understanding of the (cost) effectiveness of price-matching and price-beating guarantees.

We first examined the thoughts of marketers and shop owners on this matter. Do they believe that beating price differences is an effective strategy to attract and retain customers? Next, we investigated whether the announcement of a price-beating refund is indeed an effective strategy to attract customers. Specifically, we compared matching refund and beating refund conditions with respect to customers' trust, brand perception, loyalty, and shopping intentions. Importantly, companies do not only promise different refunds, but also provide such refunds to their customers when price differences actually occur. Therefore, we also examined whether the provision of a price-beating refund in reaction to a price difference is more effective than the offer of a price-matching refund.

1.1 | Price-beating refunds from the perspective of the customer and the company

From the perspective of the (potential) customer a low-price guarantee that promises to beat instead of match price differences is better, because in case of an actual price difference the price-beating guarantee leads to a higher outcome for the customer. This reasoning is in line with the classic economic theory, which assumes that individuals are primarily motivated by earning money and by the possibility of making profits. Following such a calculative perspective, there should thus be a positive relationship between the depth of a refund and customers' favorable reactions towards the store. Based on this "more is better" assumption, it can hence be expected that customers will have a higher intention to purchase products at a company when it advertises to beat a price difference compared to when a matching refund is promised.

Yet, it is important to highlight that for companies price-beating strategies are less attractive because they are more expensive. That is, a price-beating guarantee entails additional costs on top of the costs of a price-matching guarantee when price differences actually occur. Indeed, in case of an actual price difference, providing a price-beating refund is literally more expensive for a company than providing a refund that matches the difference. In this regard it is thus important to investigate whether such costly price-beating guarantees are actually a more effective strategy to attract and retain customers than less costly price-matching guarantees. Two important functions of low-price guarantees can be distinguished. First, a company can advertise the employment of a price-matching or a price-beating guarantee with the aim to attract customers to its business. Secondly, a company can provide customers who actually bought a product and then found it cheaper elsewhere a price-matching or a price-beating refund in order to retain this customer. In what follows, we will give an overview of previous research on the effectiveness of price-beating refunds as a means to attract and retain customers.

1.2 | Are price-beating refunds effective to attract customers?

The vast majority of the previous research on low-price guarantees has investigated how the presence versus absence of a price-matching guarantee impacts upon customers' reactions (e.g., Biswas et al., 2002; Jain & Srivastava, 2000; Lurie & Srivastava, 2005; Srivastava & Lurie, 2001, 2004). These prior studies have, for example, shown that consumers interpret the presence of a price-matching policy as a signal of low store prices (Jain & Srivastava, 2000). In addition, the presence of such a policy also increases the likelihood that customers will discontinue searching for lower prices (Srivastava & Lurie, 2001).

With the exception of the research conducted by Kukar-Kinney and colleagues, it should be noted that not many studies have delved into how refund depth—in terms of matching versus beating price differences—influences customers' responses. Kukar-Kinney and Walters (2003) reported that a price-beating guarantee increased consumers' perceptions of the value of this guarantee as compared to matching price differences, but at the same time reduced its believability. Moreover, Kukar-Kinney (2006) found that customer loyalty was not enhanced in the price-beating relative to the price-matching guarantee condition. Research by Kukar-Kinney et al. (2007a) further revealed that individual differences in customers' price consciousness interacted with refund depth. Specifically, only customers with high levels of price consciousness expressed a substantial greater likelihood of buying at a store that promised a price-beating refund than at a store that promised a price-matching refund.

It is important to note that prior empirical studies all included a rather small price-beating refund level that typically transcended the lower price by at most 20%. However, as illustrated by the above mentioned examples, in real-life settings refunds that are two, five, or even ten times as large as the price difference have been prevalently applied by companies like Tesco and Carrefour. It is, however, still unclear how the promise of such large price-beating refunds is evaluated by customers. This is important to investigate because pronounced price-beating refunds might entail high costs for companies when actual

price differences occur. Consequently, if customers' purchase intention is not positively affected by it, then companies would have no incentive to employ such large price-beating guarantees. Instead, it would even be more cost-effective for a company to simply match a price difference than to beat it.

1.3 | Are price-beating refunds effective to retain customers?

Low-price guarantees are not only used by companies to attract new customers, but also as a compensation policy for existing clients. To the best of our knowledge, no prior studies investigated the effect of actually receiving a price-beating refund on customers. Is a customer more inclined to revisit a store after receiving a price-beating instead of a price-matching refund? A line of inquiry that may inform us about the effectiveness of receiving price-beating refunds involves research in the domain of overcompensating dissatisfied customers. Overcompensation occurs when a company offers a customer a refund that is larger than the purchase price of a failed product or service. This is conceptually related to price-beating refunds in the sense that both concepts include the provision of a refund that exceeds a certain threshold, that is, the original purchase price in case of an overcompensation and the price difference in case of a price-beating refund.

The results of prior overcompensation studies, however, are not very consistent. Some studies revealed positive effects of receiving overcompensation. For instance, Boshoff (1999) found in the context of an airline company that a refund of expenses plus an additional free airline ticket enhanced customers' satisfaction more than when merely the expenses were reimbursed. A similar positive effect of receiving overcompensation was obtained in the context of a hotel (Gilly & Hansen, 1985) and a restaurant (Hocutt, Bowers, & Donavan, 2006). Yet, there is also some evidence that overcompensation can be ineffective, and sometimes even counterproductive. Garrett (1999), for example, found that overcompensating customers for a product that did not perform as expected had no significant positive effect relative to the exact compensation in terms of enhanced satisfaction and repurchase intention. Likewise, Noone and Lee (2011) reported that overcompensation did not positively enhance customers' return intention beyond exact compensation in the aftermath of a hotel overbooking. Moreover, Estelami and De Maeyer (2002) reported that although low and moderate levels of overcompensation were acceptable to most customers, high levels resulted in a drop of customer satisfaction.

Recently, scholars have tried to resolve these mixed results by systematically studying the overcompensation range by examining the influence of multiple refund depth levels. Gelbrich, Gäthke, and Grégoire (2015), for instance, compared five overcompensation levels (i.e., a compensation that covered 120%, 140%, 160%, 180%, and 200% of the loss) that a company could offer for a flawed service. Their results revealed a nonlinear effect of overcompensation on customer satisfaction in the form of a concave curve: Small amounts of overcompensation were more effective than an exact compensation, but after a certain point the curve seemed to flatten. Similar findings were obtained in a series of studies by Haesevoets, Van Hiel, Pandelaere, Bostyn, and De Cremer (2016). These authors reported that in the aftermath of a product failure the overcompensation-loyalty curve first goes upwards, but only up to a compensation level that is equivalent to approximately 150% of the purchase price of a dissatisfactory product. After this threshold had been reached, the effectiveness of overcompensation declined as further overcompensation started to negatively affect customer loyalty, resulting in an actual downstream curve.

A possible explanation for the lack of positive results obtained with substantial overcompensations in prior research (see Estelami & De Maeyer, 2002; Garrett, 1999; Haesevoets et al., 2016; Noone & Lee, 2011) might be that in these studies the refunds were provided unexpectedly. Such an unexpected large reimbursement may trigger cognitive processes that question the nature of and motivation behind the refund. There is some preliminary evidence, which suggests that customers indeed perceive an unexpected large refund to be suspicious, leading to negative evaluations of the provider of this refund (Estelami & De Maeyer, 2002). Similarly, scholars have argued that customer judgments regarding the ethical standards of a company may be negatively affected by the experience of an unusual event—such as unexpectedly receiving a large refund—which may in turn compromise customers' trust in and loyalty towards the company (see Bigley & Pearce, 1998; Doney & Cannon, 1997; Garbarino & Johnson, 1999).

Importantly, when the provision of a substantial compensation under the form of a price-beating refund is announced through an advertisement strategy, it will not be experienced as unusual, and therefore may lead to more favorable customer reactions. Yet, no prior studies explicitly focused on the effects of receiving a refund that largely beats a price difference. Given the prevalent use of such refunds, and the fact that they can be costly for companies, it is of vital importance to unravel how different refund levels influence consumers' impressions of and responses to companies.

1.4 | The present studies

The effectiveness of low-price guarantees was investigated in five empirical studies. In Study 1 we investigated a sample of marketers and shop owners to study their beliefs about the announcement of a price-beating refund, and whether they thought that this is a more effective strategy to attract and maintain customers than the announcement of a price-matching refund. In the four subsequent studies we investigated the effectiveness of both refunds types by using scenario-based experiments in samples of consumers. More specifically, we examined if customers' trust in the company, brand perception, loyalty, and shopping intentions were enhanced more when a company announced to beat a price difference rather than to match it (Studies 2A and 3A). Moreover, we also explored if in case of a price difference the provision of an announced price-beating refund improved these outcome measures beyond the level that was reached by a price-matching refund (Studies 2B and 3B). The present studies extend previous research on low-price guarantees in at least four important ways.

First, and most importantly, it can be expected that companies employ a price-beating guarantee because they believe that this is an especially effective strategy to attract customers to their business. However, it is at least equally important to evaluate the effectiveness

of price-beating policies in stimulating the retention of existing customers. In this regard, an important feature of our research is that we investigated the effectiveness of price-beating and price-matching guarantees as an advertisement tool to attract customers as well as a compensation policy to maintain customers. To our knowledge, this latter component has not yet been studied in the context of low-price guarantees.

Second, the few studies that reported on effects of beating price differences only included one level of refund depth besides the matching condition that served as a baseline (see Kukar-Kinney, 2006; Kukar-Kinney & Walters, 2003; Kukar-Kinney et al., 2007a). Our study took multiple refund levels into account. As mentioned above, most of this prior research included price-beating refunds that are much smaller than the ones that companies often provide. A unique feature of the present study, therefore, is the inclusion of three price-beating refund levels that cover the price difference one and a half times, two times, and five times (i.e., a refund that is equivalent to 150%, 200%, and 500% of the price difference, respectively). We included the refund level of 150% because this level was identified as optimum in the studies of Haesevoets et al. (2016) on overcompensation. The two larger refund levels, that is, 200% and 500%, reflect the magnitude of the price-beating guarantees often employed by companies, such as Tesco and Carrefour.

While prior studies offer valuable insights into how customers respond to price-matching versus price-beating guarantees, customers' perceived fairness of different low-price guarantees has not yet been investigated (see Kukar-Kinney, Xia, & Monroe, 2007b, for a notable exception). This is regretful because the perceived fairness of a low-price guarantee might have an influence on customers' repurchase intentions. In this light, recent overcompensation studies have found that fairness perceptions mediate the relationship between overcompensation and customer satisfaction (see Gelbrich et al., 2015). Therefore, in the present research we also investigated if and how fairness perceptions influence the effectiveness of different low-price guarantees.

Finally, although a first reason to introduce low-price guarantees might be to convince consumers that the store offers the lowest price (see Jain & Srivastava, 2000), it can be argued that other (more distal) customers' impressions and reactions are important as well. To tap into these reactions, we included trust, brand perception, customer loyalty, and shopping intentions as outcome measures in our studies. Importantly, these concepts can all be seen as critical factors that influence customers' choice for a particular store (for more information on the inter-relationship between these concepts, see Martenson, 2007; Sirdeshmukh, Singh, & Sabol, 2002).

2 | STUDY 1

2.1 | Method

2.1.1 | Participants

A sample of 16 marketers and 27 shop owners (N = 43; 65.1% men; M_{age} = 35.60, SD = 9.98) were recruited through Amazon Mechanical Turk (Mturk). This platform has been demonstrated to be an appropriate method of recruiting subjects (see Buhrmester, Kwang, & Gosling, 2011; Hauser & Schwarz, 2016). Participants participated in an online survey study in exchange for payment ($0.50). All participants were US citizens who worked at least 1 year as a marketer or a shop owner; during the survey multiple questions were asked to verify that this was indeed the case. Participants worked an average of 6.72 years (SD = 6.72) as marketer or shop owner and an average of 5.44 years (SD = 5.78) in their current function. On average, participants worked 43.70 hours (SD = 19.18) per week. With regard to educational level, 2.3% of the participants had no degree, 39.5% a high school degree, 53.5% a bachelor's degree, and 4.7% a master's degree.

2.1.2 | Procedure

Participants read a text, which presented two related situations in which it was stated that customers who purchase a product often compare prices among different stores. A store can promote its business by announcing a reimbursement when a customer finds another store that offers cheaper prices. We first asked participants to indicate what they thought would be the best advertisement strategy to attract new customers to their business. Next, we asked participants to indicate what they thought the best strategy would be to retain a customer who actually bought a product and then found it cheaper elsewhere. In both situations, participants had to choose one the following response options, which reflect four different refund depths. The first option was a reimbursement that is equal to the price difference between the two stores (i.e., 100% of the price difference, which reflects a price-matching guarantee), whereas the latter three options all embodied reimbursements that are larger than the price difference (i.e., >100% of the price difference, which reflect price-beating guarantees). More specifically, the three price-beating refund options covered the price difference one and a half times, two times, and five times (i.e., 150%, 200%, and 500% of the price difference, respectively). After participants had indicated their preference, for each situation they were asked (through an open question) why they thought that the chosen strategy is most effective to attract and retain customers.

2.2 | Results

2.2.1 | Preference for price-matching or price-beating

Figure 1 shows the results for the use of price-matching and price-beating guarantees as an advertisement strategy to attract new customers (Panel A) and as a compensation policy to retain existing customers (Panel B). No less than 60.5% of the marketers and shop owners judged one of the price-beating options as the most effective advertisement strategy to attract customers, while the remaining 39.5% of them preferred the price-matching option. Moreover, among the price-beating options, most participants preferred a refund that covered the price difference one and a half times (32.6%), followed by the option that reflected a refund that covered the price difference two times (25.6%) and five times (2.3%). On the question, which refund would be the most effective policy to retain customers, 41.9% of the marketers and shop owners chose the price-matching option and 58.1% one of the price-beating options. Here too, with regard to the different price-beating options, most participants preferred a refund that covered the price difference one and a half times (30.2%), followed by a refund that covered the price difference two times

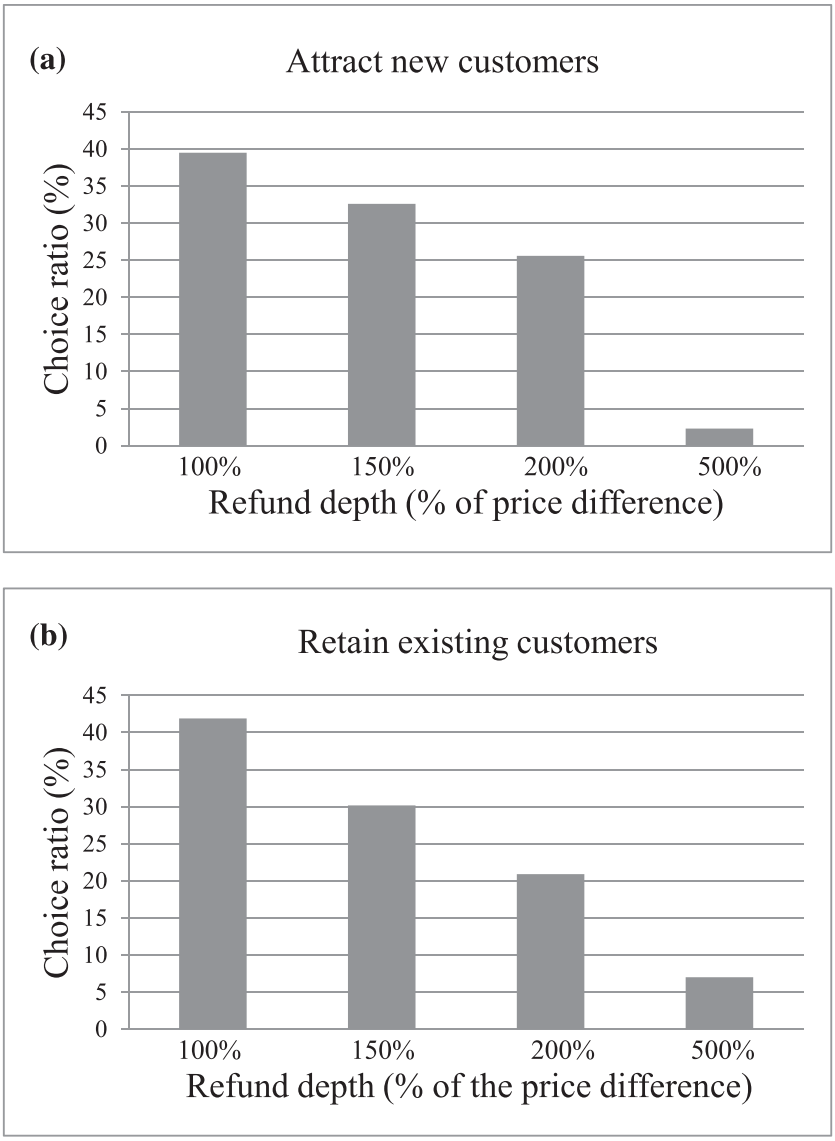


FIGURE 1 Percentage of respondents who have chosen each of the compensation options as (a) the most effective advertisement strategy to attract new customers and as (b) the most effective compensation policy to retain existing customers in Study 1

(20.9%) and five times (7.0%). Preferences for refund levels to attract and retain customers correlated strongly (r = .82, p < .001). When looking at the data for marketers and shop owners separately, similar data patterns were obtained.

2.2.2 | Reasons behind the preference for price-matching or price-beating

Marketers and shop owners' answers to the open question regarding the most effective strategy to attract new customers revealed nine reasons (only the reasons that were mentioned by at least two participants are reported). The following five reasons were identified for the 17 participants who selected price-matching as the most effective strategy to attract new customers: Matching price differences is sufficient (N = 4), the customer can be confident that he or she gets a good deal (N = 4), giving more is not profitable (N = 3), competition with other stores over prices is unwanted (N = 3), and this strategy is most fair (N = 2). For the 26 participants who selected one of the price-beating strategies as the most effective strategy to attract new customers, the following four reasons were identified: Making the violation right requires giving (a little) extra (N = 6), it is an attractive strategy that draws attention (N = 3), it assures customers that they get the lowest price (N = 2), and it shows that the company cares for the customer (N = 2). The open question regarding the most effective compensation policy to retain existing customers revealed very similar reasons as the ones reported here.

2.3 | Discussion

The present study indicates that in our sample about 60% of the marketers and shop owners indicated that a price-beating guarantee would be the best approach to attract new customers as well as to maintain existing customers to their business. Note that this finding also entails that 40% of our respondents did not believe that price-beating is superior to price-matching. However, for those who preferred price-matching, frequently mentioned reasons referred to matching as "being enough" and to the "profitability" of this strategy, which seems to suggest that the additional costs of price-beating might have influenced marketers and shop owners' choices. That is, many among those preferring price-matching do not seem to discount the effectiveness of the price-beating strategy, but they are concerned about the extra costs.

Because beating a price difference is expensive for companies, the question that arises is whether price-beating guarantees are indeed well received by potential customers. The next study was set up to answer this research question. This question is important to investigate because it is only cost-effective for companies to beat price differences if price-beating guarantees are more effective to attract customers than price-matching guarantees. If price-beating is just as effective (or possibly even less effective) than price-matching, companies would have no incentive to employ such a strategy.

3 | STUDY 2A

3.1 | Method

3.1.1 | Participants and design

A total of 147 US citizens (55.1% men; M_{age} = 36.39, *SD* = 11.96), recruited through MTurk, completed an online scenario study in exchange for payment ($0.50). To safeguard data quality, we implemented multiple attention checks spread throughout the study. In total, 25 participants (17.0%) were excluded from further analyses. Of these participants, 11 were excluded because they indicated to be a marketer or a shop owner. An additional 12 participants were excluded because they were unable to answer our refund depth manipulation check correctly, and an extra two participants because they failed on our attention checks. Of the remaining 122 participants, 0.8% had no degree, 30.3% had a high school degree, 55.7% a bachelor's degree, 9.8% a master's degree, and 3.3% a PhD.

Participants were randomly assigned to one condition of a 5-level (refund depth: 0% vs. 100% vs. 150% vs. 200% vs. 500% of the price difference) between-subjects design. Hence, in addition to a price-matching condition (100%) and three price-beating conditions (150%, 200%, and 500%), we also included a control condition in which no low-price guarantee was offered by the store (0%). Although the explicit statement of no low-price guarantee in the control condition might be somewhat unusual, the inclusion of this condition is important in order to be able to unravel the true value of the different refund depth effects.

3.1.2 | Procedure

To administer our refund depth manipulation, participants read a scenario, which presented them with a store advertising that in a situation in which a customer purchases a product at their business and then finds it cheaper in another store, this company will (not) reimburse this customer. More specifically, in the control condition it was stated that the company will not reimburse customers for price differences. In the price-matching condition, the company will compensate customers with a refund that exactly covers the price difference (i.e., 100% refund depth condition). Finally, in the three price-beating conditions the company will reimburse customers with a refund that covers one and a half times the price difference in the 150% refund depth condition, two times the price difference in the 200% refund depth condition, and five times the price difference in the 500% refund depth condition.

3.1.3 | Measures

3.1.3.1 | Manipulation and realism check

To verify that participants noticed the refund depth manipulation successful, we asked them, "The store advertises that in case of a price difference the store will pay the customer back … the price difference" (0 times; 1 time; 1.5 times; 2 times; 5 times). As mentioned above, participants who were unable to identify the correct refund level were not included in the analyses. We also measured the mundane realism of the presented scenario with the following item, "To what extent could you imagine the described situation?" (1 = *not at all*, 7 = *very much*; *M* = 4.91, *SD* = 2.11). A one sample t-test revealed that the mean score on this realism check significantly differed from the scale's midpoint ($t[121] = 4.77$, $p < .001$), which indicates that the scenarios were viewed as realistic by the participants.

3.1.3.2 | Outcome measures

The outcome measures were all measured using seven-point Likert scales (1 = *strongly disagrees*, 7 = *strongly agree*). First, participants' trust in the store was probed with the eight-item trust scale of Zhang et al. (2011), of which a sample item is, "I think that this store has high integrity." Brand perception was then measured using the five-item scale developed by Bayol, de la Foye, Tellier, and Tenenhaus (2000). A sample item of this scale is, "I think that this store has a positive image." We also used the five-item customer loyalty scale of Lam, Shankar, Erramilli, and Murthy (2004) to probe participants' recommendation and purchase intentions, which are two central dimensions of the customer loyalty construct. A sample item is, "It is likely that I will recommend other people to purchase products at this store." Shopping intentions were finally measured with the three-item scale of Kukar-Kinney et al. (2007b), of which a sample item is, "It is very likely that I would shop at this store." Table 1 provides the means, standard deviations, and Cronbach's alphas for each of these outcome measures.

3.2 | Results

3.2.1 | Correlation analysis and factor structure

The correlations between the four outcome measures were all positive and significant (all *r*s > .84; all *p*s < .001; see Table 1). Because of these high correlations, and the fact that in prior studies similar concepts have been collapsed into one general measure (e.g., see Ambrose,

TABLE 1 Means, standard deviations, Cronbach's alphas, and correlations (Study 2A)

Measure	*M*	*SD*	α	1.	2.	3.	4.
1. Trust	5.25	1.58	.97	-			
2. Brand perception	5.04	1.65	.95	.92***	-		
3. Customer loyalty	5.06	1.83	.97	.89***	.93***	-	
4. Shopping intentions	5.41	1.75	.95	.84***	.84***	.92***	-
5. General attitudes	5.18	1.62	.99	.97***	.97***	.97***	.92***

***$p < .001$.

Hess, & Ganesan, 2007), we checked whether the different outcome measures loaded on one single underlying attitudinal dimension by conducting a principal component analysis. Only one component with an eigenvalue greater than 1.00 was found. This component had an eigenvalue of 16.41 and explained 78.1% of the total variance. Based on this one strong factor we have chosen to collapse the items of the four outcome measures into one general measure that reflects participants' general attitudes towards the store (see Table 1).

3.2.2 | General attitudes towards the store

A five-level (refund depth: 0% vs. 100% vs. 150% vs. 200% vs. 500%) analysis of variance (ANOVA) on the general attitudes scale showed a significant main effect of refund depth, $F(4, 117) = 16.49$, $p < .001$, $\eta^2_p = .36$. We subsequently conducted a post hoc test (least significant difference) in order to investigate which of the refund depth conditions significantly differed from each other. The results of these comparisons are displayed in Table 2. This table reveals that only the 0% refund depth condition ($M_{0\%} = 3.21$, $SD = 1.71$) differed significantly from all the other refund depth conditions ($M_{100\%} = 5.37$, $SD = 0.87$; $M_{150\%} = 5.72$, $SD = 1.21$; $M_{200\%} = 5.90$, $SD = 1.46$; $M_{500\%} = 5.57$, $SD = 1.23$). The price-matching condition did not differ significantly from the three price-beating conditions. ANOVAs and subsequent post hoc tests for the individual trust, brand perception, loyalty, and shopping intentions scales revealed similar results as the ones reported here for the total scale.

3.3 | Discussion

The present study revealed that when a store advertises to beat price differences, customers' general attitudes in terms of trust, brand perception, loyalty, and shopping intentions were not significantly improved compared to when it was announced that price differences would be matched. Thus, although the presence (versus absence) of a low-price guarantee is able to positively affect customers' responses, matching a price difference seems to be just as effective as beating this difference.

However, it is possible that although the advertisement of a price-beating refund does not attract more customers, providing such a refund will result in a higher repurchase intention. This research question was investigated in the next study in which we examined the effectiveness of price-beating refunds as a compensation policy to retain customers.

TABLE 2 Results of post hoc test (Study 2A)

	General attitudes		
Contrast	*ΔM*	SE	*p*
0% vs. 100%	−2.16***	0.38	<.001
0% vs. 150%	−2.51***	0.38	<.001
0% vs. 200%	−2.70***	0.38	<.001
0% vs. 500%	−2.37***	0.38	<.001
100% vs. 150%	−0.35	0.37	.349
100% vs. 200%	−0.53	0.37	.153
100% vs. 500%	−0.21	0.37	.575
150% vs. 200%	−0.18	0.38	.627
150% vs. 500%	0.14	0.38	.704
200% vs. 500%	0.33	0.38	.385

***$p < .001$.

4 | STUDY 2B

4.1 | Method

4.1.1 | Participants and design

A total of 299 US citizens (43.1% men; $M_{age} = 39.78$, $SD = 12.71$), recruited through MTurk, completed an online scenario study in exchange for payment ($0.50). Here, a total of 16 participants (5.3%) were excluded from further analyses. Ten participants were excluded because they indicated to be a marketer or a shop owner. An extra four participants were excluded because they were unable to answer our manipulation checks correctly, and two additional participants because they failed on our attention checks. Of the remaining 283 participants, 0.7% had no degree, 36.7% a high school degree, 46.6% a bachelor's degree, 13.4% a master's degree, and 2.5% a PhD.

We included the same five refund levels as in the previous study. Moreover, because in case of a price difference the magnitude of the product price might alter customers' responses towards the store (see Garrett, 1999; Smith, Bolton, & Wagner, 1999), in the present study we also manipulated the size of the product price by including a product with a rather low price ($50 product, with a price difference of $10) and a product with a much higher price ($500 product, with a price difference of $100). In the present study, participants were thus randomly assigned to a 2 (product price: $50 vs. $500) × 5 (refund depth: 0% vs. 100% vs. 150% vs. 200% vs. 500% of the price difference) between-subjects design.

4.1.2 | Procedure

As in the previous study, participants first read a scenario, which presented them with a store advertising that when a customer purchases a product at their business and finds it cheaper at another store, the store will not reimburse this customer in the no refund condition; whereas in the refund conditions a compensation that exactly, one and a half times, two times, or five times covers the price difference was promised. Subsequently, participants were asked to imagine that their old blender (refrigerator) broke down and that they decided to go to this specific store for the purchase of a new one. Here, they bought a new one for the price of $50 ($500). Later, they discovered that another store sells exactly the same blender (refrigerator) for only $40 ($400), which is thus $10 ($100) less than they paid. Participants were then asked to imagine that the store provided participants no refund in the control condition. In the 100% refund depth condition participants were offered a refund of $10 ($100), which thus exactly covered the price difference between the two stores. In the 150% refund depth condition participants received an additional refund of $5 ($50) on top of the price difference of $10 ($100), which is thus a reimbursement that covers the price difference one and a half times. A total refund of $20 ($200), which is two times as large as the price difference,

was offered in the 200% refund depth condition. Finally, in the 500% refund depth condition a total reimbursement of $50 ($500), which covered five times the price difference, was provided.

4.1.3 | Measures

4.1.3.1 | Manipulation checks and realism check

We first checked if participants were able to correctly identify the price of the product for which the price difference occurred, by asking them, "How much did you pay for the product?" ($50; $500). Next, to verify that participants perceived the refund depth manipulation successful, they were asked, "After finding a product cheaper elsewhere, the store payed you back … the price difference" (0 times; 1 time; 1.5 times; 2 times; 5 times). As mentioned above, participants who were unable to answer these manipulation checks correctly were excluded from the analyses. The realism of the presented scenario was probed with the same item as in Study 2A (M = 5.08, SD = 1.94). Again, a one sample t-test revealed that the mean score on this item differed significantly from the scale's midpoint ($t(282)$ = 9.41, p < .001). The scenarios were thus viewed as realistic by the participants.

4.1.3.2 | Outcome measures

Trust (8 items), brand perception (5 items), customer loyalty (5 items), and shopping intentions (3 items) were probed with the same items as in Study 2A. Table 3 provides the means, standard deviations, and Cronbach's alphas for each of these measures.

4.2 | Results

4.2.1 | Correlation analysis and factor structure

As in the previous study, the correlations between the four outcome measures were all positive and significant (all rs > .79; all ps < .001; see Table 3). Again, we extracted a component from the intercorrelations among the items, which had an eigenvalue of 16.60 with an explained variance of 79.0%. We thus again collapsed the items of the four outcome measures into one general measurement that reflects the participants' general attitudes towards the store (see Table 3).

4.2.2 | General attitudes toward the store

A 2 (product price: $50 vs. $500) × 5 (refund depth: 0% vs. 100% vs. 150% vs. 200% vs. 500%) ANOVA on the general attitudes scale showed a significant main effect of refund depth, $F(4, 273) = 131.91$, p < .001, η^2_p = .66. The main effect of the product price and the interaction effect between product price and refund depth were both nonsignificant, $F(1, 273) = 0.13$, p = .719, η^2_p = .00 and $F(4, 273) = 1.94$, p = .105, η^2_p = .03, respectively. A subsequent post hoc test (least significant difference; see Table 4) revealed that solely the 0% refund depth condition ($M_{0\%}$ = 2.92, SD = 1.14) differedly from all the other refund depth conditions ($M_{100\%}$ = 5.86, SD = 0.94; $M_{150\%}$ = 6.11, SD = 0.86; $M_{200\%}$ = 6.14, SD = 0.78; $M_{500\%}$ = 6.10, SD = 0.78). As in the prior study, the price-matching and the three price-beating conditions did thus not differ significantly from each other. Here too, ANOVAs and subsequent post hoc tests for the individual scales revealed similar results as the ones reported for the aggregated scale.

TABLE 3 Means, standard deviations, Cronbach's alphas, and correlations (Study 2B)

Measure	M	SD	α	1.	2.	3.	4.
1. Trust	5.62	1.47	.97	-			
2. Brand perception	5.09	1.49	.94	.88***	-		
3. Customer loyalty	5.43	1.81	.98	.92***	.83***	-	
4. Shopping intentions	5.67	1.80	.98	.89***	.79***	.95***	-
5. General attitudes	5.46	1.53	.99	.98***	.92***	.97***	.94***

***p < .001.

TABLE 4 Results of post hoc test (Study 2B)

	General attitudes		
Contrast	ΔM	SE	p
0% vs. 100%	−2.94***	0.17	<.001
0% vs. 150%	−3.19***	0.17	<.001
0% vs. 200%	−3.22***	0.17	<.001
0% vs. 500%	−3.18***	0.17	<.001
100% vs. 150%	−0.25	0.17	.136
100% vs. 200%	−0.28	0.17	.097
100% vs. 500%	−0.24	0.17	.162
150% vs. 200%	−0.03	0.17	.863
150% vs. 500%	0.02	0.17	.921
200% vs. 500%	0.05	0.17	.785

***p < .001.

4.3 | Discussion

The present study expands the results of the previous studies by showing that when customers receive an advertised price-beating refund in the aftermath of a price difference, this reimbursement was not more effective to enhance customers' general attitudes towards the store—under the form of improved trust, brand perception, loyalty, and shopping intentions—compared to when a price-matching refund was provided. Actually, the current study revealed that a price-matching refund already affected customers' responses very positively (i.e., an average score of almost six on a scale that ranges from one to seven). Importantly, these observations applied to both included product prices, thereby increasing the generalizability of the present findings.

The findings of our first study suggest that 60% of the marketers and shop owners believe that a price-beating strategy is particularly effective, but our latter two studies show that this is not the case. However, it is possible that people are more sensitive to differences in refund strategies when they can evaluate them jointly (like in the within-subjects design of Study 1 in which marketers and shop owners evaluated different strategies simultaneously), while this sensitivity might be lower when people are confronted with only one of them (like in the between-subjects designs of Studies 2A and 2B in which participants evaluated these strategies in isolation). This discrepancy between a within and between design can offer an explanation why we find a disconnection between what most marketers and shop owners believe the best strategy would be and how customers

actually evaluated these strategies. In order to rule out an explanation in terms of evaluability of information (for more information on the evaluability framework; see Hsee, 1996; Hsee & Zhang, 2010; Hsee, Loewenstein, White, & Bazerman, 1999), in the following studies we aimed to replicate the findings of Studies 2A and 2B by using a within-subjects design. In these subsequent studies, we particularly focused on the contrast of matching price differences versus beating price differences in fivefold. We did this because from a calculative perspective, it can be predicted that the larger the magnitude of a price-beating refund, the more favorable the outcome should be. In the following studies, we also took mediation role of fairness perceptions into account.

5 | STUDY 3A

5.1 | Method

5.1.1 | Participants, design, and procedure

A sample of 201 US citizens (47.3% men; M_{age} = 38.48, *SD* = 12.79) were recruited through Mturk for the completion of an online scenario study in exchange for payment ($0.50). In this study 20 participants (10%) were excluded from further analyses. Six participants were excluded because they failed to answer our manipulation checks correctly and 14 additional participants because they failed on our attention checks. Of the remaining 181 participants, 32% had a high school degree, 53% a bachelor's degree, 12.7% a master's degree, and 2.2% a PhD.

In the present study, we employed a two-level (refund depth: 100% vs. 500% of the price difference) within-subjects design. Each participant was thus asked to evaluate both these refund depth conditions. The order of the conditions was randomized. We used the same scenario descriptions as in Study 2A.

5.1.2 | Measures

5.1.2.1 | Manipulation and realism check

The same manipulation and realism check were used as in Study 2A. Participants who were unable to identify the correct refund levels were not included in the analyses. A one sample *t*-test revealed that the mean score on the realism check (*M* = 4.73, *SD* = 1.30) significantly differed from the scale's midpoint (*t*(180) = 7.56, *p* < .001), which indicates that the scenarios were viewed as realistic.

5.1.2.2 | Fairness perceptions and general attitudes towards the store

In our within-subjects design participants had to rate the included measures for each condition. Therefore, in the present study we used a two-item fairness scale and an abridged four-item version of our general attitudes scale. Fairness perceptions were measured using the following two items, "To what extent do you find this low-price guarantee fair/adequate" (1 = *not at all*, 7 = *very much*). These items are based on the fairness scale of Gelbrich et al. (2015). For the general attitudes scale we selected one item of each of the individual scales (trust, brand perception, loyalty, and shopping intentions). Specifically, the items that displayed the strongest factor loading in the factor analysis of Study 2A were included (these particular items are provided as sample items in our description of Study 2A). Table 5 provides the means, standard deviations, Cronbach's alphas, and correlations for each measure, separately for the 100% and the 500% refund depth condition.

TABLE 5 Means, standard deviations, Cronbach's alphas, and correlations (Study 3A)

Measure	*M*	*SD*	α	1.	2.	3.
1. Fairness 100%	5.62	1.29	.77	-		
2. Fairness 500%	5.22	1.78	.76	.00	-	
3. General attitudes 100%	5.54	1.16	.94	.61***	−.01	-
4. General attitudes 500%	5.74	1.51	.95	.03	.60***	.25***

***p < .001.

5.2 | Results

5.2.1 | Fairness perceptions and general attitudes towards the store

A paired sample *t*-test on the fairness scale revealed that the 500% refund depth condition was perceived as significantly less fair than the 100% refund depth condition (*t*(180) = −2.41 *p* = .017). However, for the general attitudes scale these two conditions did not differ significantly from each other (*t*(180) = 1.55, *p* = .124).

5.2.2 | Mediating role of fairness perceptions

To test whether fairness perceptions mediate the null effect of refund depth on general attitudes towards the store, within-subjects mediation analysis was conducted using the MEMORE macro in Statistical Package for the Social Science (Montoya & Hayes, 2016; based on 1,000 bootstrap samples). The results of this analysis revealed a negative and significant indirect effect of refund depth (which contrasted the 500% refund depth condition with the 100% refund depth condition) on general attitudes through fairness perceptions (*b* = −0.20, *SE* = 0.09, 95% CI [−0.37, −0.04]). The direct effect of refund depth on general attitudes was positive and significant (*b* = 0.39, *SE* = 0.09, *t*(178) = 4.25, *p* < .001). Note that in the literature this type of mediation, in which the indirect effect and the direct effect have opposite signs (which can cancel out the total effect, as such causing the reported null effect), is often referred to as an inconsistent mediation effect (also called suppression; see Davis, 1985; also see MacKinnon, Fairchild, & Fritz, 2007; McFatter, 1979).

5.3 | Discussion

In the present study we employed a within-subjects design in order to replicate the results of Study 2A. We again found that customers' general attitudes towards the store were not significantly improved when a store announced to beat price differences in fivefold compared to when a store announced to match price differences. The findings further indicate that a large price-beating guarantee that promises to cover price differences in fivefold is perceived as less fair than a price-matching guarantee. Moreover, our mediation analysis showed

that fairness perceptions mediate the null effect of price-matching versus price-beating in fivefold on general attitudes towards the store. The findings of this study as such illustrate that a large price-beating guarantee is not more effective than price-matching because such a guarantee is perceived as less fair. Fairness thus acts as a suppressor variable in the relationship between refund depth and general attitudes.

The aim of the following study was to replicate the findings of Study 2B, in which the effectiveness of the provision of an announced price-beating refund was examined. Hence, in the next study we focused on the effectiveness of price-beating as a compensation policy to retain customers (instead of an advertisement strategy to attract customers). Perceived fairness was again included as the mediator variable.

6 | STUDY 3B

6.1 | Method

6.1.1 | Participants, design, and procedure

The sample consisted of 200 US citizens (47% men; M_{age} = 37.62, *SD* = 13.05), who were recruited through Mturk. Participants completed an online scenario study in exchange for payment ($0.50). Ten participants (5%) were excluded from further analyses. One participant was excluded because she failed to answer our manipulation checks correctly and nine additional participants because they failed on our attention checks. Of the remaining 190 participants, 0.5% had no degree, 34.7% a high school degree, 53.2% a bachelor's degree, 9.5% a master's degree, and 2.1% a PhD.

We again employed a two-level (refund depth: 100% vs. 500% of the price difference) within-subjects design. To administer our refund depth manipulation we used similar scenario descriptions as in Study 2B. However, while in Study 2B we manipulated product price (which did not yield a significant effect), in the present study we only included one intermediate product price level (i.e., a vacuum cleaner with a retail price of $100). After participants were informed about the store's low-price guarantee (see procedure of Study 2B), they were asked to imagine that they bought a new vacuum cleaner for the price of $100, and that they later discovered that another store sells the exact same vacuum cleaner for only $80. As advertised by the store, in the 100% refund depth condition participants were offered a refund that exactly covered the price difference between the two stores, whereas in the 500% refund depth condition participants were offered a refund that covered five times the price difference. All participants were presented with both refund depth conditions. The order of these conditions was randomized.

6.1.2 | Measures

6.1.2.1 | Manipulation and realism check

We used the same manipulation and realism check as in Study 2B. Participants who were unable to identify the correct refund levels were not included in the analyses. A one sample *t*-test revealed that the mean score on the realism check (*M* = 4.82, *SD* = 1.54) significantly differed from the scale's midpoint ($t(189) = 7.32$, $p < .001$). This finding again indicates that the scenarios were viewed as realistic.

6.1.2.2 | Fairness perceptions and general attitudes towards the store

Fairness (2 items) and general attitudes (4 items) were probed with the same items as in Study 3A (the fairness items were slightly adapted in order to measure the perceived fairness of the compensation policy). Here too, participants answered these items for both refund depth conditions. Table 6 provides the means, standard deviations, Cronbach's alphas, and correlations for each measure, separately for both refund depth conditions.

6.2 | Results

6.2.1 | Fairness perceptions and general attitudes towards the store

A paired sample *t*-test on the fairness scale revealed that the 500% refund depth condition was perceived as significantly less fair than the 100% refund depth condition ($t(189) = -9.92$, $p < .001$). However, for the general attitudes scale these conditions did not yield a significant difference ($t(189) = -1.00$, $p = .321$).

6.2.2 | Mediating role of fairness perceptions

The MEMORE macro of Montoya and Hayes (2016) revealed a negative and significant indirect effect of refund depth (which contrasted the 500% refund depth condition with the 100% refund depth condition) on general attitudes through fairness perceptions ($b = -0.58$, $SE = 0.09$, 95% CI [−0.77, −0.41]) as well as a positive and significant direct effect of refund depth on general attitudes ($b = 0.48$, $SE = 0.11$, $t(187) = 4.41$, $p < .001$), again indicating inconsistent mediation.

6.3 | Discussion

This study replicates Study 2B showing that an advertised price-beating refund is not more effective to enhance customers' general attitudes towards the store than a price-matching refund. This result was obtained by using a within-subjects design in which participants evaluated these two strategies jointly. Moreover, the results indicated that a refund that beats price differences in fivefold is perceived as less fair than a refund that matches price differences, which according to our mediation analysis can explain the lack of additional positive effects of a price-beating refund on our general attitudes measure.

TABLE 6 Means, standard deviations, Cronbach's alphas, and correlations (Study 3B)

Measure	M	SD	α	1.	2.	3.
1. Fairness 100%	6.34	0.95	.66	-		
2. Fairness 500%	4.85	1.93	.70	.10	-	
3. General attitudes 100%	6.33	0.95	.93	.59***	.01	-
4. General attitudes 500%	6.22	1.27	.94	.13	.46***	.31***

***$p < .001$.

7 | GENERAL DISCUSSION

Companies can employ a "lowest price or difference back" (i.e., price-matching) or a "lowest price or *more* than the difference back" (i.e., price-beating) guarantee. Over the last few decades, companies worldwide have used this latter strategy as a tool to signal low product prices to their customers. However, empirical research on this topic is still rather scarce. Because beating a price difference may entail considerable extra costs for companies, it is vital to investigate whether this strategy results in more positive reactions from customers than matching a price difference. This was the main aim of the present research.

7.1 | Main conclusions

The results of the first study revealed that nearly 60% of the marketers and shop owners in our sample indicated that beating a price difference would be a more effective approach than matching a price difference to attract new customers as well as to maintain existing customers. This thinking is in line with the standard economic notion that greater compensation should result in more positive behavior towards the company. However, with regard to the different price-beating refund options, the choice ratio decreased when the refund level became larger. So, this latter result does not corroborate the hypothesis that more money is automatically better. Taken together, although most marketers and shop owners in our sample preferred price-beating above price-matching, smaller price-beating refunds were preferred above larger ones. Note that there was also a considerable segment of marketers and shop owners that voiced a preference for price-matching, some of them presumably taking the extra costs of price-beating into account when evaluating the different strategies.

In Studies 2A and 3A, we tested whether an advertised price-beating refund was indeed more effective to attract new customers than an advertised price-matching refund, using a between-subjects and a within-subjects design, respectively. In contrast with the beliefs of many marketers and shop owners, the results of these studies revealed that when a company promised to beat a price difference, customers' overall attitude towards the store—which was comprised of trust, brand perception, loyalty, and shopping intentions—was not substantially enhanced beyond the level that was already reached by a price-matching guarantee. This observation held true for the three price-beating refund levels that were included in Study 2A (i.e., 150%, 200%, and 500%). Our results thus corroborate prior research of Kukar-Kinney (2006) on low-price guarantees, who also found no refund depth effects on store loyalty (although in this study only a 100% refund vs. a 110% refund was compared, whereas in real-life situations greater levels of price-beating are prevalent). Additionally, Study 3A revealed that a low-price guarantee that promises to beat price differences in fivefold is perceived as less fair than a low-price guarantee that promises to match price differences. Moreover, our mediation analysis demonstrated that the null effect of price-matching versus price-beating in fivefold is mediated by these fairness perceptions, as such revealing an inconsistent mediation effect (see Davis, 1985; McFatter, 1979). The observation that price-beating is fivefold is not more effective than price-matching can thus be ascribed to its lower perceived fairness.

In Studies 2B and 3B we focused on low-price guarantees as a strategy to retain existing customers after they experienced a price difference, by again using a between-subjects (Study 2B) and a within-subjects design (Study 3B). The results of both studies revealed that when customers received a price-beating refund, their general attitudes in terms of trust, brand perception, loyalty, and shopping intentions were neither significantly improved relative to the price-matching condition. This result also held true for the different price-beating refund levels as well as for the different product prices that were included in Study 2B. Although no prior studies, at least to our knowledge, specifically investigated which effect receiving a price-beating refund has on customers' general attitudes toward this store, the present findings are actually in line with many prior studies on overcompensation, which failed to report a surplus value of overcompensation on top of the impact of a compensation that exactly covered the damage (e.g., Estelami & De Maeyer, 2002; Garrett, 1999; Haesevoets et al., 2016; Noone and Lee, 2002; also see Haesevoets, Reinders Folmer, De Cremer, & Van Hiel, 2013; Haesevoets, Van Hiel, Reinders Folmer, & De Cremer, 2014). Moreover, the results of Study 3B showed that a price-beating refund that covered the price difference five times was perceived as a less fair compensation policy than a refund that matched the difference. Here too, fairness perceptions mediated the reported null effect of price-matching versus price-beating.

Taken together, the present findings reveal an interesting contradiction: Although most marketers and shop owners thought that the employment of a price-beating guarantee is especially effective, this assessment is not reflected in our subsequent findings that the advertisement as well of the provision of a price-matching refund is equally effective as a price-beating refund. In sum, the present findings thus seem to suggest that, although low-price guarantees can certainly be a useful tool for companies, simply matching a price difference is just as effective as beating it to enhance positive customer responses.

7.2 | Theoretical implications

With regard to the advertisement effectiveness of price-beating refunds, the results presented here sharply contrast with the popular notion that "more is better." First, price-matching and price-beating guarantees were just as effective to attract and maintain customers. Second, larger price-beating refunds were not more effective than smaller ones. Interesting in the present context is the observation that psychological models have proposed that the outcomes of a transaction are not solely valued in terms of their tangible consequences, but also to the extent that they are perceived as fair. In this regard, the literature on advantageous inequality (see Loewenstein, Thompson, & Bazerman, 1989) provides a theoretical framework that can help to explain the present findings.

This literature has shown that people are strongly influenced by the principle of equality. Importantly, this increased preference for equality is not only noted for disadvantageous inequality, but also for advantageous inequality (which is an inherent aspect of price-beating

refunds). Thus, people value equality higher than other outcome distributions, even if those other outcomes might objectively have a greater economic value, like when a refund beats the mere price difference. Moreover, in this literature it has been argued that in cases of advantageous inequality individuals may experience feelings of guilt and distress as they consider the refund to be exaggerated (see Garrett, 1999; McCollough, Berry, & Yadav, 2000). In line with this perceptive, the present research revealed that price-beating in fivefold is actually perceived as a less fair advertisement strategy and compensation policy than matching price differences. As a result of this, the effectiveness of large price-beating refunds to enhance positive customer reactions was hampered. Prior overcompensation studies have found that the relationship between the level of overcompensation and degree of recovery is also mediated by the perceived fairness of the provided reimbursement (Gelbrich et al., 2015). Our studies complement this prior research by showing that the importance that people attach to fairness can also explain the null effects of price-matching versus price-beating that we observed in our research (also see Kukar-Kinney et al., 2007b).

In this light, it should be noted that in the present study we only tested and found the mediating role of fairness perceptions for the largest price-beating condition that covered price differences five times. We did this because prior research on overcompensation has revealed that people can handle unfairness, at least when it is not too large and in their advantage (e.g., see Boshoff, 1997; Gilly & Hansen, 1985; Hocutt et al., 2006). Based on these findings, it can thus reasonably be expected that a price-beating refund (and thus the degree of advantageous inequality) has to be rather large in order to be perceived as less fair than price-matching (which restores the state of equality). Therefore, our largest price-beating condition was most suitable to test for mediation of fairness.

7.3 | Practical implications

Our findings underscore the importance of low-price guarantees for companies as the results of our studies clearly indicate that customers' general attitudes towards a company were more positive in the presence of a low-price guarantee than in the absence of such a guarantee. However, a basic question that companies face when developing low-price guarantees is: What size of refund should best be offered? Price-beating refunds can be costly for companies. From a managerial perspective, the lack of additional positive effects of price-beating beyond price-matching should thus warn companies that the refund depth should best be restricted to matching the lower competitive price (cf. Kukar-Kinney, 2006).

The high costs of price-beating guarantees can best be illustrated by an example of the British supermarket Tesco. As mentioned in the introduction, in 2011 Tesco advertised to double the difference if customers found products cheaper at an Asda store. According to a report in the Daily Mail ("Customers make a killing after Tesco is forced to pay out refunds as price pledge backfires", 2011), one shopper bought two bottles of Chardonnay, two bottles of Magners pear cider, two Nivea rich body moisturizers, and a pack of mature cheddar. The basket of items came to £17.48 at Asda and £38.46 at Tesco—a difference of £20.98. Tesco was forced to give this customer a voucher equivalent to £41.96. Hence, this customer ended up with free products and some extra money. On a Manchester United web forum one customer even claimed to have made £600 from Tesco. Later that year, Tesco blamed consumers for over-exploiting the deal and had withdrawn its pledge to pay customers double the difference. In sum, these examples highlight that the announcement of price-beating refunds can imply serious cost for companies. Because customers seem to benefit little from refunds beyond price-matching, price-beating can be considered to be a cost-ineffective strategy for companies.

7.4 | Strengths, limitations, and recommendations for future research

The price-beating continuum can be seen as an open-ended interval with no natural upper boundary. In this light, an important strength of the present research is that we included multiple price-beating refund sizes that broadly covered the price-beating range. A vital strength of our research, therefore, is that we were able to replicate the neutral effect of price-beating (versus price-matching) using moderate and strong forms of price-beating, thereby increasing the ecological validity of our research. In a related vein, the inclusion of two different product prices in Study 2B also increases the generalizability of our findings over different product prices.

Another important strength of our contribution is that we obtained similar findings for price-matching versus price-beating across studies using both between-subjects and within-subjects designs. The fact that we could replicate these effects with both designs further enlarges our confidence in the robustness of our findings. Moreover, the use of these different designs also clarifies that a difference in terms of evaluability of information (see Hsee, 1996; Hsee & Zhang, 2010; Hsee et al., 1999) cannot explain the reported contradiction between what most marketers and shop owners believed the best strategy was in our first study, and how customers actually evaluated the different strategies in our subsequent studies.

A limitation of our research, however, is that we relied on scenario-based experiments in which participants had to imagine how they would react to an advertised price-matching or price-beating refund. An important advantage of using scenarios is that it enhances internal and statistical conclusion validity by controlling manipulated variables and by reducing random noise in the outcome measures (see Cook & Campbell, 1979; Churchill, 1995; also see Havlena & Holbrook, 1986; Wirtz & Bateson, 1999). Although by the use of consumer samples and realistic scenarios our studies showed a reasonable degree of mundane realism, an important disadvantage is that reading a hypothetical scenario is still different from actually experiencing a specific event. In this vein, Garret's (1999) field experiment on overcompensations revealed that when companies actually provided dissatisfied customers a cash-based overcompensation, customers' satisfaction and repurchase intentions were not enhanced relative to an exact compensation. A similar result was more recently obtained in a laboratory experiment by Haesevoets et al. (2014). Future research should investigate whether our findings also hold true when

participants actually expect or benefit from a price-beating refund in a field setting.

Another limitation of the present study is that other factors (besides fairness) that could influence the effectiveness of different low-price guarantees might have been overlooked. Prior research of Kukar-Kinney and Walters (2003) found that the competitive scope (i.e., the number of competitors eligible for the low-price guarantee) also affected patronage intentions. Moreover, Kukar-Kinney et al. (2007a) reported that the effects of refund depth on purchase behavior varied across more or less price conscious consumer segments. Future research should also take these and other situational and personality variables into account when investigating the effectiveness of price-matching versus price-beating.

ACKNOWLEDGMENTS

This work was supported by a research grant from the National Fund for Scientific Research-Flanders (under grant number G095912 N).

REFERENCES

Ambrose, M., Hess, R. L., & Ganesan, S. (2007). The relationship between justice and attitudes: An examination of justice effects on event and system-related attitudes. *Organizational Behavior and Human Decision Processes*, *103*(1), 21–36. doi:10.1016/j.obhdp.2007.01.001

Bayol, M. P., de la Foye, A., Tellier, C., & Tenenhaus, M. (2000). Use of PLS path modeling to estimate the European consumer satisfaction index (ECSI) model. *Statistica Applicata*, *12*(3), 361–375.

Bigley, G. A., & Pearce, J. L. (1998). Straining for shared meaning in organization science: Problems of trust and distrust. *Academy of Management Review*, *23*(3), 405–421. doi:10.5465/AMR.1998.926618

Biswas, A., Pullig, C., Yagci, M. I., & Dean, D. H. (2002). Consumer evaluation of low price guarantees: The moderating role of reference price and store image. *Journal of Consumer Psychology*, *12*(2), 107–118. doi:10.1207/S15327663JCP1202_04

Boshoff, C. (1997). An experimental study of service recovery options. *International Journal of Service Industry Management*, *8*(2), 110–130. doi:10.1108/09564239710166245

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk a new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science*, *6*(1), 3–5. doi:10.1177/1745691610393980

Churchill, G. A. (1995). *Marketing research: Methodological foundations*. Fort Worth, TX: Dryden Press.

Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis for field settings*. Chicago, IL: Rand McNally.

Customers make a killing after Tesco is forced to pay out refunds as price pledge backfires, (2011, March 25), Available at http://www.dailymail.co.uk/news/article-1369749.htm [acceded on 12 July 2016].

Davis, M. D. (1985). The logic of causal order. In J. L. Sullivan, & R. G. Niemi (Eds.), *Sage university paper series on quantitative applications in the social sciences*). Beverly Hills, CA: Sage Publications.

Doney, P. M., & Cannon, J. P. (1997). An examination of the nature of trust in buyer–seller relationships. *The Journal of Marketing*, *61*(2), 35–51. doi:10.2307/1251829

Estelami, H., & De Maeyer, P. (2002). Customer reactions to service provider overgenerosity. *Journal of Service Research*, *4*(3), 205–216. doi:10.1177/1094670502004003004

Garbarino, E., & Johnson, M. S. (1999). The different roles of satisfaction, trust, and commitment in customer relationships. *The Journal of Marketing*, *63*(2), 70–87. doi:10.2307/1251946

Garrett, D. E. (1999). The effectiveness of compensation given to complaining consumers: Is more better? *Journal of Consumer Satisfaction, Dissatisfaction, and Complaining Behavior*, *12*, 26–34.

Gelbrich, K., Gäthke, J., & Grégoire, Y. (2015). How much compensation should a firm offer for a flawed service? An examination of the nonlinear effects of compensation on satisfaction. *Journal of Service Research*, *18*(1), 107–123. doi:10.1177/1094670514543149

Gilly, M. C., & Hansen, R. W. (1985). Consumer complaint handling as a strategic marketing tool. *Journal of Consumer Marketing*, *2*(4), 5–16. doi:10.1007/s11002-010-9101-6

Haesevoets, T., Reinders Folmer, C., De Cremer, D., & Van Hiel, A. (2013). Money isn't all that matters: The use of financial compensation and apologies to preserve relationships in the aftermath of distributive harm. *Journal of Economic Psychology*, *35*, 95–107. doi:10.1016/j.joep.2013.02.003

Haesevoets, T., Van Hiel, A., Reinders Folmer, C., & De Cremer, D. (2014). What money can't buy: The psychology of financial overcompensation. *Journal of Economic Psychology*, *42*, 83–95. doi:10.1016/j.joep.2014.02.001

Haesevoets, T., Van Hiel, A., Pandelaere, M., Bostyn, D., & De Cremer, D. (2016). How much compensation is too much? An investigation of the effectiveness of financial overcompensation as a means to enhance customer loyalty. Manuscript under review.

Hauser, D. J., & Schwarz, N. (2016). Attentive Turkers: MTurk participants perform better on online attention checks than do subject pool participants. *Behavior Research Methods*, *48*(1), 400–407. doi:10.3758/s13428-015-0578-z

Havlena, W. J., & Holbrook, M. B. (1986). The varieties of consumption experience: Comparing two typologies of emotion in consumer behavior. *Journal of Consumer Research*, *13*(3), 394–404. doi:10.1086/209078

Hocutt, M. A., Bowers, M. R., & Donavan, T. D. (2006). The art of service recovery: Fact or fiction? *Journal of Services Marketing*, *20*(3), 199–207. doi:10.1108/08876040610665652

Hsee, C. K. (1996). The evaluability hypothesis: An explanation for preference reversals between joint and separate evaluations of alternatives. *Organizational Behavior and Human Decision Processes*, *67*(3), 247–257. doi:10.1006/obhd.1996.0077

Hsee, C. K., & Zhang, J. (2010). General evaluability theory. *Perspectives on Psychological Science*, *5*(4), 343–355. doi:10.1177/1745691610374586

Hsee, C. K., Loewenstein, G. F., White, S. B., & Bazerman, M. H. (1999). Preference reversals between joint and separate evaluations of options: A review and theoretical analysis. *Psychological Bulletin*, *125*(5), 576–590. doi:10.1037/0033-2909.125.5.576

Jain, S., & Srivastava, J. (2000). An experimental and theoretical analysis of price-matching refund policies. *Journal of Marketing Research*, *37*(3), 351–362. doi:10.1509/jmkr.37.3.351.18773

Kukar-Kinney, M. (2006). The role of price-matching characteristics in influencing store loyalty. *Journal of Business Research*, *59*(4), 475–482. doi:10.1016/j.jbusres.2005.10.001

Kukar-Kinney, M., & Walters, R. G. (2003). Consumer perceptions of refund depth and competitive scope in price-matching guarantees: Effects on store patronage. *Journal of Retailing*, *79*(3), 153–160. doi:10.1016/S0022-4359(03)00038-1

Kukar-Kinney, M., Walters, R. G., & MacKenzie, S. B. (2007a). Consumer responses to characteristics of price-matching guarantees: The moderating role of price consciousness. *Journal of Retailing*, *83*(2), 211–221. doi:10.1016/j.jretai.2006.01.001

Kukar-Kinney, M., Xia, L., & Monroe, K. B. (2007b). Consumers' perceptions of the fairness of price-matching refund policies. *Journal of Retailing*, *83*(3), 325–337. doi:10.1016/j.jretai.2007.03.005

Lam, S. Y., Shankar, V., Erramilli, M. K., & Murthy, B. (2004). Customer value, satisfaction, loyalty, and switching costs: An illustration from a business-to-business service context. *Journal of the Academy of Marketing Science*, *32*(3), 293–311. doi:10.1177/0092070304263330

Loewenstein, G. F., Thompson, L., & Bazerman, M. H. (1989). Social utility and decision making in interpersonal contexts. *Journal of Personality and Social Psychology*, *57*(3), 426–441. doi:10.1037/0022-3514.57.3.426

Lurie, N. H., & Srivastava, J. (2005). Price-matching guarantees and consumer evaluations of price information. *Journal of Consumer Psychology*, *15*(2), 149–158. doi:10.1207/s15327663jcp1502_7

MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. *Annual Review of Psychology*, *58*, 593–614. doi:10.1146/annurev.psych.58.110405.085542

Martenson, R. (2007). Corporate brand image, satisfaction and store loyalty: A study of the store as a brand, store brands and manufacturer brands. *International Journal of Retail & Distribution Management*, *35*(7), 544–555. doi:10.1108/09590550710755921

McCollough, M. A., Berry, L. L., & Yadav, M. S. (2000). An empirical investigation of customer satisfaction after service failure and recovery. *Journal of Service Research*, *3*, 121–137. doi:10.1177/109467050032002

McFatter, R. M. (1979). The use of structural equation models in interpreting regression equations including suppressor and enhancer variables. *Applied Psychological Measurement*, *3*(1), 123–135. doi:10.1177/014662167900300113

Montoya, A. K., & Hayes, A. F. (2016). Two-condition within-participant statistical mediation analysis: A path-analytic framework. *Psychological Methods*. doi:10.1037/met0000086

Noone, B. M., & Lee, C. H. (2011). Hotel overbooking the effect of overcompensation on customers' reactions to denied service. *Journal of Hospitality and Tourism Research*, *35*(3), 334–357. doi:10.1177/1096348010382238

Sirdeshmukh, D., Singh, J., & Sabol, B. (2002). Consumer trust, value, and loyalty in relational exchanges. *Journal of Marketing*, *66*(1), 15–37. doi:10.1509/jmkg.66.1.15.18449

Sivakumar, K., & Weigand, R. E. (1996). Price match guarantees: Rationale, implementation, and consumer response. *Pricing Strategy & Practice*, *4*(4), 4–13.

Smith, A. K., Bolton, R. N., & Wagner, J. (1999). A model of customer satisfaction with service encounters involving failure and recovery. *Journal of Marketing Research*, *36*(3), 356–372. doi:10.2307/3152082

Srivastava, J., & Lurie, N. (2001). A consumer perspective on price-matching refund policies: Effect on price perceptions and search behavior. *Journal of Consumer Research*, *28*(2), 296–307. doi:10.1086/322904

Srivastava, J., & Lurie, N. H. (2004). Price-matching guarantees as signals of low store prices: Survey and experimental evidence. *Journal of Retailing*, *80*(2), 117–128. doi:10.1016/j.jretai.2004.04.004

Wirtz, J., & Bateson, J. E. (1999). Consumer satisfaction with services: Integrating the environment perspective in services marketing into the traditional disconfirmation paradigm. *Journal of Business Research*, *44*(1), 55–66. doi:10.1016/S0148-2963(97)00178-1

Zhang, Y., Fang, Y., Wei, K. K., Ramsey, E., McCole, P., & Chen, H. (2011). Repurchase intention in B2C e-commerce – A relationship quality perspective. *Information Management*, *48*(6), 192–200. doi:10.1016/j.im.2011.05.003

Tessa Haesevoets is a PhD student in social psychology at the Department of Developmental, Personality and Social Psychology, Ghent University. Her research interests include trust repair, financial compensation, and apologies.

Alain Van Hiel is a professor of social psychology at the Department of Developmental, Personality and Social Psychology, Ghent University. He holds a PhD from Ghent University. His research interests include trust repair, social cognition, group processes, and political psychology.

Emma Onraet is a postdoctoral researcher in social psychology at the Department of Developmental, Personality and Social Psychology, Ghent University. She holds a PhD from Ghent University. Her research interests include political psychology, ideological attitudes, prejudice, and ethnic diversity.

Anne Joosten is a postdoctoral researcher in social psychology at the Department of Developmental, Personality and Social Psychology, Ghent University. She holds a PhD from Ghent University. Her research interests include behavioral ethics, ethical leadership, power, and morality.

David De Cremer is the KPMG professor in management studies at the Cambridge Judge Business School, University of Cambridge. He holds a PhD from the University of Southampton. He is an associate editor of the Academy of Management Annals and teaches at the MBA and executive levels, with a specific focus on organizational behavior, corporate social responsibility and ethics, contemporary issues in leadership, trust, negotiations, and decision making. His current research interests include trust development and repair, behavioral business ethics, organizational justice, and China business.

How to cite this article: Haesevoets T, Van Hiel A, Onraet E, Joosten A, De Cremer D. Low-price guarantees as advertisement strategy and compensation policy: The more, the better? *J Consumer Behav*. 2017;16:389–402. https://doi.org/10.1002/cb.1639

Received: 23 February 2016 | Revised: 15 November 2016 | Accepted: 2 January 2017

DOI: 10.1002/cb.1640

WILEY

ACADEMIC PAPER

The effect of acculturation and ethnic identification on consumer disidentification and consumption: An investigation of U.S. Hispanics

Aviv Shoham[1] | Sigal Segev[2] | Yossi Gavish[3]

[1] Graduate School of Management, University of Haifa, Haifa, Israel

[2] Department of Communication, Florida International University, Miami, USA

[3] Business Administration, Ono Academic College, Kiryat Ono, Israel

Correspondence
Sigal Segev, Department of Communication, Florida International University, Miami, USA.
Email: segevs@fiu.edu

Abstract

This study examines the antecedents and outcomes of consumer disidentification (CDI) among immigrants and the role that cultural change plays in affecting this consumer orientation. Specifically, it explores the effect of acculturation and ethnic identification on host nation sentiments (i.e., host nation identification, disidentification, and affinity) and how the latter influence CDI. Then, it assesses the effect of CDI on consumer behaviors including product quality judgments and willingness to buy products originating in the host country. Survey data from a convenience sample of 555 adults of Cuban and Puerto Rican origin, who live in the USA, confirm that disidentification with the host nation is the basis of CDI. Acculturation is the process through which disidentification with the host nation and the resulting CDI can be mitigated. However, ethnic identification shows inconsistencies in affecting consumers' sentiments toward the host nation and CDI. While CDI is negatively related to consumers' willingness to buy domestic products, it does not seem to affect consumers' willingness to buy domestic products through their product quality judgments. Practically, this study facilitates strategic marketing decisions that are related to the presentation of country-of-origin (COO) product attributes in marketing communication and branding campaigns. This study is one of the few empirical studies on CDI, and it focuses on COO effects of domestic rather than foreign products among subcultures within national boundaries. Understanding COO effects among subnational cultural consumers is of primary importance given the ever-increasing ethnic diversification of consumer markets.

KEYWORDS

acculturation, consumer disidentification, ethnic identification, national disidentification, national identification

[Correction added on 22 February 2017, after the first online publication: Table 1 and Table 4 have been revised].

1 | INTRODUCTION

Consumer local bias affects domestic product purchase behavior. Research has confirmed that individuals' identification conflicts may translate into positive or negative predispositions toward purchasing products because of the country with which they are associated. For example, consumer ethnocentrism (Sharma, Shimp, & Shin, 1995), racism (Ouellet, 2007), and animosity (Shimp, Dunn, & Klein, 2004; Shoham, Davidow, Klein, & Ruvio, 2006) explain what underlies one's bias toward products originating domestically or abroad. Consumer disidentification (CDI) further explains such a bias toward locally produced products. Defined as consumers' active rejection of and distancing from the perceived typical domestic consumer, CDI was found to affect purchase decisions of immigrant consumers in their host countries (Josiassen, 2011).

We propose and test a model that investigates CDI's antecedents (i.e., identification, disidentification, and affinity with the host nation) and consumption outcomes (i.e., product quality judgment and willingness to buy) among individuals from two major immigrant groups in the U.S.: Cubans and Puerto Ricans. It also examines how cultural adaptation (i.e., acculturation) and maintenance (i.e., ethnic identification) affect these antecedents, which in turn, determine the extent of CDI and its resulting attitudinal and consumer behavior outcomes related to the host country's products (Figure 1). Understanding CDI and the

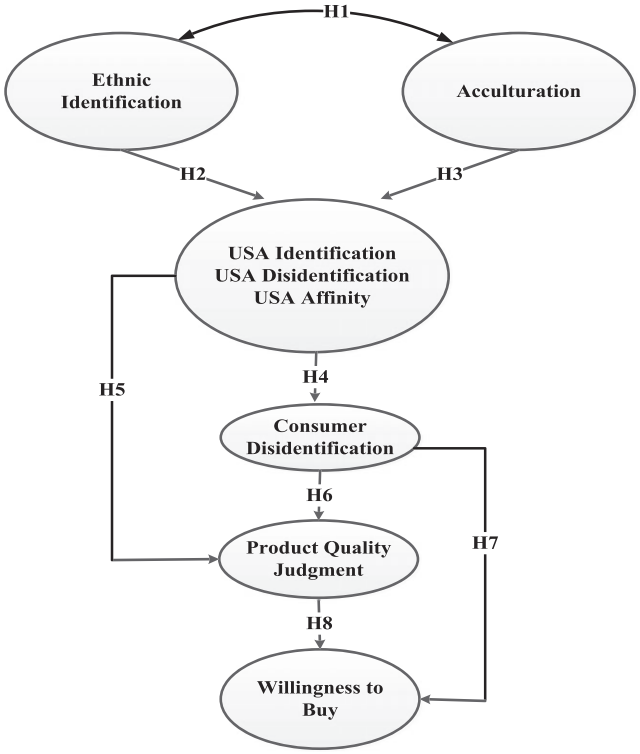


FIGURE 1 The ethnic identification–acculturation model

factors affecting or mitigating it is important as consumer markets are becoming ethnically diversified, a trend that will continue to grow exponentially due to the ever-increasing global immigration. Such an investigation is also important theoretically and practically. Theoretically, it will extend and add to the body of research on country-of-origin (COO) and consumer bias, exploring CDI as a specific case of consumer bias toward domestic products. Moreover, it will add to the relatively limited literature about COO effects among immigrant consumers (Zolfagharian & Sun, 2010). Such effects are relevant to immigrant consumers as they often face cultural and national identification conflicts (Vekuyten & Yildiz, 2007). Immigrants tend to identify with and exhibit bias toward host countries in addition to their original ones (Askegaard et al., 2005; Zolfagharian & Sun, 2010, 2014), which is often translated into consumer sentiments and behaviors toward the domestic marketplace and its products. Practically, it will help marketers better understand the mechanism of immigrant consumers' sentiments and predispositions to determine more effectively their positioning strategy such as emphasizing or muting host country cues on product packaging and promotions.

Consumer disidentification's importance is highlighted by studies using it and its opposite (identification). For example , Strizhakova, Coulter, and Price (2012) studied young adults in emerging markets and their cultural identity and Cher-Min, Chun-Ling, and Yunzhou (2014) studied COO and consumer quality perceptions and purchase intentions and related COO to national identity (Yang, Snell, & Tsai, 2015). However, CDI research has been limited. Josiassen's (2011) study introduced CDI and provided an initial test and validation for it. Tested among second-generation Turkish immigrants in the Netherlands, he also confirmed that CDI negatively affected consumer behavior related to domestic products (i.e., product judgment and willingness to buy), and that acculturation and ethnic identification influenced CDI in opposite directions. The original study laid the foundations for understanding CDI and its effects on immigrant consumers, but some gaps still remain. First, explorations of possible antecedents of CDI (beyond acculturation and ethnic identification) are needed. Possible antecedents can be related to the extent of individuals' identification, disidentification, and affinity with host nations. Notably, the role of immigrants' sentiments toward host nations and the way they affect CDI was not clearly delineated in the original study. Second, the original study investigated the direct effect of acculturation and ethnic identification on CDI. We propose that cultural adaptation and maintenance influence the extent of individuals' sentiments toward host nations with the latter affecting CDI. Third, this study addresses the call to further validate the CDI construct through follow-up studies and to examine it among subcultures in other countries (Josiassen 2011). Finally, the original study tested CDI among second-generation immigrants. This segment often maintains two or more identities simultaneously (Rockquemore & Brunsma, 2002), and its members' national and cultural identities are complex and situationally based, depending on social context, time, and perception of the others (Asghari-Fard & Hossain, 2016). Therefore, testing this model among a heterogeneous sample in terms of generation will yield better insights about the role of acculturation and ethnic identification in this process.

2 | LITERATURE REVIEW AND RESEARCH HYPOTHESES

Acculturation reflects varying degrees of identification with and attachment to the dominant culture, while ethnic identification refers to the extent to which traits from the original culture are maintained (Kim, Laroche, & Tomiuk, 2001; Laroche, Zhiyong, Kim, & Marie-Odile, 2007). Josiassen (2011) noted that acculturation is related to outcomes, such as linguistic, mass media, and social interaction. Acculturated consumers attached to the dominant culture (USA in the current study) have learned the traits of the culture in which they reside. Kim, Laroche, and Tomiuk (2001) suggested that the acculturation process involves aspects such as speaking the language, watching mainstream media, socialization with locals, and considering the culture rich and precious. Contrary to acculturated consumers, Josiassen (2011) argued that consumers with a high degree of ethnic identification want to maintain links with their original culture (e.g., symbols, linguistic, and traditions). Wiley, Lawrence, Figueroa, and Percontino (2013) noted that when members of racial and ethnic groups perceive rejection on basis of their group membership, they identify with their group more strongly, hence rejection-identification within their group and rejection-disidentification with other groups. Evidence for rejection-identification has been observed among African Americans (Branscombe, Schmitt, & Harvey, 1999) and Latinos in the USA (Armenta & Hunt, 2009; Cronin, Levin, Branscombe, Van Larr, & Tropp, 2012). Thus, we hypothesize that

H1: *Acculturation and ethnic identification are negatively associated.*

Donthu and Cherian (1994) noted that enduring identification enables classification of subjects as strongly or weakly identified Hispanics. Strongly identified Hispanics (SIH) are those individuals whose sense of self is very strongly formed by the Hispanic culture, therefore, the basic values and attitudes of the Hispanics will predict their actions. In contrast, weakly identified Hispanics (WIH) are those whose self-image is only slightly formed by the Hispanic culture, therefore, their actions will not necessarily be predictable by cultural values and attitudes. According to Donthu and Cherian (1994), SIH consider ethnicity more often and as more important than will WIH. Ethnic identification should impact the selection of services, depending on the ethnicity of the provider of the service. In addition, Josiassen (2011) argued that consumers with a high level of ethnic identification want to maintain links with their original culture (e.g., symbols, linguistic, and traditions). Wang, Eccles, and Sameroff (2003) argued that sometimes ethnic identification acts as protective factor against ethnic discrimination. Finally, Cross (1991) argued that a healthy identification with one's ethnic group is a psychological buffer against prejudice and discrimination. Thus, we hypothesize that

H2a: *Ethnic identification is negatively associated with identification with the host nation.*

According to Waters (1990, 1996), ethnic identity is less of a choice for racial minorities in the USA. While Whites have more freedom to select the ethnicities with which they identify, Hispanic Americans do not have the option of a symbolic ethnicity. The choice of ethnic minorities is limited because their identity is constrained by ethnic labels. As a result, it is possible that these feeling will lead to high level of frustration and disidentification with the host country. Jasinskaja, Liebkind, and Solheim (2009) argued that members of ethnic minority groups distance themselves from people who reject them on the basis of their group memberships, a phenomenon that has been labeled rejection-disidentification. For example, Branscombe et al. (1999) found that African-Americans who perceive race-based rejection from Whites express less positive attitudes toward them. Rejection may increase distance because it is painful and because members of ethnic minority groups would prefer to maintain their identities (Smart Richman & Leary, 2009; Zárate, Shaw, Marquez, & Biagas, 2012). Consumers who disidentify with their host country group are repulsed by living in a society in which they are dissimilar to the majority of consumers (Josiassen, 2011). Finally, stronger pressure from society to assimilate despite the dissimilarities enhances repulsion and disidentification (Verkuyten & Yildiz, 2007). Therefore,

H2b: *Ethnic identification is positively associated with disidentification with the host nation.*

Affinity is defined as a feeling of liking, sympathy, and attachment toward a foreign country that has become an in-group as a result of the consumers' direct personal experience and/or normative exposure (Oberecker, Riefler, & Diamantopoulos, 2008). Affinity is related to consumers' country-specific favorability, and consumers who show a general preference for foreign goods and harbor positive feelings toward specific foreign countries are most likely to purchase products from these sources (Jaffe & Nebenzahl, 2006). Thus, we hypothesize:

H2c: *Ethnic identification is negatively associated with affinity toward the host country.*

Redfield, Linton, and Herskovits (1936, p. 149) presented acculturation's seminal definition: "acculturation comprehends those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact with subsequent changes in the original culture patterns of either or both group." Berry (2003) suggested that acculturation is a multidirectional cultural change process triggered by intercultural contact that changes attitudes, norms, behaviors, knowledge, and identity. Josiassen (2011) argued that general acculturation is substantially related to specific acculturation outcomes, such as linguistic, mass media, and social interaction acculturation. Acculturated consumers who identify with and are attached to the dominant culture have learned the traits of the culture in which they reside. Alba and Hutchinson (1987) emphasized that learning and knowledge positively influence evaluations, preferences, and choices relevant to the dominant culture.

Berry (1997) noted that in all plural societies, cultural groups and their individual members must deal with two issues: (a) Is it considered to be of value to maintain one's identity and characteristics? and (b) Is it considered to be of value to maintain relationships with larger society? Berry (1997) distinguished between four strategies. Two of those strategies are assimilation and separation. Assimilation represents situation in which it is not considered to be of value to maintain the minority identity and characteristics while it is highly considered to be of value to maintain relationships with the majority, while separation represents situation in which it is highly considered to be of value to maintain the minority identity and characteristics, while it is not considered valuable to maintain relationships with the majority.

Combining Berry's (1997) strategies with Josiassen's (2011) and Laroche et al.'s (2007) views of acculturation as reflecting varying degrees of identification with and attachment to the dominant culture, we expect that in case of separation strategy (low acculturation situation), immigrants will strive to maintain their identity, which will result in low levels of identification with their host country (USA). Disidentification involves consumers who disidentify with their host country group and are repulsed by living in a society in which they are dissimilar to the majority of consumer (Josiassen, 2011). Hence, we expect negative relationships between acculturation and identification with the host nation. In case of assimilation strategy (high acculturation situation), immigrants are likely to demonstrate high levels of affinity, because affinity is related to consumers' country-specific favorability (Jaffe & Nebenzahl, 2006). In sum,

H3a: *Acculturation is positively associated with identification with the host nation.*

H3b: *Acculturation is negatively associated with disidentification with the host nation.*

H3c: *Acculturation is positively associated with affinity with the host country.*

Josiassen (2011) used the term CDI to represent consumer's active rejection of and distancing from the perceived typical domestic consumer. Consumers with high levels of CDI do not identify with consumers in the country in which they live and categorize themselves as different from the majority group. He noted that the construct of CDI affects consumers purchase behavior. Specifically, people with high levels of CDI avoid domestic products because they want to disidentify themselves from a typical domestic consumer, and generally, these segment want to disidentify himself from the majority in variety aspects of life (e.g., linguistic, mass media, and social interaction). As a result, we expect that immigrants with high levels of CDI will demonstrate low levels of identification with the host nation, high levels of disidentification with the host nation, and view the host country in less favorable light. Hence,

H4a: *Identification with the host nation is negatively associated with CID.*

H4b: *Disidentification with the host nation is positively associated with CDI.*

H4c: *Affinity toward the host country is negatively associated with CDI.*

Gűrhan-Canli and Maheswaran (2000) argued that some consumers have positive and negative predispositions toward purchasing products because of the country with which they associate the products. In general, there are at least two ways the country associated with a product influences consumer behavior. First, country information influences consumer behavior through the country image (Han, 1989). Second, Herche (1992) noted that a consumer can be favorable toward a foreign product but still decide not to buy it because of a belief that buying this product hurts the domestic economy. Following the same logic as Herche (1992), a member of a minority may prefer products and services made by individuals from the same minority group to provide work to them. However, in order to cope with or avoid cognitive dissonance that may occur from buying inferior products instead of high-quality products, such individuals may reduce perceptions of product quality judgment. Therefore, we hypothesize the following:

H5a: *Identification with the host nation is positively associated with domestic product quality judgment.*

H5b: *Disidentification with the host nation is negatively associated with domestic product quality judgment.*

H5c: *Affinity toward the host country is positively associated with domestic product quality judgment.*

Consumer disidentification is conceptualized as "consumers' active rejection of and distancing from the perceived typical domestic consumers. Consumers with high levels of CDI do not identify with consumers in the country they live in and categorize themselves as different from the majority group" (Josiassen, 2011, p. 125). In addition, people with high levels of CDI avoid domestic products because they want to disidentify themselves from the typical domestic consumers. Josiassen (2011) argued that CDI affects negatively product judgment of domestic products. Therefore, we hypothesize that

H6: *Consumer disidentification is negatively associated with domestic product quality judgment.*

According to Josiassen (2011), CDI predicts consumers' willingness to buy. In other words, Josiassen (2011) argued that consumer's level of CDI affects their willingness to buy and their actual buying in order to reduce or avoid tensions that might otherwise arise from their disidentification feelings. Thus,

H7: *Consumer disidentification is negatively associated with willingness to buy domestic products.*

Zafar, Anang, Nor, and Murali (2013) noted that based on traditional COO cues, there is a direct relationship between consumers' product judgments and their intention to buy foreign products. As they suggested and documented empirically (p. 555), "product judgment of consumers has a positive relationship with purchase behavior of consumers; the more favorable the product judgment, the more favorable is the intention to buy foreign products." In addition, a study by Ettenson and Klein (2005) indicated that product judgment is predictive of purchase behavior (see also Taewon & Ik-Whan, 2002). Thus, we hypothesize the following:

H8: *Product judgment is positively associated with willingness to buy domestic products.*

3 | RESEARCH METHODOLOGY

3.1 | Data collection

A convenience sample of 555 adult participants originally from Puerto Rico (N = 207) and Cuba (N = 348) constituted the sample. After Mexicans, these groups are the second and third largest Hispanic groups in the U.S. (US Census, 2010). Despite the optimistic views about cultural pluralism in the U.S., there is a growing body of research that shows that feelings of ethnic discrimination is common among U.S. Hispanics (Benjamins & Whitman, 2014; Feagin & Cobas, 2014; Perez, Fortuna, & Alegria, 2008). National surveys indicate that 30% of Latinos reported experiences of discrimination (Perez et al., 2008) and 82% felt that racial discrimination was a problem that prevents them from succeeding in America (Pew Hispanic Center, 2006). Therefore, investigating Hispanic immigrants in the context of identification/disidentification with the host culture and the domestic consumers is plausible.

As Hispanics tend to be cautious about participating in survey research (Franco, Malloy, & Gonzalez, 1984), we followed the recommendation to use personal interviews (Saegert, Hoover, & Hilger,

1985) with bilingual surveyors who were familiar with potential participants (Rogler, Barreras, & Cooney, 1981) and were of a similar ethnic background (Marín & Marín, 1991). Thus, respondents were recruited by undergraduate research students of Hispanic origin who received extensive training and guidance on how to administer surveys properly. Student recruiters distributed self-administered paper-and-pencil surveys in English and Spanish among people in their communities.

Participants' average age in the Cuban sample was 37.05 (*SD* = 15.00) and in the Puerto Rican sample 34.61 (*SD* = 14.34). The samples included slightly more females (Cuba = 57%; Puerto Rico = 54%) than males. Income was distributed almost normally with 17.3% of the participants indicating an income that is much lower than the average annual household income, 19.1% were around the average household income, and 26% were much higher than the average household income. Table 1 provides a profile of the Cuban sample and the Puerto Rican sample.

3.2 | Measurements

All constructs were measured using existing scales scored on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). The questionnaire also included demographic questions. All scales and subscales were examined for reliability and were found to be reliable (α ≥ .76). Specifically, acculturation was measured with Laroche et al.'s (2007) 3-item scale (α_{Cuba} = .84; $\alpha_{Puerto\ Rico}$ = .85) and included items such as "I consider myself to be American," and "I feel very attached to all aspects of the American culture." Ethnic identification was measured by Laroche et al.'s (2007) 6-item scale (α_{Cuba} = .86; $\alpha_{Puerto\ Rico}$ = .91) and included items such as "I consider myself to be Cuban/Puerto Rican," I would like to be known as Cuban/Puerto Rican," and " I am still very attached to the Cuban/Puerto Rican culture." Identification with the host nation was operationalized by Verlegh's (2007) 4-item scale (α_{Cuba} = .83; $\alpha_{Puerto\ Rico}$ = .87) and included items such as "being American means a lot to me" and "when a foreign person praises the US, it feels like a personal complement." Disidentification with the host nation was measured by Verkuyten and Yildiz's (2007) 5-item scale (α_{Cuba} = .78; $\alpha_{Puerto\ Rico}$ = 91) with items such as "I would never say 'we Americans,'" "I always have the tendency to distance myself from Americans," and "I never feel addressed when they are saying something about the US and the Americans." Affinity with the host country was measured by a 14-item scale (Asseraf & Shoham, 2016; α_{Cuba} = .86; $\alpha_{Puerto\ Rico}$ = .93). Items in this scale include statements such as "Americans are friendly people," "Americans know how to have fun and enjoy their life," "the landscape in the US is natural," "the history of the US is very interesting," and "I know many Americans." Consumer disidentification was measured by Josiassen's (2011) 6-item scale (α_{Cuba} = .73; $\alpha_{Puerto\ Rico}$ = .85) with items such as "in general, I dislike the consumption culture of Americans," "I object to being seen as just another American," and "I always tend to not shop in the same places as the Americans." Product judgments were measured by Shoham et al.'s (2006) 6-item scale (α_{Cuba} = .78; $\alpha_{Puerto\ Rico}$ = .85) with items such as "products made in the U.S.A. are carefully produced and have fine workmanship," "products made in the U.S.A. show a high degree of technological advancement," and "products made in the U.S.A. are usually a good value for the money." Willingness to buy was operationalized with Shoham et al.'s (2006) 6-item scale (α_{Cuba} = .61; $\alpha_{Puerto\ Rico}$ = .74) and included items such as "whenever possible, I avoid buying American products," "whenever available, I would prefer to buy products made in the U.S.A.," and "I like the idea of owning American products." Tables 2 and 3 present the scales' reliabilities for both samples.

TABLE 1 Sample characteristics (*N* = 555)

Variable	Puerto Rico	Cuba	Total
Age16–20	18	16	34
21–29	85	125	210
30–49	68	132	200
50+	35	73	108
Missing	1	2	3
Education (in years)			
12 or less	32	68	100
13–15	49	84	133
16 or more	111	173	284
Missing	14	24	38
Income			
Much lower than the average	38	58	96
Lower than the average	25	50	75
Similar to the average	53	53	106
Higher than the average	47	78	125
Much higher than the average	39	105	144
Missing	4	5	9
Gender			
Male	95	150	245
Female	112	198	310

TABLE 2 Scale's (α) reliabilities for the Cuba sample

Variable	α
Acculturation	.84
Ethnic identification	.86
National identification (USA)	.83
National disidentification (USA)	.78
Affinity	.86
Consumer disidentification	.73 (without Item 1)
Product quality judgment	.78 (without Item 2)
Willingness to buy	.61 (without Item 6)

TABLE 3 Scale's (α) reliabilities for the Puerto Rico sample

Variable	α
Acculturation	.85
Ethnic identification	.91
National identification (USA)	.87
National disidentification (USA)	.91
Affinity	.93
Consumer disidentification	.85
Product quality judgment	.85 (without Item 2)
Willingness to buy	.74

4 | DATA ANALYSIS AND RESULTS

To test the proposed model, a structural equation modeling analysis was performed (AMOS; Byrne, 2001) to test the hypothesized relationships. As this study includes two samples (i.e., Puerto Ricans and Cubans), we created two measurement models. The measurement model of the Cuban sample resulted in acceptable fit measures. Specifically, the χ^2/degrees of freedom ratio was 2.36 (χ^2 = 1019, *df* = 431; $p \leq .01$), below the recommended level of 5.0 (Hair, Anderson, Tatham & Black, 1998). Similarly, Incremental Fit Index (IFI) (.90), Tucker-Lewis Index (TLI) (.88), and Comparative Fit Index (CFI) (.90) were close to the recommended .90 level, and Root Mean Square Error of Approximation (RMSEA) was .06 level, below the recommended .08 level.

Notably, the discriminant validity of the conceptually close constructs of ethnic identification, acculturation, U.S. identification, U.S. disidentification, U.S. affinity, and CDI can be questioned. Hence, we conducted two additional analyses. First, we calculated 99% confidence intervals for correlation coefficients for all pairs of these constructs. In no case did these intervals include the value of ±1.0. Second, we conducted a Structural Equation Modeling (SEM) Confirmatory Factor Analysis (CFA) test with these six constructs. The model yielded acceptable fit statistics. Specifically, the χ^2/degrees of freedom ratio was 2.22 (χ^2 = 563.65, *df* = 254; $p \leq .01$), well below the recommended level of 5.0 (Hair et al., 1998). Similarly, IFI (.92), TLI (.90), and CFI (.91) were above the recommended .90 level, and RMSEA was at a recommended .08 level. In sum, this additional measurement model satisfied the required fit criteria and established the discriminant validity of the conceptually close constructs.

The measurement model of the Puerto Rican sample resulted in acceptable fit measures as well. Specifically, the χ^2/degrees of freedom ratio was 2.12 (χ^2 = 914, *df* = 431; $p \leq .01$) below the recommended level of 5.0 (Hair et al., 1998). Similarly, IFI (.90), TLI (.88) and CFI (.90) were close to the recommended .90 level, and RMSEA was at .07 level, below the recommended .08 level. Here, too, we re-assessed the discriminant validity of the conceptually close constructs of ethnic identification, acculturation, U.S. identification, U.S. disidentification, U.S. affinity, and CDI. Hence, we conducted two additional analyses. First, we calculated 99% confidence intervals for all correlation coefficients for pairs of these constructs. In no case did these intervals include the value of ±1.0. Second, we conducted a SEM CFA test with these six constructs. The model yielded acceptable fit statistics. Specifically, the χ^2/degrees of freedom ratio was 2.26 (χ^2 = 577.19, *df* = 255; $p \leq .01$), well below the recommended level of 5.0 (Hair et al., 1998). Similarly, IFI (.91), TLI (.90), and CFI (.91) were at or above the recommended .90 level, and RMSEA was at the recommended .08 level. In sum, this additional measurement model satisfied the required fit criteria and established the discriminant validity of the conceptually close constructs.

The substantive model had acceptable fit measures for both samples. In the Cuban sample, the χ^2/degrees of freedom ratio was 2.09 (χ^2 = 917, *df* = 439; $p \leq .01$), well below the recommended level of 5.0 (Hair et al., 1998). Similarly, TLI (.88), CFI (.90), and IFI (.90) were at or close to the recommended .90 level, and RMSEA was at .06 level, below the recommended .08 level.

In the Puerto Rican sample, the χ^2/degrees of freedom ratio was 2.09 (χ^2 = 917, *df* = 439; $p \leq .01$), well below the recommended level of 5.0 (Hair et al., 1998). Similarly, TLI (.88), CFI (.90), and IFI (.90) were at or close to the recommended .90 level, and RMSEA was at .07 level, below the recommended .08 level. Thus, the model satisfied the required fit criteria.

Results show that acculturation and ethnic identification are negatively associated (β_{Cuba} = −.35; $\beta_{Puerto\ Rico}$ = −.20; $p < .01$), supporting H1. H2a asserts negative relationship between ethnic identification and identification with the host nation. The data did not support this hypothesis as, contrary to expectation, the path from ethnic identification to host nation identification was significant and positive in both samples (β_{Cuba} = .12; $\beta_{Puerto\ Rico}$ = .14; $p < .05$). Additionally, we expected ethnic identification to be positively associated disidentification with the host nation (H2b). The data supported this hypothesis in the Cuban sample (β_{Cuba} = .19; $p < .01$) but not in the Puerto Rican sample ($\beta_{Puerto\ Rico}$ = .04; p = .27). Finally, we expected ethnic identification to be negatively associated with affinity with the host country (H2c), but the data did not support this hypothesis (β_{Cuba} = .03; p = .32; $\beta_{Puerto\ Rico}$ = .02; p = .42).

Results show that for both samples, acculturation is positively associated with host nation identification, (β_{Cuba} = .73; $\beta_{Puerto\ Rico}$ = .89; $p < .01$) and negatively associated with host nation disidentification (β_{Cuba} = −.46; $\beta_{Puerto\ Rico}$ = −.64; $p < .01$), supporting H3a and H3b. Acculturation was also positively associated with affinity with the host country (β_{Cuba} = .36; $\beta_{Puerto\ Rico}$ = .52; $p < .01$), supporting H3b.

Hypothesis 4a postulated a negative relationship between identification with the host nation and CDI. The data did not support this hypothesis, showing significant positive relationship in the Puerto Rican sample only (β_{Cuba} = .75; p = .07; $\beta_{Puerto\ Rico}$ = .15; p = .05). The path from disidentification with the host nation to CDI showed to be significant and positive (β_{Cuba} = .83; $\beta_{Puerto\ Rico}$ = .96; $p < .01$), landing support for H4b. The path from affinity with the host country and CDI was significant and negative in the Cuban sample only (β_{Cuba} = −.19; $p < .01$; $\beta_{Puerto\ Rico}$ = −.09; p = .06), partially supporting H3b.

Hypothesis 5a postulated positive association between host nation identification and consumers' judgment of domestic product quality. The data supported this hypothesis for the Puerto Rican sample ($\beta_{Puerto\ Rico}$ = .53; $p < .01$), but not for the Cuban sample (β_{Cuba} = .06; p = .23). Additionally, we expected disidentification with the host nation to be negatively associated with consumers' judgment of domestic product quality (H5b). The data did not support this hypothesis for both the Cuban sample (β_{Cuba} = −.24; p = .09, M.S.) and the Puerto Rican sample, which showed significant results but in the opposite direction ($\beta_{Puerto\ Rico}$ = .44; $p < .05$). Finally, the path from affinity with the host country to consumers' judgment of domestic product quality showed to be significant and positive for both samples (β_{Cuba} = .48; $\beta_{Puerto\ Rico}$ = .32; $p < .01$), supporting H3b.

H6 asserted that CDI and consumers' judgment of domestic product quality are negatively associated. The data did not support this hypothesis in the Cuban sample (β_{Cuba} = .03; p = .43), but supported this hypothesis in the Puerto Rican sample ($\beta_{Puerto\ Rico}$ = − .56; $p < .01$). Additionally, results show that CDI is negatively associated with consumers' willingness to buy host country's products

(β_{Cuba} = −.39; $\beta_{Puerto\ Rico}$ = −.66; p < .01), supporting H7. Finally, only in the Cuban sample there was a positive association between consumers' judgment of domestic product quality with their willingness to buy those products (β_{Cuba} = .37; p < .01; $\beta_{Puerto\ Rico}$ = .10; p = .13), partially supporting H8. Tables 4 and 5 present the results of this study.

5 | DISCUSSION

The contribution of this study is trifold. First, it addresses the need to further validate CDI among immigrant consumers in different host countries given the growing ethnic diversification of consumer markets globally and the identity issues these consumers face, which potentially affect their attitudes and consumption patterns. Second, this study explores possible antecedents to CDI, specifically, national identification, national disidentification and affinity for the host nation, and the way these interplay with culture change and maintenance (i.e., acculturation and ethnic identification). Third, this study further expands the COO literature by investigating country-induced bias among ethnic groups at the domestic level, incorporating cultural and national identity as possible underlying factors as opposed to previous research that mainly studied consumer evaluations of foreign products.

The results of this study confirm that disidentification with the host nation is at the basis of CDI, as suggested by the

TABLE 4 SEM results—Cuba sample

Relationship	Hypothesis	β/γ	*p*-value
Ethnic identification → acculturation	H1	−.35	.00
Ethnic identification → U.S. identification	H2a	.12	.03
Ethnic identification → U.S. disidentification	H2b	.19	.00
Ethnic identification → U.S. affinity	H2c	.03	.03 (N.S.)
Acculturation → U.S. identification	H3a	.73	.00
Acculturation → U.S. isidentification	H3b	−.46	.00
Acculturation → U.S. affinity	H3c	.36	.00
U.S. identification → consumer disidentification	H4a	.75	.07 (M.S.)
U.S. disidentification → consumer disidentification	H4b	.83	.00
U.S. affinity → consumer disidentification	H4c	−.19	.00
U.S. identification → product quality judgment	H5a	.06	.23 (N.S.)
U.S. disidentification → roduct quality judgment	H5b	−.24	.09 (M.S.)
U.S. affinity → roduct quality judgment	H5c	.48	.00
Consumer disidentification → product quality judgment	H6	.03	.42 (N.S.)
Consumer disidentification → willingness to Buy	H7	−.39	.00
Product quality judgment → willingness to Buy	H8	.37	.00

Fit statistics: χ^2 = 917, 439 degrees of freedom; RMSEA = .06; TLI = .88, CFI = .90, IFI = .90.

TABLE 5 SEM results—Puerto Rico sample

Relationship	Hypothesis	β/γ	*p*-value
Ethnic identification → acculturation	H1	−.20	.00
Ethnic identification → U.S. identification	H2a	.14	.01
Ethnic identification → U.S. disidentification	H2b	.04	.27 (N.S.)
Ethnic identification → U.S. affinity	H2c	.02	.42 (N.S.)
Acculturation → U.S. identification	H3a	.89	.00
Acculturation → U.S. disidentification	H3b	−.64	.00
Acculturation → U.S. affinity	H3a	.52	.00
U.S. identification → consumer disidentification	H4a	.15	.05
U.S. disidentification → consumer disidentification	H4b	.96	.00
U.S. affinity → consumer disidentification	H4c	−.09	.06 (M.S.)
U.S. identification → product quality judgment	H5a	.53	.00
U.S. disidentification → product quality judgment	H5b	.44	.03
U.S. affinity → product quality judgment	H5c	.32	.00
Consumer disidentification → product quality judgment	H6	−.56	.00
Consumer disidentification → willingness to buy	H7	−.66	.00
Product quality judgment → willingness to buy	H8	.10	.13 (N.S.)

Fit statistics: χ^2 = 917,439 degrees of freedom; RMSEA = .07; TLI = .88; CFI = .90; IFI = .90.

conceptualization of CDI (Josiassen, 2011). Researchers argue that immigrants' lack of identification with the host nation is often a result of perceptions of group discrimination, which strengthens their ethnic segregation while decreasing their host national identity (Molina, Phillips, & Sidanius, 2015). As opposed to national identification that facilitates immigrants' involvement in the host country (Simon & Ruhs, 2008), national disidentification may lead to a disengagement with the host nation, which is extended to the host marketplace. As a result, immigrants may develop a sense of disconnect with the typical consumers, their behaviors, and the consumption culture of the dominant group. In contrast, affinity with the host nation and national identification may attenuate those negative perceptions because immigrants perceive themselves as part of the host consumer culture and behavior.

While CDI is expected to negatively affect immigrant consumers' attitudes toward and consumption of host country products, our findings indicate that consumers are rather pragmatic in their decision-making. In this study, CDI is negatively related to consumers' willingness to buy U.S. products; however, it does not seem to affect consumers' willingness to buy U.S. products through their product quality judgments. These findings imply that immigrant consumers are pragmatic in their choices and understand the reality of the host market. While these consumers may disidentify with the host consumers and their consumption style, this sentiment does not translate into evaluations about product quality and willingness to buy (in both samples, the relationships were positive, although in the Puerto Rican sample, they were insignificant). The explanation for this lies in one of the central premises of COO research that consumers generally prefer products from economically advanced countries rather than those made in developing or under-developed countries (Khachaturian & Morganosky, 1990). Others suggest that the way country-induced consumer bias affects the willingness to buy varies between consumers from advanced, developed countries and those from less developed countries. The latter tend to view products from their countries of origin as lower in quality (e.g., Agbonifoh & Elimimian, 1999; Batra, Ramaswamy, Alden, & Steenkamp, 2000; Wang et al., 2003). Because immigration usually marks the abandonment of less desirable life conditions in the pursuit of relatively more desirable conditions (Swinyard, Kau, & Phua, 2001), most immigrants often view products made in the host country as having higher quality relative to those made in their countries of origin (Zolfagharian & Sun, 2010). Given that Cuba and Puerto Rico are both less advanced countries than the USA, immigrant from these countries show preference for the host country products despite their sense of distance or disconnect from the typical American consumer.

The way to mitigate CDI is through acculturation, which showed to positively affect immigrants' identification and affinity with the host nation and negatively affect host nation disidentification. In contrast, ethnic identification is found to be less powerful in affecting CDI through disidentification with the host nation. This study shows that ethnic identification is a more complex phenomenon in terms of its dynamics with construct related to the host country and the resulting CDI. Our findings indicate inconsistencies in terms of the relationship between ethnic identification and immigrants' identification, disidentification, and affinity with the host nation. In contrast to those who argue that creating a sense of national identity among immigrants is challenging because of their loyalty to and strong identification with to their country of origin's heritage (e.g., Huntigton, 2004; Schlesinger, 1998), our findings show positive relationship between ethnic identification and identification with the host nation. Similarly, our findings also indicate positive relationship between ethnic identification and host nation disidentification. These findings imply that in a reality of cultural pluralism, immigrants can develop their national identity independently of their ethnic identity. Thus, immigrants can maintain their identification with their culture of origin with the former may or may not affect their national commitment, sense of belonging to the host nation, or affinity (Laroche, Papadopoulos, Heslop, & Bergeron, 2003; Parekh, 2000).

5.1 | Managerial implications

Results from this study have use implications for marketers in multiethnic consumer markets in terms of segmentation, targeting, and persuasive message design. Marketers should regard acculturation as a segmentation tool that may imply more national identification and affinity, making the emphasis on the fact that the products are made in the USA a positive factor. On the other hand, for less acculturated individuals, it might be more effective to stress cues that are general such as quality, price, and functionality or to emphasize cues that are associated with the consumers' original culture. Identifying the levels of CDI among immigrant consumers and segmenting them accordingly also provides opportunities for marketers of foreign products either from the consumer's country of origin or from other foreign countries. Given the effect of CDI on the willingness to buy brands from the host country, foreign brands might have an advantage over domestic brands. Marketers can also position brands as global rather than associating them with the host nation. Given that consumer culture is becoming more global (Cleveland & Laroche, 2007), positioning a brand as global (such as Coca-Cola, Apple, or Nike) rather than identifying it with a specific country might be more appealing to individuals with high levels of CDI.

5.2 | Limitations and directions for future research

While this study has important implications for researchers and marketers, it is not without limitations that can be addressed in future studies. First, this study used convenience samples, which somewhat limits the generalizability of its findings. Second, this study views acculturation as the process of immigrants' adaptation of the new (mainstream) host culture, a perspective that somewhat limits our understanding of consumer responses, attitudes, and outcomes. In today's culturally diversified societies, and especially in the USA, immigrants may acculturate to other smaller culturally distinct groups rather than the mainstream culture (Abraido-Lanza et al., 2006), and this should be addressed in future consumer acculturation research. Third, while this study looked at the effect of CDI on judgments about the quality of the host country's products and the willingness to buy them, it does not provide a complete picture of consumers' predispositions and preferences. Thus, future research should also include consumers' evaluations of and willingness to buy products from their original

countries or products from third countries (i.e., neither from the host country nor from their original countries) to provide a more complete picture about the effect of CDI on immigrants' consumer behavior. Finally, CDI, by definition, is related to the domain of consumers and their consumption culture in a given marketplace rather than the domains of consumer products. Therefore, future research should investigate the effect of CDI on consumer-related domains such as shopping styles and consumer decision-making processes and characteristics related to the consumption experience.

REFERENCES

Abraído-Lanza, A. F., Armbrister, A. N., Flórez, K. R., & Aguirre, A. N. (2006). Toward a theory-driven model of acculturation in public health research. *American Journal of Public Health*, *96*(8), 1342–1346.

Agbonifoh, A., & Elimimian, J. U. (1999). Attitudes of developing countries towards "country-of-origin" products in an era of multiple brands. *Journal of International Consumer Marketing*, *11*(4), 97–116.

Alba, W. J., & Hutchinson, W. J. (1987). Dimension of consumer expertise. *Journal of Consumer Research*, *13*(4), 411–454.

Armenta, B. E., & Hunt, J. S. (2009). Responding to societal devaluation effects of perceived personal and group discrimination on the ethnic group identification and personal self-esteem of Latino/Latina adolescents. *Group Processes and Intergroup Relations*, *12*, 80–114.

Askegaard, S., Arnould, E. J., & Kjeldgaard, D. (2005). Postassimilationist ethnic consumer research: Qualifications and extension. *Journal of Consumer Research*, *32*(June), 160–170.

Asghari-Fard M, Hossain SZ. (2016). Identity construction of second-generation Iranians in Australia: Influences and perspectives, social identities, DOI: 10.1080/13504630.2016.1207515

Asseraf, Y., & Shoham, A. (2016). The "tug of war" model of foreign product purchases. *European Journal of Marketing*, *50*(3/4), 550–574.

Batra, R., Ramaswamy, V., Alden, D. L., Steenkamp, J. B. E. M., & Ramachander, S. (2000). Effects of brand local and nonlocal origin on consumer attitudes in developing countries. *Journal of Consumer Psychology*, *9*(2), 83–95.

Benjamins, M. R., & Whitman, S. (2014). Relationships between discrimination in health care and health care outcomes among four race/ethnic groups. *Journal of Behavioral Medicine*, *37*(3), 402–413.

Berry, J. W. (1997). Immigration, acculturation, and adaption. *Applied Psychology: An International Review*, *46*(1), 5–68.

Berry, J. W. (2003). Conceptual approaches to acculturation. In Chun, K. M., Balls Organista, P., Marín, G. (eds). *Acculturation: Advances in theory, measurement, and applied research*. Washington, DC, US: American Psychological Association; 17–37.

Branscombe, N. R., Schmitt, M. T., & Harvey, R. D. (1999). Perceiving pervasive discrimination among African-Americans: Implications for group identification and well-being. *Journal of Personality and Social Psychology*, *77*, 135–149.

Byrne, B. M. (2001). *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Cher-Min, F., Chun-Ling, L., & Yunzhou, D. (2014). Consumer animosity, country of origin, and foreign entry-mode choice: A cross-country investigation. *Journal of International Marketing*, *22*(1), 62–76.

Cronin, T. J., Levin, S., Branscombe, N. R., Van Larr, C. A., & Tropp, L. R. (2012). Ethnic identification in response to perceived discrimination protects well-being and promotes activism: A longitudinal study of Latino college students. *Group Processes and Intergroup Relations*, *15*, 393–407.

Cross, W. (1991). *Shades of black: Diversity in African-American Identity*. Temple University Press: Philadelphia.

Donthu, N., & Cherian, J. (1994). Impact of strength of ethnic identification on Hispanic shopping behavior. *Journal of Retailing*, *70*(4), 383–393.

Ettenson, R., & Klein, G. J. (2005). The fallout from French nuclear testing in the South Pacific: A longitudinal study of consumer boycott. *International Marketing Review*, *22*(2), 199–224.

Feagin, J. R., & Cobas, J. A. (2014). *Latinos facing racism: Discrimination, resistance, and endurance*. Boulder, Colorado: Paradigm Publishers.

Franco, J. N., Malloy, T., & Gonzalez, R. (1984). Ethnic and acculturation differences in self-disclosure. *Journal of Social Psychology*, *122*(1), 21–32.

Gűrhan-Canli, Z., & Maheswaran, D. (2000). Cultural variations in country of origin Effects. *Journal of Marketing Research*, *37*, 309–307.August

Hair, F. J., Anderson, E., Tatham, L. R., & Black, C. W. (1998). *Multivariate data analysis*. Englewood Cliffs, NJ: Prentice Hall.

Han, C. M. (1989). Country image: Halo or summary construct? *Journal of Marketing Research*, *26*, 222–229. *May*

Herche, J. (1992). A note on the predictive validity of the CETSCALE. *Journal of the Academy of Marketing Science*, *20*(3), 261–264.

Huntington, S. P. (2004). *Who are we? The challenges to America's national identity*. New York NY: Simon & Schuster.

Jaffe, D. E., & Nebenzahl, D. I. (2006). It's all in the eyes of the consumer. In *National image & competitive advantage: The theory and practice of place branding*. (pp. 79–109). Copenhagen: Narayana Press.

Jasinskaja-Lahti, I., Liebkind, K., & Solheim, E. (2009). To identify or not to identify? National disidentification as an alternative reaction to perceived ethnic discrimination. *Applied Psychology: An International Review*, *58*, 105–128.

Josiassen, A. (2011). Consumer disidentification and its effects on domestic products purchases: An empirical investigation in the Netherlands. *Journal of Marketing*, *75*(March), 124–140.

Khachaturian J.L Morganosky M.A. 1990. Quality perceptions by country of origin. *International Journal of Retail & Distribution Management* 18 *(5)*: 21–30.

Kim, C., Laroche, M., & Tomiuk, M. A. (2001). A measure of acculturation for Italian–Canadians: Scale development and construct validation. *International Journal of Intercultural Relations*, *25*(6), 607–637.

Laroche, M., Papadopoulos, N., Heslop, L., & Bergeron, J. (2003). Effects of subcultural differences on country and product evaluations. *Journal of Consumer Behavior*, *2*(3), 232–247.

Laroche, M., Zhiyong, Y., Kim, C., & Marie-Odile, R. (2007). How culture matters in children's purchase influence: A multi-level investigation. *Journal of the Academy of Marketing Science*, *35*(1), 113–126.

Marín, G., & Marín, B. (1991). *Research with Hispanic populations: Applied social research methods series*. Newbury Park, CA: Sage Publications.

Molina, L. E., Phillips, N. L., & Sidanius, J. (2015). National and ethnic identity in the face of discrimination: Ethnic minority and majority perspectives. *Cultural Diversity and Ethnic Minority Psychology*, *21*(2), 225–236.

Oberecker, M. E., Riefler, P., & Diamantopoulos, A. (2008). The consumer affinity construct: Conceptualization, qualitative investigation, and research agenda. *Journal of International Marketing*, *16*(3), 23–56.

Ouellet, J. F. (2007). Consumer racism and its effects on domestic cross-ethnic product purchase: An empirical test in the United States, Canada, and France. *Journal of Marketing*, *71*(1), 113–128.

Pérez, D. J., Fortuna, L., & Alegria, M. (2008). Prevalence and correlates of everyday discrimination among U.S. Latinos. *Journal of Community Psychology*, *36*(4), 421–433.

Parekh, B. (2000). *The Future of Multi-Ethnic Britain*. London: Runnyemede Trust.

Pew Hispanic Center (2006). *2006 National survey of Latinos: The immigration debate*. Washington, DC: Pew Research Center.

Redfield, R., Linton, R., & Herskovits, M. J. (1936). Memorandum on the study of acculturation. *American Anthropologist*, *38*, 149–152.

Rockquemore, K. A., & Brunsma, D. L. (2002). *Beyond black: Biracial identity in America*. Thousand Oaks, CA: Sage.

Rogler, L. H., Barreras, O., & Cooney, R. S. (1981). Coping with distrust in a study of intergenerational Puerto Rican families in New York City. *Hispanic Journal of Behavioral Sciences*, *3*(1), 1–17.

Saegert, J., Hoover, R. J., & Hilger, M. T. (1985). Characteristics of Mexican American consumers. *Journal of Consumer Research*, *12*, 104–109.

Schlesinger, A. M. (1998). *The disuniting of America: Reflections on a multicultural society*. New York, NY: Norton.

Sharma, S., Shimp, T., & Shin, J. (1995). Consumer ethnocentrism: A test of antecedents and moderators. *Journal of the Academy of Marketing Science*, *23*(1), 26–37.

Shimp, T., Dunn, T., & Klein, G. J. (2004). Remnants of the US civil war and modern consumer behavior. *Psychology & Marketing*, *21*(2), 75–84.

Shoham, A., Davidow, M., Klein, G. J., & Ruvio, A. (2006). Animosity on the home front: The intifada in Israel and its impact on consumer behavior. *Journal of International Marketing*, *14*(3), 92–114.

Simon, B., & Ruhs, D. (2008). Identity and politicization among Turkish migrants in Germany: The role of dual identification. *Journal of Personality and Social Psychology*, *95* 1354–1366.

Smart, R. L., & Leary, M. R. (2009). Reaction to discrimination, stigmatization, ostracism, and other forms of interpersonal rejection: A multimotive model. *Psychology Review*, *116*, 365–383.

Strizhakova, Y., Coulter, R. A., & Price, L. L. (2012). The young adult cohort in emerging markets: assessing their glocal cultural identity in a global marketplace. *International Journal of Research in Marketing*, *29*(1), 43–54.

Swinyard, W., Kau, A. K., & Phua, H. Y. (2001). Happiness, materialism and religious experience in the US and Singapore. *Journal of Happiness Studies*, *2*(1), 13–32.

Taewon, S., & IK-Whan, G. K. (2002). Globalization and reluctant buyers. *International Marketing Review*, *19*(6), 663–680.

U.S. Census Bureau. (2010). Overview of race and Hispanic origin: 2010. Retrieved from: http://www.census.gov/prod/cen2010/briefs/c2010br-02.pdfon July 15 on November 2016.

Verkuyten, M., & Yildiz, A. A. (2007). National (dis)identification and ethnic and religious identity: A study among Turkish–Dutch Muslims. *Personality and Social Psychology Bulletin*, *33*(10), 1448–1462.

Verlegh, W. J. P. (2007). Home country bias in product evaluation: The complementary roles of economic and socio-psychological motives. *Journal of International Business Studies*, *38*, 361–373.

Wang, A. C., Eccles, S. J., & Sameroff, A. (2003). The influence of ethnic discrimination and ethnic identification on African American adolescents' school and socioemotional adjustment. *Journal of Personality*, *71*(6), 1197–1232.

Waters, C. M. (1990). *Ethnic options: Choosing identities in America*. University of California Press.

Waters, C. M. (1996). Optional ethnicities: For white only? In origins and destinies: Immigration, race, and ethnicity in America. In S. Padraza, & R. G. Rumbaut (Eds.))Wadsworth Publishing Company.

Wiley, S., Lawrence, D., Figueroa, J., & Percontino, R. (2013). Rejection-(dis) identification and ethnic political engagement among first-generation Latino immigrants to the United States. *Cultural Diversity and Ethnic Minority Psychology*, *19*(3), 310–319.

Yang, Q., Snell, K., & Tsai, W. S. (2015). Understanding consumer animosity in the politicized global market: From the perspective of young transnational consumers. *Journal of International Consumer Marketing*, *27*(3), 220–236.

Zafar, A., Anang, R., Nor, O., & Murali, S. (2013). To purchase or not to purchase US products: Role of religiosity, animosity, and ethno-centrism among Malaysian consumers. *Journal of Services Marketing*, *27*(7), 551–563.

Zolfagharian, M. A., & Sun, Q. (2010). Country of origin, ethnocentrism and bicultural consumers: The case of Mexican Americans. *Journal of Consumer Marketing*, *27*(4), 345–357.

Zolfagharian, M. A., & Sun, Q. (2014). Ethnocentrism and country of origin effects among immigrant consumers. *Journal of Consumer Marketing.*, *31*(1), 68–84.

Zȧrate, M. A., Shaw, M., Marquez, J. A., & Biagas, J. R. D. (2012). Cultural inertia: The effects of cultural change on intergroup relations and the self-concept. *Journal of Experimental Social Psychology*, *48*, 634–645.

Aviv Shoham (PhD, 1993, University of Oregon) is an associate professor of marketing and head of the Business Administration Department at the University of Haifa, Israel. He serves as a visiting professor at the Ljubljana University, Slovenia. His research focuses on international marketing management/strategy and international consumer behavior. His research has been published in journals such as the *Journal of the Academy of Marketing Science*, *Management International Review*, *the Journal of International Marketing*, *International Marketing Review*, *the Journal of Business Research*, *the Journal of Advertising Research*, *International Business Review*, *the Journal of Applied Social Psychology*, *the European Journal of Marketing*, *European Journal of Management*, *and the Journal of Global Marketing*.

Sigal Segev (PhD, 2004, Leicester University) is an associate professor in the Department of Communication, Florida International University. Her research focuses on the effect of culture and ethnicity on consumption, green consumer behavior, and consumer responses to pro-environmental messages. Her research was published in journals such as the *European Journal of Marketing*, *International Journal of Consumer Studies*, *Journal of International Consumer Marketing*, *Journal of Advertising*, and the *International Journal of Advertising*.

Yossi Gavish (PhD, 2009, Haifa University) is a lecturer in marketing and economic in the Ono Academic College and head of marketing and advertising specialization in Ono Academic College. His research focuses mainly on consumer behavior (consumer socialization, Intergenerational influences) and drivers of customers' reactions to service failures. He has published articles in the *Journal of consumer Marketing*, *Journal of International Consumer Marketing*, *Journal of Consumer behavior*, *Advances in Consumer Research*, and other journals and proceedings.

How to cite this article: Shoham A, Segev S, Gavish Y. The effect of acculturation and ethnic identification on consumer disidentification and consumption: An investigation of U.S. Hispanics. *J Consumer Behav*. 2017;16:403–412. https://doi.org/10.1002/cb.1640

Received: 12 October 2015 | Revised: 13 December 2016 | Accepted: 22 January 2017

DOI: 10.1002/cb.1641

WILEY

ACADEMIC PAPER

Self-efficacy or perceived behavioural control: Which influences consumers' physical activity and healthful eating behaviour maintenance?

Joy Parkinson | Patricia David | Sharyn Rundle-Thiele

Menzies Health Institute, Griffith University, 170 Kessels Road, Nathan Qld 4111, Australia

Correspondence
Joy Parkinson, Menzies Health Institute, Griffith University, 170 Kessels Road, Nathan Qld 4111, Australia.
Email: j.parkinson@griffith.edu.au

Abstract

This research investigated the role of a commercial program, Michelle Bridges 12 Week Body Transformation (MB12WBT), that uses a variety of tools including social support to influence weight management behaviours such as exercising and eating healthfully. The need for research into weight management remains current given obesity rates have continued to increase in recent decades. Weight management is a complex behaviour that for many consumers involves barriers that influence their commitment to continue exercising and eating healthily. The Theory of Planned Behaviour is frequently used to explain, and to a lesser extent predict, behaviours such as physical activity and healthy eating; however, there is much debate as to whether a perceived behavioural control variable or self-efficacy is the best predictor of behaviour. Structural equation modelling was used to analyse data from a sample of 724 respondents who answered a baseline and three month follow-up survey. The analysis revealed self-efficacy and perceived behavioural control were two distinct constructs. Self-efficacy was a better predictor of behaviour than perceived behavioural control variables as suggested in the original Theory of Planned Behaviour. Furthermore, self-efficacy had a significant impact on exercising and eating healthfully behaviour. The findings and implications for both behaviour change theory and practice are discussed.

KEYWORDS

behaviour maintenance, eating healthfully, perceived behavioural control, physical activity, Self-efficacy

1 | INTRODUCTION

Physical activity and healthful eating are essential for sustaining a healthy body weight and preventing obesity-related diseases such as cardiovascular disease, hypertension, and Type 2 diabetes (World Health Organization, 2015). The predominance of overweight and obese people in Australia has been exponentially growing over the past 30 years (National Preventative Health Task Force, 2009). Australia has the fourth highest adult obesity rate among the Organisation for Economic Co-operation and Development countries, behind the United States, Mexico, and New Zealand (OECD, 2013). The cost of physical inactivity to the Australian economy is estimated to be $13.8 billion per year, as a result of health care costs, lost productivity, and premature mortality (Keegan, Keegan, Daley, Ordway, & Edwards, 2013; Medibank, 2008). Investing in prevention has societal benefits, because it is better to finance effective strategies to prevent diseases than to use resources to cure (Goetzel, 2009). The earlier the adoption of good habits that influence behaviours and health outcomes, the greater the benefit in older age. In order to reverse the current obesogenic trends strategies promoting lifestyle change including encouraging physical activity and healthful eating should be implemented (Bonomi & Westerterp, 2012).

There is a critical need to understand consumer's drivers and barriers for physical activity and healthful eating in an effort to design and implement effective programs that can sustain behaviour over time. Further, in order to be optimally effective, interventions should be designed to consider the most important determinants of physical activity and healthful eating behaviour (Thackeray & Neiger, 2000). Among one of the most cited theories in health-related studies is the Theory of Planned Behavior (TPB; Luca & Suggs, 2013). However, there is considerable debate about the efficacy of the perceived behavioural control construct (e.g., Trafimow, Sheeran, Conner, & Finlay, 2002). The purpose of this research is threefold: first, to demonstrate a conceptual distinction between self-efficacy and perceived behavioural control

factors; second, to explore the effects of self-efficacy and perceived behavioural control on people's intentions towards and participation in physical activity and healthful eating behaviour; third, to explore differences in self-efficacy, perceived behavioural, and control and behaviours between groups with differing levels of experience participating in a commercial weight management program.

There have been calls to develop effective healthy lifestyle interventions to prevent overweight and obesity (Dombrowski, Endevelt, Steinberg, & Benyamini, 2016; Roberto et al., 2015; Yackobovitch-Gavan, Steinberg, Endevelt, & Benyamini, 2015), however, the effectiveness of current obesity treatment frameworks have been questioned. Many of these frameworks are grounded in weight management programs accessed through primary care, and have an education focus (Fildes et al., 2015; Laska, Pelletier, Larson, & Story, 2012). Importantly, low-intervention uptake rates for these programs have been noted thus limiting their effectiveness (Fildes et al., 2015). In contrast to expert-led programs with an education focus (Jeffery, 2001), which dominate obesity interventions, market-oriented interventions that are competitively minded, and offer consumers value exchange have the potential to produce superior outcomes (Donovan & Henley, 2010). A market oriented program (Michelle Bridges 12 Week Body Transformation (MB12WBT)) provides the background for the current study. In contrast to low-intervention uptake rates dominating current obesity treatment frameworks, this program has demonstrated both consumer uptake and perhaps more importantly, repeat purchase behaviour.

MB12WBT (name withheld during the review process to protect anonymity) uses a range of personal support and other behaviour management tools. MB12WBT costs $200 for a 12-week period with a preround set of activities to undertake in preparation for the program. Tools include online recipes, shopping lists, menu plans, exercise plans, and demonstration videos as well as online support in a variety of forums. Fifteen tailored programs are offered for a range of different fitness and activity levels. Each program is tailored in such a way as to steadily intensify the degree of difficulty and activity levels across the duration of the program. A support crew of over 20 people oversee the program including accredited exercise and sports scientists, personal trainers, and accredited practicing dietitians.

2 | THEORETICAL BACKGROUND AND HYPOTHESES

Governments and not-for-profit organisations are interested in changing citizen's physical activity and healthful eating levels to improve their overall health. These organisations frequently engage social marketing as a method to create behaviour change in target populations (for example, see De Cocker, De Bourdeaudhuij, Brown, & Cardon, 2011; Kubacki, Rundle-Thiele, Pang, & Buyucek, 2015; Sayers, LeMaster, Thomas, Petroski, & Ge, 2012). Social marketing campaigns directed to improve health behaviour, such as physical activity (examples include Deehr & Shumann, 2009; Staley, 2009; Withall, Jago, & Fox, 2012) and healthful eating (Carins & Rundle-Thiele, 2014), are abundant. Research suggests the use of theory as a framework for the design or evaluation of interventions in this context can be highly effective (Glanz & Rimer, 2005; Hastings, 2007; Thackeray & Neiger, 2000). Nevertheless, there is little indication of theory or model use in intervention evaluation or planning processes (Lefebvre, 2000; Luca & Suggs, 2013; Truong, 2014). A range of theories have been used in social marketing studies, for example, Truong (2014) conducted a systematic review of social marketing and identified social cognitive theory, theory of reasoned action and planned behaviour, health belief model, stages of change model or transtheoretical model, social/behavioral—ecological model, and the diffusion of innovation theory have been reported in social marketing studies. The TPB (Ajzen, 1991) is a frequently used theory to explain and predict health-related behaviours such as physical activity (Plotnikoff, Lubans, Costigan, & McCargar, 2013) and healthful eating (Emanuel, McCully, Gallagher, & Updegraff, 2012) and was found to be the second most commonly used theory in social marketing (Luca & Suggs, 2013; Truong, 2014), thus has been chosen as a theoretical base to guide this study.

3 | THEORY OF PLANNED BEHAVIOUR

The variance explained in previous studies using TPB for intention and actual behaviour (physical activity) varies among studies (Armitage, 2005; Armitage & Conner, 2001). Furthermore, research often only includes behavioural intentions rather than actual behaviour in their models (see for example, Courneya & Bobick, 2000; Hansen, Jensen, & Solgaard, 2004). Given the gap between intentions and behaviours (Holdershaw, Gendall, & Wright, 2011), the omission of behaviour in studies aiming to change behaviour limits our understanding of how intervention effectiveness can be optimised. According to the TPB one's intention to perform a behaviour is the central determinant of the behaviour itself (Ajzen, 1991; Ajzen & Fishbein, 1980; Ajzen & Madden, 1986) and perceptions of control over the performance of the behaviour (i.e., perceived behavioural control [PBC]). Intentions are determined by the instrumental and affective attitudes toward the behaviour, subjective norms, and PBC. PBC has frequently emerged as the strongest predictor of behaviours (Parkinson, Russell-Bennett, & Previte, 2012). Previous research on the TPB has revealed mixed results on the model's predictability across all of the variables, for example, several studies found that subjective norms did not predict intentions (Cheon, Lee, Crooks, & Song, 2012; Collins, Witkiewitz, & Larimer, 2011; Gredig, Nideröst, & Parpan-Blaser, 2007; Prati, Mazzoni, & Zani, 2014) while others found that attitudes did not predict intentions (Bae & Kang, 2008; Gálvez, Modeste, Lee, Betancourt, & Wilkins, 2001) and others found neither subjective norms or attitudes predicted intentions (Parkinson et al., 2012; Trafimow & Trafimow, 1998). Further, Verplanken and Wood (2006), argue that when behaviour is new, the behaviour intention component will be solely responsible for the behaviour. However, habit may become a better predictor than intentions as performance of behaviour repeatedly takes place. Thus, there may be a union between intention and habit in driving behaviour. This pattern has been acknowledged in research on a variety of health habits and transportation use (Verplanken, 2006). Thus, this study will examine the relationships between self-efficacy, PBC, intentions, and behaviours.

4 | SELF-EFFICACY AND PBC

Ajzen (2002) explains that the phrase "perceived behavioural control" can be misleading and should be interpreted as "perceived control over performance of behaviour." Using this meaning, we can see there are two elements to the construct. PBC captures an individual's perception of their ability to perform a behaviour, which is a product of the environment surrounding the individual while self-efficacy captures perceived ability to perform the desired behaviour (Bandura, 1977). Human behaviour and choices are impacted by self-efficacy (Bandura, 1986). Self-efficacy and PBC can reflect both internal and external factors, and the extent to which they reflect one or the other is an empirical question. We argue that self-efficacy primarily reflects internal factors, whereas PBC includes both internal and external factors.

Previous studies have used the terms perceived behavioural control and self-efficacy interchangeably (Droms & Craciun, 2014). However, other research identifies them as separate constructs (e.g., Rhodes & Courneya, 2003; Yap & Lee, 2013). Despite findings in many studies that PBC is the strongest predictor of behaviours, much debate centres around the measurement of the PBC construct (e.g., Armitage, Conner, Loach, & Willetts, 1999; Rhodes & Courneya, 2003; Sparks, Guthrie, & Shepherd, 1997). Ajzen (1991) defined PBC as the perception of how easy or difficult it is to perform a behaviour, and the presence or absence of resources and opportunities to do so. However, others have argued that control over performing a behaviour is different from how difficult people perceive the performance of a behaviour to be (e.g., Chan & Fishbein, 1993; Sparks et al., 1997). PBC in this study is conceptualised as the extent to which the performance of the behaviour is up to the individual (Ajzen, 2002). The perceived ease or difficulty of performing a behaviour is conceptualised as self-efficacy, which is comprised of two parts: first, outcome expectancy, which is the belief that a particular behaviour will lead to a certain outcome; and second, self-efficacy expectancy, which is the personal conviction that one is able to successfully perform those behaviours to produce the desired outcome (Bandura, 1977). Ajzen (2002) argues that carefully selected items should be used for both self-efficacy and PBC to ensure high-internal consistency. While it seems that self-efficacy and PBC are quite similar, research suggests that self-efficacy can be a better predictor of behaviour and intentions than PBC (Manstead & Eekelen, 1998; Trafimow et al., 2002). Therefore, an aim of this study is to empirically compare and contrast self-efficacy and PBC, in the context of physical activity and healthful eating. Thus, we propose self-efficacy and PBC are two distinct constructs.

5 | SELF-EFFICACY, PBC, AND EXPERIENCE

The TPB was not designed as a behaviour change model, rather one that explained people's intentions and behaviour (Ajzen, 1991). In seeking to change consumer behaviours, it is important to identify variables that are modifiable. One such variable is self-efficacy (Dennis, 1999), which was introduced to deal with coping behaviour in the context of behaviour modification (Bandura, 1977). Mastery of behaviour is an important driver of self-efficacy and effects the long-term performance of the behaviour (Warner et al., 2014) as there are reinforcing effects of consistently performing a behaviour over time (Bandura, 2012). Previous experience with performing a behaviour leads people to come to expect certain actions will help them achieve outcomes they value (van Stralen, De Vries, Mudde, Bolman, & Lechner, 2009). Given that self-efficacy is the individual's belief they can successfully undertake a particular behaviour in order to achieve an outcome, it is likely that experience with a particular behaviour will also influence self-efficacy levels.

Hypothesis 1a. *Self-efficacy will positively influence behavioural intentions to participate in physical activity behaviour.*

Hypothesis 1b. *Self-efficacy will positively influence behavioural intentions to participate in healthful eating behaviour.*

Hypothesis 2a. *PBC will positively influence behavioural intentions to participate in physical activity behaviour.*

Hypothesis 2b. *PBC will positively influence behavioural intentions to participate in healthful eating behaviour.*

Hypothesis 3a. *Self-efficacy will positively influence physical activity behaviour.*

Hypothesis 3b. *Self-efficacy will positively influence healthful eating behaviour.*

Hypothesis 4a. *PBC will positively influence physical activity behaviour.*

Hypothesis 4b. *PBC will positively influence healthful eating behaviour.*

Although participation in behaviours takes many forms and involves varying levels of intensity over time, behaviours are generally studied from a static perspective and often only intentions are studied rather than actual behavioural performance (Courneya & Bobick, 2000; Hansen et al., 2004). Given the gap between intentions and behaviours (Holdershaw et al., 2011) and that behaviour can be habituated, the omission of actual behaviour in health behaviour evaluations limits our understanding inflating the effect size for psychological constructs due to the absence of prior behaviours. Furthermore, consideration of behaviour change requires a temporal element to determine which factors are impacting behaviour over time.

Hypothesis 5a. *Intentions will positively influence physical activity behaviour.*

Hypothesis 5b. *Intentions will positively influence healthful eating behaviour.*

Shifts in variable weights within the TPB have not been explored either from a time-based perspective or from a consumption stage perspective (i.e., new versus intermediate or experienced user). That is, although the TPB has been represented as comprising of a set of variables, the impact of consumption stage (e.g., new user, intermediate user, or experienced user) on each variable has not been examined.

This gap is particularly important for two reasons. First, as consumers gain experience with a particular behaviour, their support needs for the behaviour will change. For example, new users need high levels of support and instruction, whereas more experienced users may require lower levels of instruction and higher levels of encouragement to keep them motivated and participating in the program. Second, as participants move into maintenance mode, it is still important to keep them engaged with the program.

Given that repeat purchase customers have higher experience levels, examination of the effect of consumption stage on self-efficacy, PBC, and behaviour variables is warranted. In particular, we examine the levels of predictability of self-efficacy and PBC on behaviour between new, intermediate, and experienced users of a program. We extend this analysis to examine the effect that consumption stage has with the predictor variables and behaviour relationship. Understanding how individual's self-efficacy, PBC, and intentions influence behaviour over time is essential for creating appropriate programs to change behaviours to achieve long-term change. We propose that as experience increases, self-efficacy will consistently predict behaviour. This is consistent with the notion that over time, individuals update their perceptions and gain experience with a particular behaviour. This experience then provides knowledge about the behaviour performance attributes (Dagger & O'Brien, 2010). Thus, the following hypotheses are proposed and shown in Figures 1 and 2.

Hypothesis 6a. *Physical activity levels will increase as experience with the program increases.*

Hypothesis 6b. *Healthful eating levels will increase as experience with the program increases.*

6 | METHOD

Data were collected using two online surveys. Online survey data collection minimises data entry errors. Recruitment of participants took place through an email invitation by MB12WBT at the commencement of the program round using a convenience sample. Participants who completed survey one (n = 3,475) were sent an email to participate in a follow-up survey 12 weeks after completing the first survey, with reminders sent 1 week later, resulting in a response rate of 21% (n = 724). Only participants who responded to the second survey invitation are included in the results. Participants were men and women from across Australia (n = 724). Participants included first time program users (n = 295) and intermediate program users (i.e., those who had completed between one and three program round(s) previously; n = 250), and experienced users (i.e., those who had completed more than four program rounds previously; n = 179). These three groups were chosen in order to evaluate potential group differences in experience levels. The mean age of participants was 40.71 years (SD = 10.41), 90.4% reported being in a relationship, either married or cohabiting. The majority of participants had a university education (64.1%), with 3.1% reporting a household income of under $20,000, and 46.4% reporting a household income over $100,000.

7 | MEASURES

Self-efficacy, PBC, and intentions were measured for both physical exercise and eating behaviours. To measure PBC, three items sourced from Rhodes and Courneya (2003) were used on 7-point scales anchored with *strongly disagree* and *strongly agree* (see Table 1). Three items sourced from Rhodes and Courneya (2003) were used to measure self-efficacy. The first two used a 7-point scale anchored with *not at all confident* and *completely confident* while the third item was a 7-point scale anchored with *very false* and *very true*. Four items sourced from Perugini and Bagozzi (2001) were used to measure behavioural intentions each one was anchored by a 7-point scale anchored with *strongly disagree* and *strongly agree* (see Table 1). Behaviour was measured with one item using a 5-point scale anchored with *never* and *frequently* to answer the following statement: "How often did you do physical exercise [eat healthfully] during the past four weeks to achieve/maintain your weight goal?" (Perugini & Bagozzi, 2001).

8 | PROCEDURE

A longitudinal study design was used and included two data collection waves: (a) Baseline, following commencement of program; (b) Time two, three months following baseline to collect behaviour data (at the end of the 12-week program). Demographic and antecedent variables were assessed at baseline, and physical activity was assessed at Time two. Participants were emailed a link to the survey at each of

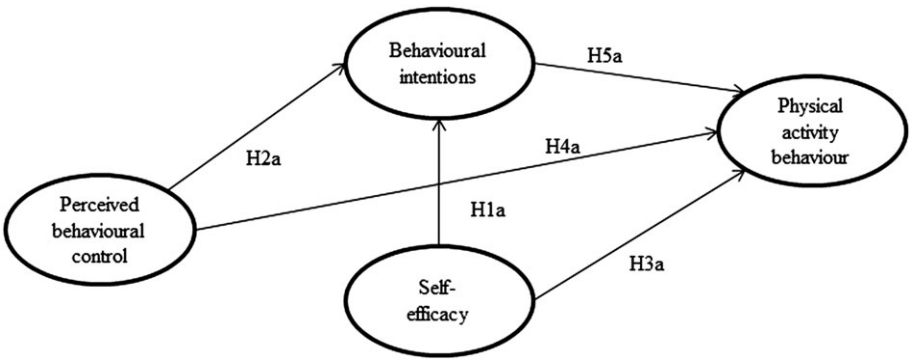


FIGURE 1 Hypothesised model: physical activity

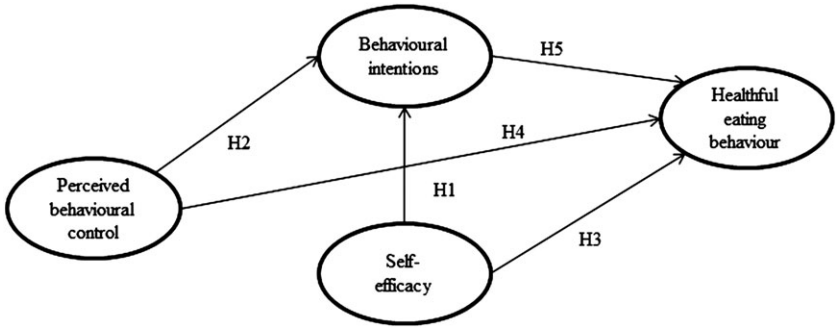


FIGURE 2 Hypothesised model

TABLE 1 Descriptives

Construct	New users mean (*SD*)	Intermediate users mean (*SD*)	Experienced users mean (*SD*)	*p*-value new and intermediate users	*p*-value intermediate and experienced users	*p*-value new and experienced users
Perceived behavioural control physical activity	6.20 (.94)	6.18 (1.00)	6.26 (.90)	Ns	Ns	ns
Self-efficacy physical activity	6.21 (.86)	6.07 (1.03)	6.12 (1.09)	.08	Ns	ns
Intentions physical activity	6.54 (1.07)	6.33 (1.10)	6.32 (1.22)	.02*	Ns	.05*
Behaviour physical activity	4.13 (1.28)	4.36 (1.28)	4.45 (1.30)	.04*	Ns	.001***
Perceived behavioural control eating healthfully	6.45 (.71)	6.41 (.71)	6.38 (.74)	Ns	Ns	ns
Self-efficacy eating healthfully	6.30 (.76)	6.13 (.87)f	6.09 (.95)	.02*	.007**	ns
Intentions eating healthfully	6.61 (.96)	6.40 (1.02)	6.35 (1.16)	.01**	.001**	ns
Behaviour eating healthfully	3.95 (.85)	3.64 (.82)	3.64 (.89)	.000***	.000***	ns

Ns = Not significant.

*Significant at the <.05 level,

**significant at the <.01 level,

***significant at the <.001 level.

the data collection points. Each participant who completed both surveys was eligible to go into a prize draw to win a $50 gift voucher. Data collection was part of a larger study. The study protocol was approved by the authors' institution's Human Research and Ethics Review Board and all participants provided informed consent.

9 | RESULTS

The data were analysed using structural equation modelling. Model estimation was based on the maximum likelihood bootstrap method in AMOS Version 22. The two-stage structural equation modelling approach proposed by Anderson and Gerbing (1988) was employed. First, the measurement model was examined for scale reliability, as well as discriminant and convergent validity. Following this, the relationships between constructs were tested through a structural model. The means and standard deviations for the four constructs in the model for both physical activity and healthful eating are shown in Table 1.

The initial measurement model of this study had 3 multi-item constructs with nine items (as shown in Table 2). All items loaded onto their unique variables. Despite the chi-square being significant for the final physical activity confirmatory factor analysis (CFA; χ^2 = 376.064, *df* = 72, χ^2/df = 5.22, *p* = .000), the other indices suggested a good model fit (root mean square error approximation [RMSEA] = .04, TLI = .96, CFI = .97 and standardized RMR = .044). Despite the chi-square being significant for the final Eating healthfully CFA, (χ^2 = 413.316, *df* = 72, χ^2/df = 5.74, *p* = .000), the other indices suggested a good model fit (RMSEA = .046, TLI = .95, CFI = .97 and standardized RMR = .064). The RMSEA were less than .05 (Browne & Cudeck, 1993). The SRMR was less than .05 for physical activity (Schumacker & Lomax, 2010), and the CFI and TLI both exceeded .95, also indicating good fit with the data (Hu & Bentler, 1998). The factor loadings were all significant (see Table 2).

The measures and reliabilities for all constructs appear in Table 2. The study tested the convergent and discriminant validity of the measures with the CFA results (see Table 2). Convergent validity, which is the agreement among measures of the same construct, reflects the amount of shared variation for measures of a common construct (Bagozzi, Yi, & Phillips, 1991). Convergent validity was assessed by inspecting the construct estimates. All factor loadings for each construct were statistically significant, indicating that convergent validity was achieved (see Table 2).

Second, the model was run unconstrained, and then compared to the model when constraining the correlation between the constructs to one. A chi-square difference test was then conducted between the two models finding that constraining the correlation between the two constructs significantly worsened the model; thus, discriminant

TABLE 2 Measures, reliability, and validity

Construct/items	Factor loading		C.R. (*t*-value)		SE		Composite reliability		AVE	
	PA	EH	PA	EH	PA	EH	PA	EH	PA	EH
Perceived behavioural control							**.76**	**.75**	**.52**	**.52**
Whether or not I exercise regularly (eat healthfully) in the next 12 weeks is entirely up to me.	.52	.50								
If I wanted to, it would be easy for me to exercise regularly (eat healthfully) during the next 12 weeks in order to achieve/maintain my weight goal.	.78	.76	12.24	11.32	.19	.25				
How much personal control do you feel you have over exercising regularly (eat healthfully) in the next 12 weeks?	.85	.75	12.45	11.29	.17	.22				
Self-efficacy							**.90**	**.90**	**.75**	**.74**
How confident are you that you will be able to exercise regularly (eat healthfully) in the next 12 weeks?	.83	.81								
How confident are you that over the next 12 weeks you could overcome obstacles that prevent you from exercising regularly (eat healthfully)?	.87	.90	27.79	27.71	.05	.05				
I believe I have the ability to exercise regularly (eat healthfully) in the next 12 weeks.	.89	.87	28.65	26.89	.05	.04				
Intentions							**.82**	**.82**	**.62**	**.63**
I am planning to do regular exercise (eat healthfully) in order to achieve/maintain my goal weight during the next 12 weeks.	.53	.51								
I intend to do regular exercise (eat healthfully) in order to achieve/maintain my goal weight during the next 12 weeks.	.90	.91	12.91	12.24	.23	.28				
I will try to do regular exercise (eat healthfully) in order to achieve/maintain my goal weight during the next 12 weeks.	.91	.92	12.90	12.22	.28	.35				

Note. AVE = Average Variance Extracted; CR = Critical Ratio; EH = eating healthfully; PA = physical activity; SE = standard error.

validity was indicated suggesting the two constructs, namely, self-efficacy and PBC, are different. Convergent validity occurs when the factor loadings and average variance explained in items by their respective constructs are greater than .50, and factor composite reliability is equal to or higher than .60 (Fornell & Larcker, 1981). All factor loadings were over .50 ($p < .001$). The average variances explained of all variables were over the .50 threshold and higher than the squared correlations of all pairs involving focal variables (see Table 3). The internal reliability estimates were over the threshold of .70 (Hair, Black, Babin, & Anderson, 2010). Thus, this study's measurement model demonstrates evidence of convergent and discriminant validities. Harman's (1976) one factor test was used to check for evidence of common method variance. All of the variables were entered into an unrotated principal components factor analysis. The first (largest) factor did not account for the majority of variance (33.5%), an indication that common method variance did not confound the results.

TABLE 3 Correlation and validity testing

Physical activity construct	1	2	3
1. Perceived behavioural control	**.52**		
2. Self-efficacy	.60**	**.74**	
3. Intentions	.01	.07	**.63**
R^2 on diagonal in bold			
Eating healthfully construct	1	2	3
4. Perceived behavioural control	**.52**		
5. Self-efficacy	.67**	**.74**	
6. Intentions	.01	.05	**.63**

**Correlation is significant at the 0.01 level (two tailed).

10 | HYPOTHESIS TESTING

To test equality across cohorts, we conducted a multigroup analysis of structural invariance (Dagger & O'Brien, 2010). We chose this method because multigroup structural equation modelling (SEM) is a powerful and versatile approach to testing invariance (Steenkamp & Baumgartner, 1998). First, the unconstrained baseline model was examined for both physical activity and healthful eating and demonstrated good fit as detailed in the following sections. We then tested for invariance in structural weights between the new, intermediate, and experienced customer cohorts. The findings are shown in Table 4.

11 | PHYSICAL ACTIVITY SEM

Results of the SEM model revealed that all fit indices and statistics (χ^2 = 212.19, *df* = 93, χ^2/df = 2.28, p = .000, CFI = .97, TLI = .95, RMSEA = .04, SRMR = .05), indicated a good model fit (Hair et al., 2010). The RMSEA was less than .05 and the 90% confidence intervals ranged between .03 and .05, indicating a close fit (Browne & Cudeck, 1993). This is important given that simulation studies show RMSEA performs better than other fit indices (Browne & Cudeck, 1993) and is among the least affected by sample size (Marsh, Balla, & Hau, 1996). To test and compare the full model between the three samples, multigroup analysis was conducted. Importantly, for physical exercise, the explained variance (r^2) for Time two behaviour was 18% in new users, 29% in intermediate users and 34% in experienced users. This

TABLE 4 Results of the structural model and chi-square difference tests physical activity (PA) and eating healthfully (EH)

HO	Hypothesised path	Stand regression weight			*p*-value			Supported at $p < .05$			Δχ2
		New users	Intermediate users	Experienced users	New users	Intermediate users	Experienced users	New users	Intermediate users	Experienced users	
H1a	PA self-efficacy → intentions	.018	.227	.064	ns	ns	ns	No	No	No	ns
H1b	EH self-efficacy → intentions	.09	.16	.06	ns	ns	ns	No	No	No	ns
H2a	PA perceived behavioural control → intentions	−.045	−.309	−.079	.708	.045*	.514	No	Yes	No	ns
H2b	EH perceived behavioural control → intentions	−.06	−.25	−.06	ns	ns	ns	No	No	No	ns
H3a	PA self-efficacy → behaviour	.49	.375	.571	***	.003**	***	Yes	Yes	Yes	ns
H3b	EH self-efficacy → behaviour	.42	.54	.58	***	***	***	Yes	Yes	Yes	ns
H4a	PA perceived behavioural control → behaviour	04	.12	.06	ns	ns	ns	No	No	No	-1.91*
H4b	EH perceived behavioural control → behaviour	−.12	−.008	−.03	ns	ns	ns	No	No	No	ns
H5a	PA intentions → behaviour	.135	−.048	−.073	.02*	.445	.326	Yes	No	No	ns
H5b	EH intentions → behaviour	.02	−.010	−.14	Ns	Ns	.05*	No	No	Yes	ns

*Significant at the <.05 level,
**significant at the <.01 level,
***significant at the <.001 level.

indicates that the explained variance for physical activity behaviour increases with experience. The variance explained by intentions was less than 1% in all users.

Self-efficacy did not predict intentions in any group; thus, H1a was not supported. Self-efficacy predicted behaviour in all three groups; thus, H3a was supported in all groups. A model comparison was undertaken using AMOS to compare an unconstrained model and the structural weights model to test if there were any differences in the relationship between self-efficacy and physical activity behaviour between groups. Across the three groups, there were no significant differences in levels of reported self-efficacy levels, however, behaviour levels increased significantly as experience with the program increased (see Table 1); therefore, H6a was supported.

PBC had a moderate negative but significant relationship with intentions in the intermediate users group, ($\beta = -.25$, $p = .05$) however did not predict intentions in the new users or experienced users groups. Therefore, H2a was only supported in the intermediate group. PBC did not predict behaviour in any group; therefore, H4a was not supported. However, there were significant differences between the regression weights for the PBC relationship with physical activity behaviour. Intentions only predicted behaviour in the new users group; thus, H5a is only partially supported.

12 | HEALTHFUL EATING SEM

Results of the SEM model for healthful eating revealed that all fit indices and statistics ($\chi^2 = 212.19$, $df = 93$, $\chi^2/df = 2.28$, $p = .000$, CFI = .97, TLI = .95, RMSEA = .04, SRMR = .042), indicated a good model fit (Hair et al., 2010). The RMSEA was less than .05 and the 90% confidence intervals ranged between .00 and .08, indicating a close fit (Browne & Cudeck, 1993). This is important given that simulation studies show RMSEA performs better than other fit indices (Browne & Cudeck, 1993) and is among the least affected by sample size (Marsh et al., 1996). To test and compare the full model between the three samples, multigroup analysis was conducted. Importantly, for healthful eating, the explained variance (r^2) for Time two behaviour was 10% in new users, 12% in intermediate users and 19% in experienced users. This indicates that the explained variance increases with experience for eating behaviour. The variance explained by intentions was less than 1% in all users.

Self-efficacy did not predict healthful eating intentions in any group; thus, H1b was not supported. Self-efficacy predicted eating behaviour in all three groups; thus, H3b was supported in all groups. A model comparison was undertaken using AMOS to compare an unconstrained model and the structural weights model to test if there were any differences in the relationship between self-efficacy and physical activity behaviour between groups. For healthful eating, there were significant differences in self-efficacy levels between new and intermediate users and new and experienced users; however, there were no significant differences in levels of reported self-efficacy levels between intermediate and experienced users (see Table 1).

PBC did not predict healthful eating intentions in any group. Therefore, H2b was not supported. PBC did not predict behaviour in any group; therefore, H4b is not supported. Intentions did not predict

healthful eating behaviour in any group; thus, H5b is not supported. Eating healthfully behaviour decreased between new users and intermediate users significantly, however, remained consistent between intermediate and experienced users; thus, H6b is not supported.

13 | DISCUSSION

The purpose of this research was threefold: first, to demonstrate a conceptual distinction between self-efficacy and PBC factors: second, to explore the effects of self-efficacy and PBC on people's intentions towards and participation in physical activity and healthful eating behaviour; third, to explore differences in self-efficacy, PBC, and behaviours between groups with differing levels of experience participating in a commercial weight management program.

From a theoretical perspective, it is very important that there is a conceptual distinction between self-efficacy and PBC factors. These studies provide additional evidence that this is the case and although highly correlated, self-efficacy and PBC operate independently of each other. The findings add an additional layer to consider when including variables in models aiming to predict change or maintenance in consumer behaviours. Frequently, studies combine the two hoping to achieve behaviour change or maintenance. However, the current research suggests that maintaining self-efficacy rather than PBC over time through repeat participation in a program such as the one studied here may lead to sustained behaviour over time.

This research demonstrates the effects of self-efficacy and PBC on peoples' intentions towards and participation in physical activity and eating healthfully behaviour. The results reveal that self-efficacy consistently predicts behaviour for both physical exercise and eating healthfully for all levels of users. Verplanken and Wood (2006) suggest when behaviour is new, the behavioural-intention component will be solely responsible for the behaviour. Findings from this study partially support this notion with intentions predicting physical activity behaviour in new users but not for the other two groups. However, as behaviour repeatedly takes place, self-efficacy becomes a better predictor of behaviour than behavioural intentions (van Stralen et al., 2009). The findings from this research support this notion, and this may be due to mastery of behaviour effects as performance of the behaviour is changed by the collective effects of a person's efforts over time (Warner et al., 2014). There may also be reinforcing effects of repeatedly performing a behaviour (Bandura, 2012). Self-efficacy is therefore a modifiable factor, and one that is useful when developing behaviour change programs. The more experience with a program which supports participation in a behaviour, the more direct influence self-efficacy has on behaviours.

Third, this study shows differences in self-efficacy, PBC, and behaviours between groups with differing levels of experience within a commercial weight management program. Additionally, the results of this study show that consistently participating in a program across time assists consumers to maintain levels of self-efficacy, which leads to actual behaviour maintenance. Behaviour maintenance that operates on the basis of performance achievements conveys efficacy information in several ways other than simply through the attainment of desired behaviours (Bandura & Walters, 1977). Conversely, people may give up trying because they lack a sense of efficacy in performing the desired behaviour, or they may be assured of their capabilities but give up trying because they expect their behaviour to have no effect on their health and well-being outcomes. Thus, to alter self-efficacy requires the development of competencies and expectations of personal effectiveness (Havitz, Kaczynski, & Mannell, 2013).

14 | IMPLICATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The findings of this research regarding the influence of PBC and self-efficacy highlight the importance of understanding when and how varying degrees of self-efficacy can influence intentions towards physical activity and healthful eating behaviour undertaken in order to achieve a weight management goal. This research contributes to self-efficacy theory (Bandura, 1977) and extends previous self-efficacy and PBC research (Trafimow et al., 2002) by demonstrating that they are two distinct constructs. We also show that self-efficacy levels remain consistent over time with use of an integrated program, and thus, the program may be assisting consumers to maintain their self-efficacy and therefore their behaviour participation levels.

Individuals with different experience levels appear to have different degrees of exercise-specific and healthful eating-specific self-efficacy. This suggests people at the different stages that might benefit from interventions that differ in their focus on enhancing efficacy expectations. For example, those with the least experience might benefit most from informational and motivational experiences designed to increase the appeal of physical activity and healthful eating and to enhance efficacy expectations. Further work in this area is needed before specific recommendations can be offered. The findings also demonstrate that repeat use of programs is important for the maintenance of behaviour change, moving consumers beyond merely behaviour adoption. Obesity, like diabetes needs to be managed over the life course and should not be expected to be fixed by a one-off program. The primary objective in applying theoretical models such as TPB to study physical activity and eating behaviours is to better understand the process of behaviour change so that more successful programs can be developed to help people start or continue to be active or eat healthfully. This study has provided a better understanding of the process of exercise and healthful eating initiation, adoption, and maintenance so that successful programs can be developed.

We have provided evidence that high levels of self-efficacy may serve as a trait to propel an individual into changing their behaviour and perhaps more importantly maintaining or increasing their behaviour over time, particularly when they participate in a program that provides support. Such outcome information is pivotal for decision makers at both an organisational level and a policy level to develop offerings and policies, which increase and maintain individuals' self-efficacy for changing and maintaining their behaviour. This research has important implications for those interested in changing health behaviours, such as social marketers. From a public policy perspective, there seem to be two approaches to health behaviour change, emphasising individual responsibility via healthy decision making and developing interventions to implement in affected target markets.

Consistent with previous research findings, for managers, knowing that evaluative feedback is critical to those with low self-efficacy in particular (Morris, Usher, & Chen, 2016), should provide individuals with opportunities for positive feedback including assistance to set smaller goals rather than larger goals (e.g., wanting to lose 5 kg rather than 20 kg at a time), so they can more easily manage the perceived outcome of their behaviour. The findings from this study also demonstrate that providing a variety of evaluative feedback mechanisms, for example, monthly fitness and flexibility tests may have assisted participants to increase or maintain their self-efficacy levels. Furthermore, focussing on providing tools to support and enable individuals will help to increase self-efficacy thereby assisting individuals to work towards achieving their goals.

Under the second approach of designing effective health behaviour change programs including social marketing programs, the results of this research reveal several important implications. First, our results indicate that behaviour change programs, which acknowledge that behaviour change is a difficult and complex process involving several phases and may also involve a series of attempts, can be successful. Highlighting this difficulty and providing participants with a range of tools to combat possible barriers and change old habits increases and maintains the individual's self-efficacy and intentions towards attempting a health behaviour change. For example, providing weekly motivational videos available online for individuals to watch assists in improving their motivation and belief in themselves. Furthermore, providing online forums with experts such as dietitians and personal trainers as moderators to answer individual queries and provide motivation at an individual level to encourage healthy decisions, which may also lead to higher levels of self-efficacy and PBC, result in higher levels of behaviour change. Thus, a range of individualised cost-effective solutions can be provided.

Finally, the results demonstrate that consumers who have participated in more than one round of the commercial weight loss program maintain high levels of self-efficacy and have higher levels of physical activity and healthful eating behaviour undertaken in order to achieve their weight management goal. This indicates that the more experience participants have with a program, which provides tools to enable behaviour participation such as exercise plans, instruction videos on how to safely perform individual exercises, meal plans, and recipes, the more likely they are to perform the desired behaviour at higher levels. This research has demonstrated that understanding consumer's levels of PBC and self-efficacy and developing appropriate tools to support the increase of these variables is an effective way to achieve behaviour change. Finally, this study provides evidence for the importance of providing the opportunity to participate in behaviour change programs repeatedly over time in order to maintain behaviour change. This means that there is a need to move beyond one-off programs and instead the provision of ongoing programs, which participants can cycle back into as the need arises for behaviour maintenance.

This research contributes to the growing body of research on self-efficacy and PBC used in the theory of planned behaviour by examining the consequences of self-efficacy and PBC on consumer decision making using a comprehensive behaviour change program. The results demonstrate the distinctness of each construct and thus the importance of considering their use differently when developing behaviour change programs. It appears that self-efficacy is more closely aligned with internal drivers of behaviour change, and control is more closely aligned with external drivers or barriers to behaviour change. This research is limited by the use of an online survey method and the evaluation of only one online commercial program without a matched control group. In the future, research could examine whether there are differences in levels of self-efficacy, PBC, and subsequent behaviour between online and bricks and mortar commercial programs such as gyms. Results of this research would also be enhanced with a larger sample size, increasing the ability of the results to be more generalisable. The 3-month follow-up period is also very short, and future studies should aim to follow up at 12 months and again at 2-year postparticipation in a program to capture whether the program has succeeded in maintaining behaviour change over time because as Andreasen (2003) points out, it is easy to adopt a new behaviour but much harder to maintain it over time. A further limitation of the current study is the focus on self-report behaviours, and future research should compare self-report with actual behaviour via apps or wearable technology such as FitBits.

REFERENCES

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, N.J: Prentice-Hall.

Ajzen, I., & Madden, T. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology*, *22*(5), 453–474.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. doi:10.1016/0749-5978(91)90020-t

Ajzen, I. (2002). Perceived behavioural control, self-efficacy, locus of control, and the theory of planned behaviour. *Journal of Applied Psychology*, *32*(4), 665–683.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*(3), 411.

Andreasen, A. R. (2003). The life trajectory of social marketing some implications. *Marketing Theory*, *3*(3), 293–303.

Armitage, C., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, *40*(4), 471–499. doi:10.1348/014466601164939

Armitage, C. (2005). Can the theory of planned behavior predict the maintenance of physical activity? *Health Psychology*, *24*(3), 235–245. doi:10.1037/0278-6133.24.3.235

Armitage, C. J., Conner, M., Loach, J., & Willetts, D. (1999). Different perceptions of control: Applying an extended theory of planned behavior to legal and illegal drug use. *Basic and Applied Social Psychology*, *21*(4), 301–316.

Bae, H. S., & Kang, S. (2008). The influence of viewing an entertainment–education program on cornea donation intention: A test of the theory of planned behavior. *Health Communication*, *23*(1), 87–95.

Bagozzi, R. P., Yi, Y., & Phillips, L. W. (1991). Assessing construct validity in organizational research. *Administrative Science Quarterly*, 421–458.

Bandura, A., & Walters, R. H. (1977). *Social learning theory*. New York NY: General Learning Press.

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, N.J: Prentice Hall.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, N.J: Prentice-Hall.

Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management*, *38*(1), 9–44.

Bonomi, A. G., & Westerterp, K. R. (2012). Advances in physical activity monitoring and lifestyle interventions in obesity: A review. *International Journal of Obesity*, *36*(2), 167–177.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. *Sage Focus Editions*, *154*, 136–136.

Carins, J. E., & Rundle-Thiele, S. R. (2014). Eating for the better: A social marketing review (2000–2012). *Public Health Nutrition*, *17*(07), 1628–1639.

Chan, D. K. S., & Fishbein, M. (1993). Determinants of college women's intentions to tell their partners to use condoms1. *Journal of Applied Social Psychology*, *23*(18), 1455–1470.

Cheon, J., Lee, S., Crooks, S. M., & Song, J. (2012). An investigation of mobile learning readiness in higher education based on the theory of planned behavior. *Computers and Education*, *59*(3), 1054–1064.

Collins, S. E., Witkiewitz, K., & Larimer, M. E. (2011). The theory of planned behavior as a predictor of growth in risky college drinking. *Journal of Studies on Alcohol and Drugs*, *72*(2), 322.

Courneya, K. S., & Bobick, T. M. (2000). Integrating the theory of planned behavior with the processes and stages of change in the exercise domain. *Psychology of Sport and Exercise*, *1*(1), 41–56.

Dagger, T. S., & O'Brien, T. K. (2010). Does experience matter? Differences in relationship benefits, satisfaction, trust, commitment and loyalty for novice and experienced service users. *European Journal of Marketing*, *44*(9/10), 1528–1552.

De Cocker, K. A., De Bourdeaudhuij, I. M., Brown, W. J., & Cardon, G. M. (2011). Four-year follow-up of the community intervention '10 000 steps Ghent'. *Health Education Research*, *26*(2), 372–380.

Deehr, R. C., & Shumann, A. (2009). Active Seattle achieving walkability in diverse neighborhoods. *American Journal of Preventive Medicine*, *37*(6), S403–S411.

Dennis, C. L. (1999). Theoretical underpinings of breastfeeding confidence: A self-efficacy framework. *Journal of Human Lactation*, *15*, 195–202.

Dombrowski, S. U., Endevelt, R., Steinberg, D. M., & Benyamini, Y. (2016). Do more specific plans help you lose weight? Examining the relationship between plan specificity, weight loss goals, and plan content in the context of a weight management programme. *British Journal of Health Psychology*, *21*(4), 989–1005. doi:10.1111/bjhp.12212

Donovan, R., & Henley, N. (2010). *Principles and practice of social marketing: An international perspective*. New York: Cambridge University Press.

Droms, C. M., & Craciun, G. (2014). The impact of attitudinal ambivalence on weight loss decisions: Consequences and mitigating factors. *Journal of Consumer Behaviour*, *13*(4), 303–315.

Emanuel, A. S., McCully, S. N., Gallagher, K. M., & Updegraff, J. A. (2012). Theory of planned behavior explains gender difference in fruit and vegetable consumption. *Appetite*, *59*(3), 693–697.

Fildes, A., Charlton, J., Rudisill, C., Littlejohns, P., Prevost, A., & Gulliford, M. (2015). Probability of an obese person attaining normal body weight: Cohort study using electronic health records. *American Journal of Public Health*, *105*(9), e54–e59. https://doi.org/10.2105/ajph.2015.302773

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 39–50.

Gálvez, C. A., Modeste, N., Lee, J. W., Betancourt, H., & Wilkins, R. (2001). Predictors of intention to seek medical help by Peruvian mothers for children who have signs of pneumonia. *International Quarterly of Community Health Education*, *20*(4), 347–368.

Glanz, K., & Rimer, B. K. (2005). *Theory at a glance: A guide for health promotion practice* (2nd ed.). US Dept. of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute. Available at: http://www.cancer.gov/PDF/481f5d53-63df-41bc-bfaf-5aa48ee1da4d/TAAG3.pdf [accessed on 10 August 2015]

Goetzel, R. Z. (2009). Do prevention or treatment services save money? The wrong debate. *Health Affairs*, *28*(1), 37–41.

Gredig, D., Nideröst, S., & Parpan-Blaser, A. (2007). Explaining the condom use of heterosexual men in a high-income country: Adding somatic culture to the theory of planned behaviour. *Journal of Public Health*, *15*(2), 129–140.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). New Jersey: Pearson Prentice Hall.

Hansen, T., Jensen, J. M., & Solgaard, H. S. (2004). Predicting online grocery buying intention: A comparison of the theory of reasoned action and the theory of planned behavior. *International Journal of Information Management*, *24*(6), 539–550.

Harman, H. H. (1976). *Modern factor analysis*. Chicago: University of Chicago Press.

Hastings, G. (2007). *Social marketing: Why should the devil have all the best tunes?* Oxford: Butterworth-Heinemann.

Havitz, M. E., Kaczynski, A. T., & Mannell, R. C. (2013). Exploring relationships between physical activity, leisure involvement, self-efficacy, and motivation via participant segmentation. *Leisure Sciences*, *35*(1), 45–62.

Holdershaw, J., Gendall, P., & Wright, M. (2011). Predicting blood donation behaviour: Further application of the theory of planned behaviour. *Journal of Social Marketing*, *1*(2), 120–132.

Hu, L. T., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, *3*(4), 424.

Jeffery, R. W. (2001). Public health strategies for obesity treatment and prevention. *American Journal of Health Behavior*, *25*(3), 252–259.

Keegan R, Keegan SL, Daley S, Ordway C, & Edwards A. (2013). Getting Australia moving: Establishing a physically literate & active nation (game plan). Available at http://www.canberra.edu.au/researchrepository/file/50f8c79c-2aca-a83f-aee8-254288c36220/1/full_text_final.pdf

Kubacki, K., Rundle-Thiele, S., Lahtinen, V., & Parkinson, J. (2015). A systematic review assessing the extent of social marketing principle use in interventions targeting children (2000–2014). *Young Consumers*, *16*(2), 141–158.

Laska, M. N., Pelletier, J. E., Larson, N. I., & Story, M. (2012). Interventions for weight gain prevention during the transition to young adulthood: A review of the literature. *Journal of Adolescent Health*, *50*(4), 324–333.

Lefebvre, R. C. (2000). In P. N. Bloom, & G. T. Gundlach (Eds.), *Handbook of marketing and society*). Newbury Park, CA: Sage Publications.

Luca, N. R., & Suggs, L. S. (2013). Theory and model use in social marketing health interventions. *Journal of Health Communication*, *18*(1), 20–40.

Manstead, A. S., & Eekelen, S. A. (1998). Distinguishing between perceived behavioral control and self-efficacy in the domain of academic achievement intentions and behaviors. *Journal of Applied Social Psychology*, *28*(15), 1375–1392.

Marsh HW, Balla JR, & Hau KT. 1996. An evaluation of incremental fit indices: A clarification of mathematical and empirical properties. *Advanced structural equation modeling: Issues and techniques*, 315–353.

Medibank. 2008. The cost of physical inactivity, October 2008. Available at http://www.medibank.com.au/Client/Documents/Pdfs/The_Cost_Of_Physical_Inactivity_08.pdf

Morris, D. B., Usher, E. L., & Chen, J. A. (2016). Reconceptualizing the sources of teaching self-efficacy: A critical review of emerging literature. *Educational Psychology Review*, 1–39. doi:10.1007/s10648-016-9378-y

National Preventative Health Task Force. 2009. Australia: The healthiest country by 2020. Available at from http://www.preventativehealth.org.au/ [accessed on 22 June 2015]

Organization for Economic Cooperation and Development (OECD). 2013. Health at a glance 2013: OECD indicators. OECD. Available at https://doi.org/10.1787/health_glance-2013-en [accessed on 10 August 2015]

Parkinson, J., Russell-Bennett, R., & Previte, J. (2012). Mum or bub? Which influences breastfeeding loyalty. *Australasian Marketing Journal (AMJ)*, *20*(1), 16–23.

Perugini, M., & Bagozzi, R. P. (2001). The role of desires and anticipated emotions in goal-directed behaviours: Broadening and deepening the theory of planned behaviour. *The British Journal of Social Psychology*, *40*, 79.

Plotnikoff, R. C., Lubans, D. R., Costigan, S. A., & McCargar, L. (2013). A test of the theory of planned behavior to predict physical activity in an overweight/obese population sample of adolescents from Alberta, Canada. *Health Education & Behavior*, *40*(4), 415–425.

Prati, G., Mazzoni, D., & Zani, B. (2014). Psychosocial predictors and HIV-related behaviors of old adults versus late middle-aged and younger adults. *Journal of Aging and Health*, *27*(1), 123–139. doi:10.1177/0898264314538664

Rhodes, R. E., & Courneya, K. S. (2003). Investigating multiple components of attitude, subjective norm, and perceived control: An examination of the theory of planned behaviour in the exercise domain. *British Journal of Social Psychology*, *42*(1), 129–146.

Roberto, C. A., Swinburn, B., Hawkes, C., Huang, T. T., Costa, S. A., Ashe, M., … Brownell, K. D. (2015). Patchy progress on obesity prevention: Emerging examples, entrenched barriers, and new thinking. *The Lancet*, *385*(9985), 24.

Sayers, S. P., LeMaster, J. W., Thomas, I. M., Petroski, G. F., & Ge, B. (2012). Bike, walk, and wheel: A way of life in Columbia, Missouri, revisited. *American Journal of Preventive Medicine*, *43*(5), 379–383.

Schumacker, R. E., & Lomax, R. G. (2010). *A beginner's guide to structural equation modeling*. New York: Routledge.

Sparks, P., Guthrie, C. A., & Shepherd, R. (1997). The dimensional structure of the perceived behavioral control construct1. *Journal of Applied Social Psychology*, *27*(5), 418–438.

Staley, J. A. (2009). "Get firefighters moving": Marketing a physical fitness intervention to reduce sudden cardiac death risk in full-time firefighters. *Social Marketing Quarterly*, *15*(3), 85–99.

Steenkamp, J. B., & Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research. *Journal of Consumer Research*, *25*(1), 78–90.

Thackeray, R., & Neiger, B. L. (2000). Establishing a relationship between behavior change theory and social marketing: Implications for health education. *Journal of Health Education*, *31*, 331–335.

Trafimow, D., & Trafimow, J. (1998). Predicting back pain sufferers' intentions to exercise. *The Journal of Psychology*, *132*(6), 581–592. doi:10.1080/00223989809599291

Trafimow, D., Sheeran, P., Conner, M., & Finlay, K. A. (2002). Evidence that perceived behavioural control is a multidimensional construct: Perceived control and perceived difficulty. *The British Journal of Social Psychology*, *41*(1), 101–121. doi:10.1348/014466602165081

Truong, V. D. (2014). Social marketing a systematic review of research 1998-2012. *Social Marketing Quarterly*, *20*(1), 15–34.

van Stralen, M. M., De Vries, H., Mudde, A. N., Bolman, C., & Lechner, L. (2009). Determinants of initiation and maintenance of physical activity among older adults: A literature review. *Health Psychology Review*, *3*, 147–207. doi:10.1080/17437190903229462

Verplanken, B., & Wood, W. (2006). Interventions to break and create consumer habits. *Journal of Public Policy & Marketing*, *25*(1), 90–103.

Verplanken, B. (2006). Beyond frequency: Habit as mental construct. *British Journal of Social Psychology*, *45*(3), 639–656.

Warner, L. M., Schüz, B., Wolff, J. K., Parschau, L., Wurm, S., & Schwarzer, R. (2014). Sources of self-efficacy for physical activity. *Health Psychology*, *33*(11), 1298.

Withall, J., Jago, R., & Fox, K. R. (2012). The effect of a community-based social marketing campaign on recruitment and retention of low-income groups into physical activity programmes—A perceived behavioural controlled before-and-after study. *BMC Public Health*, *12*, 836.

World Health Organization. 2015. Obesity and overweight, *March 2015* (Sheet No. 311). Available at www.who.int [accessed on 10 August 2015]

Yackobovitch-Gavan, M., Steinberg, D. M., Endevelt, R., & Benyamini, Y. (2015). Factors associated with dropout in a group weight-loss programme: A longitudinal investigation. *Journal of Human Nutrition and Dietetics*, *28*(s2), 33–40.

Yap, S. F., & Lee, C. K. C. (2013). Does personality matter in exercise participation? *Journal of Consumer Behaviour*, *12*(5), 401–411.

Joy Parkinson is a lecturer with the Department of Marketing, Griffith University with a PhD in Marketing. Joy is a social marketing expert and has worked in industry and universities across Australia. She has published journals including Journal of Business Research, International Journal of Consumer Studies, and Journal of Services Marketing.

Patricia David is a PhD candidate with Social Marketing at Griffith University. Patricia's research interests are in theory and behaviour change.

Professor Sharyn Rundle-Thiele is the Director of Social Marketing at Griffith University, Brisbane, and Editor of the Journal of Social Marketing. Sharyn is a social marketing expert managing research projects and community-based interventions that change behaviours for the better. She is recognised globally for her work in social marketing and in diverse areas including alcohol, physical activity, healthy eating, and environmental change. Sharyn has published more than 80 refereed journal articles and book chapters, 7 books, and numerous policy-related monographs and reports.

How to cite this article: Parkinson J, David P, Rundle-Thiele S. Self-efficacy or perceived behavioural control: Which influences consumers' physical activity and healthful eating behaviour maintenance?. *J Consumer Behav*. 2017;16:413–423. https://doi.org/10.1002/cb.1641

Received: 17 July 2014 | Revised: 20 December 2016 | Accepted: 22 January 2017

DOI: 10.1002/cb.1642

WILEY

ACADEMIC PAPER

The impact of emotions on recall: An empirical study on social ads

Anna Laura Missaglia[1] | Annalisa Oppo[1,2] | Maurizio Mauri[1] | Barbara Ghiringhelli[1] | Andrea Ciceri[1] | Vincenzo Russo[1]

[1] Behavior and Brain LAB, IULM University IULM, Milan, Italy

[2] Sigmund Freud University, Ripa di Porta Ticinese 77, 20143 Milan, Italy

Correspondence
Anna Laura Missaglia, Behavior and Brain LAB, IULM University IULM, Milan, Italy.
Email: anna.missaglia1@gmail.com

Abstract

Emotions are a complex phenomenon that entails a tricky problem regarding the measurement. To partially overcome this question, we assess emotions both using self-report and measures commonly used in neuromarketing. This study assesses the accuracy of the recall after 4 months regarding two social advertising videos about female genital mutilation. Forty female participants were recruited. The skin conductance trend of the participants is different when viewing the two videos. The majority of participants (94.9%) reported that the two videos elicited different emotions (sadness for the first video and anger for the second one). Furthermore, according to arousal and valence model, these data are consistent with the literature that underlines the importance of psychophysiological indexes in measuring emotions and their associations with memory performances.

KEYWORDS

advertising, emotion, memory, psychophysiology, skin conductance

1 | INTRODUCTION

Social advertisings (ads) are commonly designed to influence the voluntary or involuntary behaviour of a target audience in order to improve the welfare of individuals and society (Donovan & Henley, 2003) according to the idea of libertarian paternalism (Sunstein & Thaler, 2003). The success of public health interventions, especially those promoting behavioural change, rests on effective communication (Russo, 2011).

The purpose of the present study is to analyse the recall accuracy of two social advertising videos that used two different communication strategies, that is, violent and nonviolent code.

Past research has emphasised the importance of emotional reactions to advertising and has focused on the study of memory: Specifically, researchers put their attention on the responses in terms of recall, because emotional response to an ad is proved to influence several aspects including the attitude towards advertising and brand (Batra & Ray, 1986; Du Plessis, 2005; Edell & Burke, 1987; Hall, 2002), attention (Medina, 2010; Stayman & Batra, 1991), the recall of the message, and therefore its effectiveness (Englis, 1990; Hazlett, Hazlett, & Yassky, 1999; Mai & Scholler, 2009; Medina, 2010; Page, Thorsom, & Heide, 1990; Stayman & Batra, 1991). However, the challenges both for researchers and for advertisers are mainly two: (a) which is the better way to measure both emotions and memory and (b) which communicative strategy is the most effective in promoting awareness on welfare issues.

Beyond the classic "hierarchy-of-effects" model (Holbrook, 1986), more recent studies have applied current knowledge from neuroscience and consumer psychology to study consumer processing of advertising as narrative structures of meaning in which emotions play a significant role (Escalas, 2004; Passyn & Sujan, 2006). Consumer research has been largely silent about properties of emotions beyond their valence that may underlie and differentiate them. This seems to be due to the widely held assumption that the valence of an emotion featured in an ad (i.e., its positivity or negativity) is the primary predictor of a consumer's response to the ads (Elster, 1998; Forgas, 1995). Thus, if an ad depicts any of the several emotions that share a common valence (e.g., negative feelings such as fear, anxiety, or guilt), people's behaviour toward the ads will simply reflect that valence (e.g., negative).

[*] Dr. Missaglia and Dr. Oppo wrote the first draft of the paper and contributed equally to the study.
[†] Dr. Oppo performed statistical analyses and discussed the results.
[‡] Dr. Missaglia, Dr. Oppo, Dr. Mauri and Prof. Russo wrote the protocol of the study.
[§] Dr. Missaglia, Prof. Russo, and Dr. Ciceri reviewed and discussed the literature.
[¶] Dr. Ghiringhelli analyzed the FGM topic.
All the authors read and approved the final version of the paper.

From a measurement theory point of view, traditional techniques include the so-called "self-report measures", and the first studies that assess the role of emotions in advertising research used these kinds of measures. However, some authors claim that these techniques may not be able to capture the whole complexity of emotional experience because they base exclusively upon verbal statements and can be distorted by cognitive bias (Haley, Staffaroni, & Fox, 1994). Specifically, self-report measures capture conscious emotional reactions (Micu & Plummer, 2010), but the validity of these assessments for measuring lower order emotions (Poels & DeWitte, 2006) is often biased by cognitive or social desirability constraints. For these reasons, methods based on subjective emotional perceptions are not always able to accurately capture the emotional state of the person. By contrast, the nonverbal measurements, based on the registration of neurophysiological parameters, may give a more accurate and reliable output because they are not mediated by cognitive processes (Poels & DeWitte, 2006).

Regarding the second point previously stated, social ads are often designed using a "shock tactic" to evoke negative emotions (i.e., fear) to raise awareness and challenge pre-existing attitudes toward relevant social issue as violence on women, obesity, smoking, and alcohol abuse (Henthorne, LaTour, & Nataraajan, 1993; LaTour & Rotfeld, 1997; Witte & Allen, 2000). However, storytelling with soothing emotional arousal is viewed as one of the most effective strategies to encourage prosocial behaviour (Merchant, Ford, & Sargeant, 2010).

In terms of effectiveness, literature has shown that there are conflicting results concerning studies that compared negative versus positive storytelling. Some authors found that the use of fear and shock in marketing campaigns has a positive effect on raising awareness about the consequences of smoking (Wakefield, Flay, Nichter, & Giovino, 2003), the social costs of binge drinking (Pilling & Brannon, 2007), and the deleterious effects of drug abuse (Schmeling & Wotring, 1980); however, others have reached the opposite conclusions (Capella, Taylor, & Webster, 2008; Pechmann & Ratneshwar, 1994) explaining this data as a "boomerang effect" described in the theory of psychological reactance (Brehm, 1966; Brehm & Brehm, 1981).

It is important to underline that the final purpose of a social communication is to bring awareness of a phenomenon, in particular, towards a phenomenon that is partially unknown to promote a behavioural change. Thus, in order to clarify this issue, it is important to understand how memory works. A good deal of literature underlined the importance of emotions both on the recall and on the recognition of previous learned behaviour (LeDoux, 1994). Researchers referred to "emotional memory" as the way in which the individual learning experiences (in particular, intense emotion as fear) shape memory.

The focus of this research is to evaluate which kind of communication strategy—between two options—is the most effective (in terms of recall) in promoting a rising welfare issue in the western society due to migration: female genital mutilation (FGM).

1.1 | Aims of the study

The aim of this study was to assess the 4-month recall accuracy of two social ad videos that used two different kinds of communication strategy: one based on a nonviolent code and one based on a violent code. We hypothesised that the recall would be better for the video that evoked a greater arousal. Furthermore, we wondered if a very high arousal might interfere in recall and which was the best communicative strategy.

In particular, we wanted to analyse 3 different aims:

- Aim 1: Assess the 4-month recall of two social ad videos.
- Aim 2: Evaluate which were the social ads preferred by the participants to promote FGM awareness.
- Aim 3: Analyse psychophysiological and self-reported measures associated with the recall and with the video's preference.

2 | MATERIALS AND METHOD

2.1 | The female genital mutilations project

The present study was conducted in the framework of the project "Application of integration and communications techniques and models in a multicultural society. The Female Genital Mutilations project" (IReR:2011B015) in collaboration between EUPOLIS and Regione Lombardia (Applicazione dei modelli e modalità di integrazione e comunicazione in una società multiculturale. La progettualità MGF). The primary aim of this project was to analyse the FGM phenomenon in order to provide the basis for social campaigns enabling to contrast and eventually reduce this kind of practice. Developing a culturally sensitive language (UNFPA, 2004) is an invaluable negotiating and programming tool. If the language used is loaded with negative judgements on the community or its values, it creates unnecessary tensions and constructs a wall between the community and the programme. Community might perceive a phrase or an image as value-loaded, and this perception may lead to the community's resistance, at least in the project, launching phase, to any advocacy campaigns to terminate the practice. By contrast, the use of a neutral language allows discussion of the practice and its negative impact on the health and right on woman.

2.2 | The experiment

The present experiment aims to test the accuracy of the recall of two social ad videos (stimuli) on female genital mutilation, after 4 months. Participants viewed 2-min videos on this topic. The first social ad spot (Social Ads 1) was based on a nonviolent code, and it was accurately described in Appendix A; the second social ad spot (Social Ads 2) was based on a violent code (see Appendix B). The ads were selected from a range of options by an expert panel ($N = 10$) who independently assessed as nonviolent the Social Ads 1 and as violent the Social Ads 2. Furthermore, the 100% of the experts stated that the two social ad spots evoked different emotions, namely, sadness for the Social Ads 1 and anger for the Social Ads 2.

2.3 | Participants

Participants were contacted via email and/or via telephone to plan and schedule their participation to the experiments that took place at the

Behaviour and Brain Lab, IULM University, Milan. Forty undergraduate students (age range 21–28 Mean = 23.38, *SD* = 1,97) were voluntarily recruited. We decided to recruit only women because of the delicate topic. All participants signed an informed consent before beginning the experimental procedure.

To avoid a possible carry over effect, participants were randomly assigned to one of two conditions; randomization procedure was carried out using a random list. Eighteen participants (45.0%) were first exposed at the Social Ads 1, and 22 participants (55.0%) were first exposed at the Social Ads 2; we controlled for the effective randomization using chi-square (chi^2 = 0.64; p = .42). During the course of the experimental protocol, one participant declared that she did not feel well, and she started to cry; for this reason, we ended the experimental procedure, we reassured the participant, and we deleted her from the analysis.

2.4 | Procedure

After arriving to the psychophysiological laboratory, participants were asked to sit down in front of a computer and were informed about the goals of the study, procedures, and cautions for study participations. To collect psychophysiological data, probes were attached by the experimenter ((Anna Missaglia and Annalisa Oppo, licensed psychotherapists) licensed psychotherapists) while explaining briefly the general rationale of the research. Once the subject felt comfortable, the experimental test started while instructing subjects to try to remain without moving during the beginning baseline (3 min watching a cross on the screen) and the presentation of the stimuli (Social Ads 1 and 2).

After each spot, subjects were asked to answer two questions: one regarding the intensity of the emotion and one about the type of emotion felt during the viewing of the spot.

2.5 | Psychophysiological measure

Three different psychophysiological measures (heart rate, skin conductance, and electromyography) were used.

2.5.1 | Heart rate (HR)

Concerning the measures of HR variability, amongst others, the interbeat interval (also known in the scientific literature as RR interval, the time elapsing between two consecutive R waves in the electrocardiogram) from blood volume pulse is the mean of the distance between heartbeats. For instance, in a very general way, a distance of 1,000 ms (1 s) means that there is a heartbeat every second (60 beats per minute, generally during rest). On the opposite, a distance of 500 ms (half of a second) means that there are 2 heartbeats every second (120 beats per minute, which means an important increase of cardiac activity in comparison to rest). Several studies showed the correlation between HR activity and affective states (Magagnin et al., 2010; Poels & DeWitte, 2006).

2.5.2 | Skin conductance (SC)

Skin conductance is the measure of electrical conductance of the skin that changes in presence (or absence) of sweat. SC values increases when the sweating glands, controlled by the autonomous nervous system, release more sweat because of motor or mental activity (once the environmental temperature is controlled and always at the same level). The correlation between SC and emotions has been shown by the scientific literature (Bolls, Lang, & Porrer, 2001; Gakhal & Senior, 2008). From previous literature that implied the use of physiological methods in the testing of advertisements, SC emerges as a good indicator of arousal (Bolls et al., 2001; Boucsein, 1992; Ravaja, 2004; Sequeira, Hot, Silvert, & Delplanque, 2009). Moreover, SC can represent the level of arousal in Lang model of emotions relying on psychophysiological measures.

2.5.3 | Electromyography (EMG)

The EMG is the measure of the electrical activity produced by skeletal muscles that increases when the muscles contracts in order to move the body or because of autonomic nervous activity related to emotional and/or mental activity. Facial EMG is the best measure of the valence of the emotional reaction as it records facial muscle movement from two different muscles: the zygomatic muscle (reacts more at exposure to positive stimuli) and the corrugator muscle (reacts more at exposure to negative stimuli; Bolls et al., 2001; Lang, Dhillon, & Dong, 1995; Larsen, Norris, & Cacioppo, 2003; Witvliet & Vrana, 1995). In this research, the muscle monitored is the corrugator supercilii from the face, because of its important correlation with emotional phenomena (Lang, 1995; Witvliet & Vrana, 1995).

For monitoring the responses of the autonomic nervous systems, physiological signals of blood volume pulse, galvanic skin response, and EMG of corrugator supercilii were monitored. Flexcomp (a device from Thought Technology) was used for the acquisition of the data, and Biograph Infinity 3.2 and Matlab 7.2 were used to compute and analyze the data collected. The Flexcomp device was synchronised with the eye-tracking system according to a protocol used in previous research. The sampling frequency for measuring the physiological signals was set at 256 Hz.

Eye and gaze tracking were recorded and computed by Senso Motoric Instruments system 250 RED at 250 Hz.

Three-minute baseline assessment was conducted to avoid individual variability in psychophysiological parameters. To have control about individual differences, the so-called “baseline” procedure was applied to the experimental protocol. According to the literature (Onorati, Barbieri, Mauri, Russo, & Mainardi, 2013) in experimental protocols taking advantage of psychophysiological measures (HRV, SC, Respiration, EMG, etc.), it is important to apply the baseline calculation for each participant. As indicated in the “Procedure” section, before starting the experiment, every subject was exposed to 3 minutes of a black screen with a white cross. We calculated the differences between the mean value of baseline condition and the mean value of experimental exposure.

2.6 | Explicit measures

One self-report measure and one interview were used, and the last one represents our main outcome measure.

2.6.1 | State–Trait Anxiety Inventory (STAI)

The STAI is a reliable and valid measure that has been used with both clinical and nonclinical populations (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The measure comprises separate self-report scales for assessing state and trait anxiety. The state anxiety scale (S-anxiety) consists of 20 items scored from 1 to 4 that evaluate current feelings of tension, discomfort, anxiety, and nervousness, while the 20 items of the trait anxiety scale (T-anxiety) scored from 1 to 4 trait scale assess anxiety levels in general. The cutoff score of 46 (75th percentile) suggests the presence of a state or a trait anxiety. Participants filled STAI trait before the exposure of the social ads and filled two STAI state after the exposure of Soc Ad 1 and after the exposure of Soc Ad 2.

2.6.2 | Interview: outcome measure

In order to assess long-term recall, a phone interview (see Appendix C) about 4 months after the video exposure was conducted by a psychotherapist (A.O.). The phone interview aimed to test the accuracy of long-term memory of the participants to the two stimuli in order to give an answer to the core research question: "which kind of storytelling determines a greater recall?"

The decision to administer the phone interview after 4 months raised up from the peculiarities of the research. Participants, all university students, had experienced something peculiar for them. It was considered, therefore, not to use 24-hr measures of memory, classically used in market research, but to carry out for a measure of long-term memory.

However, it has to be acknowledged that the time period used to assess long-term recall in this setting was extremely variable, and the literature does not provide specific time frame in which the long-term recall should be assessed (Lull & Bushman, 2015; Terry-McElrath, Emery, Szczypka, & Johnston, 2011).

The interview was conducted in a structured way using mostly open-ended questions (see appendix C). All questions were unprompted in order to avoid any kind of suggestions. This interview was adapted from an interview that was previously used in social ad research (Durkin & Wakefield, 2010). We considered the number of reported details to assess the recall accuracy, and finally, we asked to participants which social ads they would use to promote social awareness about FGM.

2.7 | Statistical analyses

Data are presented as means and percentages. The differences between categorical variables were calculated using chi-square (i.e., emotion reported by participants), while the differences between continuous variables were calculated using paired sample *t* test (i.e., state anxiety reported by participants after the two-video exposure; blink per second number). To analyse the trend of GSR (Galvanic Skin Response) during the video exposure, we used a generalised linear model for repeated measure. Specifically, the SC values registered throughout the video exposure were entered into a repeated measure analysis of variance (SC per second) as within-subject factors, and Social Ads 1 and 2 were entered in the model as a between-subject factor. Moreover, in order to assess which social ad was more effective in long term, we used logistic regression models, and odds ratio (OR) and 95% of confidence intervals were calculated to assess which social ad was more effective in long term. To clarify the magnitude of effect size, we rescaled the OR in Cohen *d* using the γ coefficient (γ = [OR −1]/[OR + 1]; Kraemer & Kupfer, 2006). Effect sizes of 0.2, 0.5, and 0.8 are "small," "medium," and "large" (Cohen, 1988).

Finally, to analyse the recall accuracy, paired sample *t* test (i.e., number of particular recalled) and chi-square were used (emotion explicitly reported by the participants).

The alpha level was set at 0.05. Analyses were conducted using SPSS (Statistical Package for Social Science), version 21.

3 | RESULTS

3.1 | Stimuli analysis

The 94.9% (*N* = 37) of the participants reported that the two videos elicited different emotions. In Table 1, psychophysiological and self-report measures were reported.

In particular, using a chi-square to assess the distribution of the emotion that the participants reported for both social ads, we observed that a greater percentage of them reported to feel sadness during the Social Ads 1 (chi-square = 37.92, $p < .001$) and anger during the Social Ads 2 (chi-square = 11.64, $p = 0.02$).

In Figure 1a, we reported the distribution of the emotion notified during the Social Ads 1 and in Figure 1b we reported emotion during the spot 2.

Looking at the state anxiety self-report measure, we found that the participants reported a higher score ($t = 2.99$; $p = .006$; $d = 0.7$) after seeing the Social Ads 2 (STAI mean = 54.21 [*SD* = 12.47]) than during the Social Ads 1 (STAI mean = 45.72; *SD* = 10.12).

Analyzing the intensity of the emotion reported after the viewing of the videos, we observed that participants reported a significantly

TABLE 1 Self-report and psychophysiological measures of the stimuli (Social Ads 1 and Social Ads 2)

	Social Ads 1	Social Ads 2	Student *T* and *p*
SC µicro ohms	−0.573 (2.79)	−1.51 (3.24)	$T = 1.83$, $p = .05$
HR (RR INTERVAL)	0.465 (13.70)	−7.114 (15.15)	$T = 1.78$; $p = .08$
EMG (Microvolts)	0.136 (2.75)	−0.612 (1.76)	$T = 1,35$; $p = .18$
Blink/sec	0.29 (0.15)	0.22 (0.16)	$T = 3.65$; $p = .001$
State STAI	45.72 (10.12)	54.21 (12.48)	$T = -2.99$; $p = .006$
Emotion intensity	3.38 (0.91)	4.67 (0.58)	$T = -8.48$; $p < .001$
Emotion predominantly reported	Sadness (43.6%)	Anger (38.5%)	

Note. EMG = electromyography; HR = heart rate; SC = skin conductance; STAI = State–Trait Anxiety Inventory.

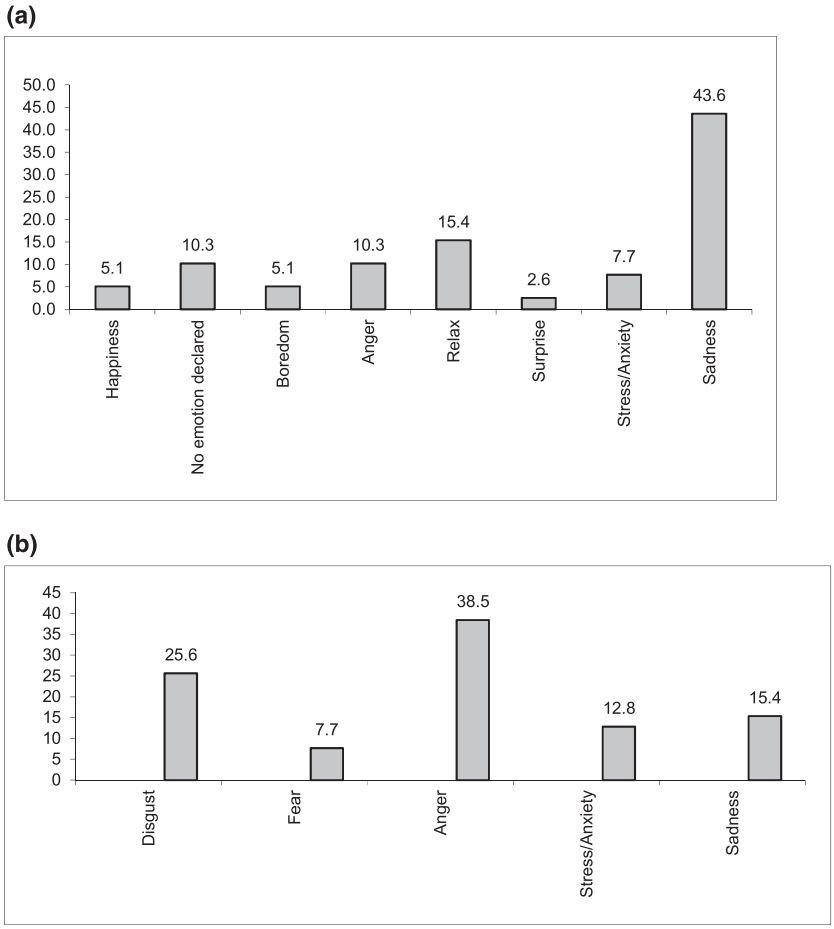


FIGURE 1 (a) Distribution of the emotion during the Social Ads1 (b) Distribution of the emotion during the Social Ads2

higher intensity for the Social Ads 2 (Mean = 4.67; *SD* = 0.57) than for the Social Ads 1 (Mean = 3.38; *SD* = 0.90). Furthermore, looking at the SC performance during the video exposures, we observed that it was similar in the two videos, but it was in average higher (F = 3.88, *p* = .05) during the Social Ads 2.

Overall, we can state that the arousal was greater during the view of the Social Ads 2 (Figure 2).

Moreover, our results showed that during the Social Ads 1 (blink/sec = 0.29; *SD* = 0.16), the participant blinked more than during the Social Ads 2 (blink/sec = 0.22; *SD* = 0.17; *t* = 3,65; *p* < .001,

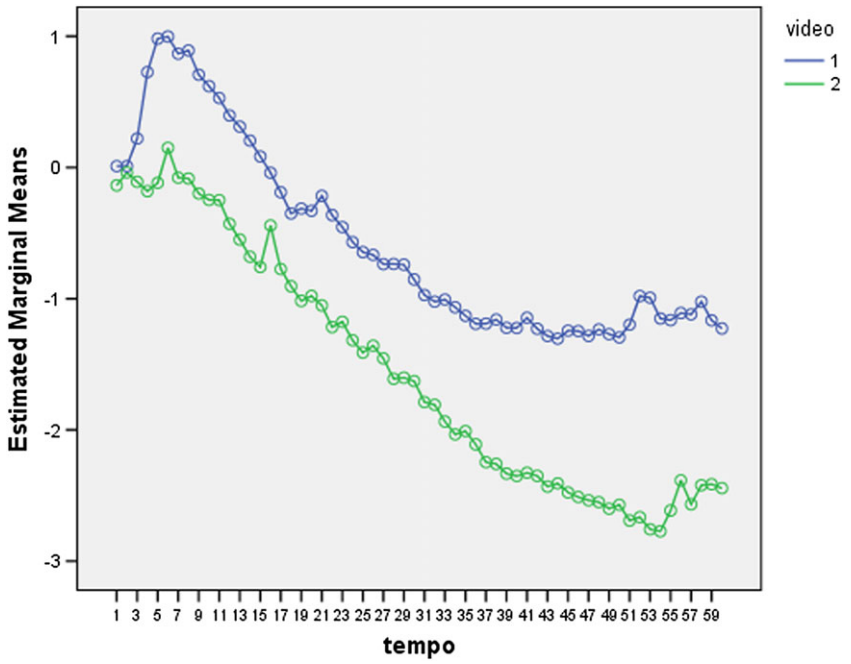


FIGURE 2 Skin conductance performances during the video exposure. [Colour figure can be viewed at wileyonlinelibrary.com]

d = 0.51). There were no significant differences, instead, in the HR and in the EMG response to the two stimuli.

3.2 | Follow up interview

After 4 months (days = 117.58; *SD* = 15.78), a telephonic interview was conducted (see appendix A). Thirty-eight (97.4%) of the participants completed the interview. One participant (2.6%) did not answer the phone. Data regarding the accuracy of recall are reported in Table 2.

Overall, the recall was better for the Social Ads 2, both in terms of number of particulars recalled and for the explicit declaration of the subject. The 87.2% of the participants stated that Social Ads 2 was more intense. However, it has to be acknowledged that the 30% of the participants told us that they would use Social Ads 1. In particular, we found that the 64.3% of the participants who reported that they felt anger during the Social Ads 2 chose the Social Ads 1. In order to analyze this issue, a chi-square and an OR was calculate. We found that the participants who reported anger chose Social Ads 1 in a greater percentage (chi^2 = 10.43; p < .001) than those who reported other emotions (Table 3). Rescaling OR in Cohen's d using the γ coefficient, we found a large effect size (d = 0.83).

Furthermore, We found that the participants who reported to feel anger (mean RT = 9.38 s; *SD* = 4.96 s) during the exposure to Social Ads 2 were faster (t = −2.19; p = .035) in denominating their emotions during the vision of Social Ads 2 than the participants who reported to feel other types of emotion (mean RT = 15,56 s; *SD* = 10,13 s). Moreover, the participants who felt anger during the exposition of Social Ads 2 reported a lower score (t = −2.40; p = .032) on STAI–Trait (mean = 40.84; *SD* = 5.3) than those who did not felt anger (mean = 47.37; *SD* = 9.08). However, the participants who felt anger and who did not felt anger reported the same scores on state anxiety both after the viewing of Social Ads 1 (t = −0.172; p = .865) and Social Ads 2 (t = −1.31; p = 0.199).

TABLE 3 Predictors of the follow-up choice (Social Ads 1)

Emotion	β	SE	*p*	OR	95% CI
Anger	2.345	.152	<.001	10.43	9.27–11.59

Note. CI = confidence interval; OR = odds ratio; SE = standard error.

4 | DISCUSSION

Since the early 1960s, when Lavidge and Steiner (1961) introduced almost certainly the first advertising model that included the role of emotion, a good deal of academic and applied research on this topic was conducted. In 5 decades, literature went beyond the supremacy of the sentient thinking underlying how feelings are much more important and influential than we tend to think they are (Gordon, 2006; Zajonc, 1980).

The present experiment was designed to assess whether arousal, assessed both with explicit measures and with psychophysiological measure, was able to predict a better recall after 4 months, and we hypothesised that the recall was better for the video that evokes a greater arousal.

First of all, we found that almost all participants (94.9%) stated that the two videos evoked two different emotions; in particular, we found that sadness was significantly higher after the viewing of the spot that used a nonviolent communication strategy (Social Ads 1), and anger was significantly higher after the viewing of the spot that used a violent communication strategy (Social Ads 2). Moreover, we found that both psychophysiological measure and self-report measure were congruent. In fact, participants had both a greater state of anxiety and a higher level of SC in viewing the social ads that used a violent code communication. Our results on psychophysiological signals (SC and EMG) are in line with the Lang model (1995); in fact, the two spots are designed to have the same valence (aversive) but different arousal levels to test only the effectiveness of stress (arousal) on recall. Furthermore, our results are consistent with other studies conducted in the field of advertising that identified in the SC the best indicator for arousal (Bolls et al., 2001; Ravaja, 2004) that is an index of an emotional reaction.

It could be hypothesised that the congruence between explicit and psychophysiological data might be explained with the topic of the social advertising spots used in our research. FGM, in western countries, is a practice largely condemned (Morrone, Hercogova, & Lotti, 2002), and for this reason, the participants, in line with social

TABLE 2 Follow-up interview

		Overall % (N)	
Accuracy of number of social ads (*N* = 2)	92.1% (*N* = 35)		
Accuracy of topic	100% (*N* = 38)		
% who reported FGM	23.1% (*N* = 9)		
	Social Ads 1	**Social Ads 2**	***T* or Chi-square;p**
Number of detail Mean (SD)	1.69 (0.77)	2.61 (1.02)	T = −4.52; p < .001
1st spot recalled % (N)	56.4% (*N* = 22)	38.5% (*N* = 15)	Chi^2 = 1.32 p = .25
Accuracy of recall % (N)	25.6% (*N* = 10)	69.2% (*N* = 27)	Chi^2 = 7.81 p = .005
Which was the one that more impressed you? % (N)	3 (7.7%)	34 (87.2%)	Chi^2 = 25.97 p < .001
Would you use the spot 1 or the spot 2? % (N)	12 (30.8%)	25 (64.1%)	Chi^2 = 4.56 p = .033

Note. FGM = female genital mutilation.

desirability theory (Edwards, 1957), are free to declare their opinion and feeling about this topic. However, it could be argued that in other sociocultural contexts or with a sample of foreign women, we could find incongruent results between explicit and implicit measures. Thus, it could be very useful to assess this phenomenon both with traditional assessment and with measures used in neuromarketing evaluations because foreign women may not feel free to express their feelings about a practice such as FGM, which is widely prevalent in their culture.

Regarding our first aim that was identifying which was the better strategy to increase awareness on FGM, we found that the social ad that used a violent code was significantly better recalled at 4 months after video exposure for accuracy and number of detailed reported. Our data are consistent with the literature that reports how, in social advertising, a shock communication strategy aimed to raise awareness on relevant social topics might be efficient (Henthorne et al., 1993; LaTour & Rotfeld, 1997; Pilling & Brannon, 2007; Schmeling & Wotring, 1980; Wakefield et al., 2003; Witte & Allen, 2000).

However, in this study, the 30% of participants declared that they would prefer the nonviolent social ad for promoting an efficient social campaign, and this percentage almost doubled (64.3%) if we consider only participants who have reported to feel anger during the viewing of the social ads that used a violent-communication strategy. Taking advantage of this finding, we found that the likelihood of choosing a social ad that used a non violent strategy was about 10-fold higher in those participants who felt anger during the viewing of the social ad that used a violent-communication strategy. Furthermore, those participants that felt anger during the viewing of the Social Ads 2 were faster in denominating what they felt, and they reported a lower score on trait anxiety, but the same state anxiety during the vision of the social ad that used a violent-communication strategy. This data could be explained both in terms of social cognition using the theory of psychological reactance (Brehm, 1966) and in terms of learning theory using the word "aversive control" (Skinner, 1953). According to the idea of libertarian paternalism (Sunstein & Thaler, 2003), we wonder if, regarding the issue of FGM, the best way to enhance the awareness of this delicate topic is a shock tactic that, as we have seen, is associated with a better recall, but at the same time, we have to consider that we could meet the risk of evoking a strong emotion as anger that might contribute to create distance between the Italian and the foreign population.

5 | LIMITATIONS

The results of the present paper should be interpreted keeping in mind that the sample size was fairly small, and only Italian participants were recruited. Thus, our findings should be replicated using a larger sample in which immigrant women and second generation women should be recruited in order to assess if there was any differences both in explicit and in psychophysiological measures between Italian and non-Italian women, but also in first and second generation immigrants.

A second limitation is due to the characteristics of the two social ads used as experimental stimuli. First of all, despite the two social ads were defined by an expert panel who independently assessed the Social Ads 1 as "nonviolent" and the Social Ads 2 as "violent" and also the participants reported that the two social ads evoked different emotions, the choice of the stimuli remains arbitrary. Second, the two videos have a different length: The social ad that used a violent strategy is 30 s longer than the Social Ad that used a nonviolent strategy. A further limitation is that we could not control for any sounds variable, but this limitation is mitigated by our experimental choice to enhance the ecological validity of the stimuli. Finally, in order to achieve a greater reliability on the outcome measures, two evaluators had to assess independently the accuracy of recall.

6 | FUTURE RESEARCH

Almost certainly, the final aim of the applied research in this field is to identify the predictive validity of social campaign to promote an effective and measurable behavioural change toward a relevant social issue. It would be useful to exactly operationalise what it means to promote an effective and measurable behavioural change, and it would be useful to analyse if remembering a specific social ads leads to a real behavioural change. While media professionals, opinion shapers, and policy makers have often sought to utilise communication systems for social mobilization and change, a lack of understanding of the complexity of behavioural, societal, and cultural factors on end-user consumption patterns (target) has more often led to ineffective, or even counterproductive, outcomes. The preliminary findings of this research suggest some issues in the field of social communication. First of all, it seems crucial that social cause advertising researchers and advertisers stay in touch with developments in emotion research for rapidly developing fields such as experimental psychology and neuroscience.

Neurophysiological measures may be a useful and objective supplement to subjective and declarative data. When combined, these two forms of modality may enable marketers to represent both explicit and implicit consumer reactions to persuasive advertising (Damasio, 1994; LeDoux, 1994; Zaltman, 2003).

It is important to analyse the gap between verbal and psychophysiological responses. When the difference between explicit and implicit responses is minimal, one can be confident of the accuracy of the results; instead, when the difference is remarkable, further investigation may be necessary. Hence, we propose that a joint application of self-report and physiological measures may lead towards a wider interpretation of the emotional responses to advertising elements, rather than using either measure alone. Furthermore, in other sociocultural contexts, incongruent results may emerge between explicit and implicit measures, thereby SC and EMG may prove helpful to detect an emotional reaction that the subject may not feel free to express verbally.

Indeed, we do not suggest that the new shall replace the old; the aim is rather to complete the classic techniques of investigation. A full understanding of human behaviour requires knowledge of the features of conscious experience as well, to be achieved through the use of self-report or interviews.

A critical reflection of intervention and communication approaches for promoting a real behavioural change is required at this point in order to support social relevant themes such as FGM. Nevertheless, although significant efforts have been made to address the FGM-issue, and international and national policy statements have called for an end

to FGM, which has been recognised as a violation of girls' and women's human rights and an obstacle to gender equality, the World Health Organization claims that about 130 million women worldwide have undergone FGM; and an additional two million girls become mutilated every year.

Looking at this relevant social issue, it is worthy to highlight that media campaigns play a crucial role in conveying the proper information among communities, promoting dialogue, integration, and change.

ACKNOWLEDGMENT

The authors thank the women who participated to the study for the time dedicated. The authors thank Bionix for the analysis of biological signals.

REFERENCES

Batra, R., & Ray, M. L. (1986). Affective responses mediating acceptance of advertising. *Journal of Consumer Research*, *13*(2), 234–250.

Bolls, R. D., Lang, A., & Porrer, R. F. (2001). The effect of message valence and listener arousal on attention, memory, and facial muscular responses to radio advertisements. *Communication Research*, *28*(5), 627–651.

Boucsein, W. (1992). *Electrodermal activity*. New York: Plenum University Press.

Brehm, J. W. (1966). *A theory of psychological reactance*. New York: Academic Press.

Brehm, S. S., & Brehm, J. W. (1981). *Psychological reactance: A theory of freedom and control*. New York: Academic Press.

Capella, M. L., Taylor, C. R., & Webster, C. (2008). Cigarette advertising Bans' effect on consumption: A meta-analysis. *Journal of Advertising*, *3737*(2), 7–18.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Damasio, A. (1994). *Decarte's error: Emotion, reason, and the human brain*. New York: Putnam.

Donovan, R., & Henley, N. (2003). *Social marketing principles and practice*. Melbourne: IP Communications.

Du Plessis, E. (2005). *The advertised mind*. London: MillwardBrown.

Durkin, S., & Wakefield, M. (2010). Comparative responses to radio and television anti-smoking advertisements to encourage smoking cessation. *Health Promotion International*, *25*, 5–13.

Edell, J. A., & Burke, M. C. (1987). The power of feelings in understanding advertising effects. *Journal of Consumer Research*, *14*(3), 421–433.

Edwards, A. L. (1957). *The social desirability variable in personality assessment and research*. New York: Dryden.

Elster, J. (1998). Emotions and economic theory. *Journal of Economic Literature*, *36*, 47–74.

Englis, B. C. (1990). Consumer emotional reactions to television advertising and their effects on message recall. In S. Agres, J. A. Edell, & T. M. Dubitsky (Eds.), *Emotion in advertising: Theoretical and practical explorations*). Westport, CT: Quorum Books.

Escalas, J. E. (2004). Narrative processing: Building consumer connections to brands. *Journal of Consumer Psychology*, *14*(1–2), 168–180.

Forgas, J. P. (1995). Mood and judgment. The affect infusion model (AIM). *Psychological Bulletin*, *117*, 39–66.

Gakhal, B., & Senior, C. (2008). Examining the influence of fame in the presence of beauty: An electrodermal 'neuromarketing' study. *Journal of Consumer Behaviour*, *7*, 331–341.

Gordon, W. (2006). What do consumers do emotionally with advertising? *Journal of Advertising Research*, *46*(1), 2–10.

Haley, R. I., Staffaroni, J., & Fox, A. (1994). The missing measures of copy testing. *Journal of Advertising Research*, *34*, 46–41.

Hall, B. R. (2002). A new model for measuring advertising effectiveness. *Journal of Advertising Research*, *42*(2), 23–31.

Hazlett, R., Hazlett, L., & Yassky, S. (1999). Emotional response to television commercials: Facial EMG vs. self-report. *Journal of Advertising Research*, *39*(2), 7–23.

Henthorne, T. L., LaTour, M. S., & Nataraajan, R. (1993). Fear appeals in print advertising: An analysis of arousal and ad response. *Journal of Advertising*, *22*(2), 59–69.

Holbrook, M. B. (1986). Emotion in the Consumption Experience: Toward a New Model of the Human Consumer. In R. A. Peterson, W. D. Hoyer, & W. R. Wilson (Eds.), *The role of affect in consumer behavior: Emerging theories and applications*. (pp. 17–52). Lexington, MA: D. C. Heath.

Kraemer, H. C., & Kupfer, D. J. (2006). Size of treatment effects and their importance to clinical research and practice. *Biological Psychiatry*, *59*, 990–996.

Lang, A., Dhillon, K., & Dong, Q. (1995). The effects of emotional arousal and valence on television viewers' cognitive capacity and memory. *Journal of Broadcasting & Electronic Media*, *39*, 313–327.

Lang, P. J. (1995). The emotion probe. Studies of motivation and attention. *American Psychologist*, *50*, 372–385.

Larsen, J. T., Norris, C. J., & Cacioppo, J. T. (2003). Effects of positive and negative affect on electromyographic activity over zygomaticus major and corrugator supercilii. *Psychophysiology*, *40*, 776–785.

LaTour, M., & Rotfeld, H. J. (1997). There are threats and (maybe) fear-caused arousal: Theory and confusions of appeals to fear and fear arousal itself. *Journal of Advertising*, *26*(3), 45–60.

Lavidge, R. J., & Steiner, G. A. (1961). A model for predictive measurements of advertising effectiveness. *Journal of Marketing*, *25*(6), 59–62.

LeDoux, J. E. (1994). Emotion, memory and the brain. *Scientific American*, *270*(6), 50–57.

Lull, R. B., & Bushman, B. J. (2015). Do sex and violence sell? A meta-analytic review of the effects of sexual and violent media and ad content on memory, attitudes, and buying intentions. *Psychological Bulletin*, *141*(5), 1022–1048.

Magagnin, V., Mauri, M., Cipresso, P., Mainardi, L., Brown, E. N., Cerutti, S., … Barbieri, R. (2010). Heart rate variability and respiratory sinus arrhythmia assessment of affective states by bivariate autoregressive spectral analysis. *Computing in Cardiology Conference Proceedings*, 37: 145–148.

Mai, L. W., & Scholler, G. (2009). Emotions, attitudes and memorability associated with tv commercials. *Journal of Targeting, Measurement and Analysis for Marketing*, *17*, 55–63.

Medina, J. (2010). *Il cervello*. Istruzioni per l'uso. Torino: Bollati Boringhieri.

Merchant, A., Ford, J. B., & Sargeant, A. (2010). Charitable organizations' storytelling influence on donors' emotions and intentions. *Journal of Business Research*, *63*(7), 754–762.

Micu, A. C., & Plummer, J. (2010). Measurable emotions: How television ads really work patterns of reactions to commercials can demonstrate advertising effectiveness. *Journal of Advertising Research*, 137–153.

Morrone, A., Hercogova, J., & Lotti, T. (2002). Stop female genital mutilation: Appeal to the international dermatologic community. *International Journal of Dermatology*, *41*, 253–263.

Onorati, F., Barbieri, R., Mauri, M., Russo, V., & Mainardi, L. (2013). Characterization of affective states by pupillary dynamics and autonomic correlates. *Frontiers in Neuroengineering*, *6*, 6–9.

Page, T. J., Thorsom, E., & Heide, M. P. (1990). The memory impact of commercials varying in emotional appeal and product involvement. In S. Agres, J. A. Edell, & T. M. Dubitsky (Eds.), *Emotion in advertising: Theoretical and practical explorations*. Westport, CT: Quorum Books.

Passyn, K., & Sujan, M. (2006). Self-accountability emotions and fear appeals: Motivating behavior. *Journal of Consumer Research*, *32*(4), 583–589.

Pechmann, C., & Ratneshwar, S. (1994). The effects of antismoking and cigarette advertising on young Adolescents' perceptions of peers who smoke. *Journal of Consumer Research*, *21*, 236–251.

Pilling, V. K., & Brannon, L. A. (2007). Assessing college students attitudes toward responsible drinking messages to identify promising binge drinking strategies. *Health Communication*, *22*(3), 265–276.

Poels, K., & DeWitte, S. (2006). How to capture the heart? Reviewing 20 years of emotion measurement in advertising. *Journal of Advertising Research*, *46*(1), 18–37.

Ravaja, N. (2004). Contributions of psychophysiology to media research: Review and recommendations. *Media Psychology*, *6*(2), 193–235.

Russo, V. (2011). *Comunicazione e strategie di intervento nelle tossicodipendenze*. Roma: Carocci.

Schmeling, D. G., & Wotring, C. E. (1980). Making anti-drug abuse advertising work. *Journal of Advertising Research*, *20*(3), 33–37.

Sequeira, H., Hot, P., Silvert, L., & Delplanque, S. (2009). Electrical autonomic correlates of emotion. *International Journal of Psychophysiology*, *71*, 50–56.

Skinner, B. F. (1953). *Science and human behavior*. New York: MacMillan.

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State–Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.

Stayman, D. M., & Batra, R. (1991). Encoding and retrieval of ad affect in memory. *Journal of Marketing Research*, *28*(2), 232–239.

Sunstein, C. R., & Thaler, R. H. (2003). Libertarian paternalism is not an oxymoron. *University of Chicago Law Review*, *70*, 1159–1202.

Terry-McElrath, Y. M., Emery, S., Szczypka, G., & Johnston, L. D. (2011). Potential exposure to anti-drug advertising and drug-related attitudes, beliefs, and behaviors among United States youth, 1995-2006. *Addictive Behaviors*, Jan-Feb*36*(1–2), 116–124.

Wakefield, M., Flay, B., Nichter, M., & Giovino, G. (2003). Role of media in influencing trajectories of youth smoking. *Addiction*, *98*(1), 79–103.

Witte, K., & Allen, M. (2000). A meta-analysis of fear appeals: Implications for effective public health campaigns. *Health Education & Behavior*, *27*(5), 591–615.

Witvliet, C. V., & Vrana, S. R. (1995). Psychophysiological responses as indices of affective dimensions. *Psychophysiology*, *32*, 436–443.

Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist*, *35*(2), 151–175.

Zaltman, G. (2003). *How Customers Think*. Boston, MA: Harvard Business School Press.

Dr Anna Laura Missaglia, a psychologist and psychotherapist, has developed her research interests in the field of consumer psychology and communication. She defended (2015, Milan) her PhD dissertation at IULM University, studying consumer reactions by means of eye-tracking, neuropsychophysiological reactions, and facial expressions at the "Behavioral & Brain Lab."

Dr Annalisa Oppo graduated from the University of Parma in 2004 with a MSc in General Psychology. In 2005, she graduated in Biostatistic, and in 2011, she graduated in Psychotherapy (Psy.D). From 2012 to 2014, she worked at IULM University as post doc position at the Behavior and Brain Lab. She has been a tenured lecturer of General Psychology and a data analyst at Sigmund Freud University Milan, Italy, since 2014. Dr Oppo works predominantly on emotions, implicit relational assessment procedure (IRAP), and learning theory. She has published about 30 papers.

Maurizio Mauri, Adjunct Professor at Università degli Studi of Milan in Consumer Psychology, PhD in "Communication and New Technologies" at IULM University (2008), after spending 2 years at Brain & Cognitive Sciences Dpt. at MIT (2005–2007) carrying on research about neuro- and psycho-physiological measures associated with affective states. He is operative coordinator at Behavior & Brain Lab - IULM University; he is post-doctoral researcher at Università Roma 3 in NeuroManagement. His research focus is the application of neuroscientific techniques to communication processes and decision-making in managers and consumers.

Dr. Barbara Ghiringhelli, PhD in "Sociology and Methodology of Social Research" at Cattolica University of Milan, is researcher in Social Anthropology at IULM University and professor of "Cultural Anthropology" and "Anthropology of Tourism". She is member of ANUAC (National University Association of Cultural Anthropologists), EASA (European Association of Social Anthropologists), ISAZ (International Society for Anthrozoology), ISES (International Society for Equitation Science) and AISEA (Associazione italiana per le scienze etnoantropologiche).

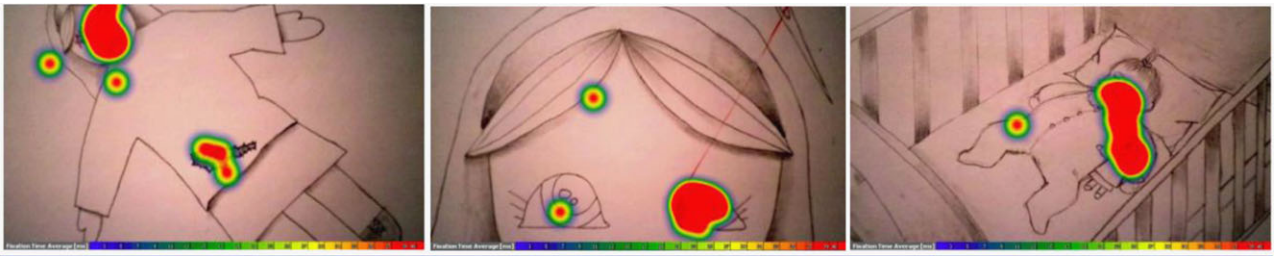
Dr. Andrea Ciceri has a PhD in market and communication and he is a researcher at IULM's Center of Research for Neuromarketing, Behavior and Brain Lab. His research focuses on marketing and consumer behavior, with particular importance given to consumer neuroscience. On this, he has conducted different studies, spanning between several marketing fields such as advertising, packaging, in store and web sites.

Prof. Vincenzo Russo is Associate Professor of Consumer Psychology and Neuromarketing at IULM University in Milan. He received his PhD in Psychology "Man and Environment" from the University of Palermo, Italy. Scientific Director of the Center of Research for Neuromarketing, Behavior and Brain Lab. Current research focus is decision neuroscience and neuromarketing, including the neural processes underlying consumer decision making and social influence.

How to cite this article: Missaglia AL, Oppo A, Mauri M, Ghiringhelli B, Ciceri A, Russo V. The impact of emotions on recall: An empirical study on social ads. *J Consumer Behav*. 2017;16:424–433. https://doi.org/10.1002/cb.1642

APPENDIX A

Social Ads 1 (duration: 150 s)



The communication strategy of this ad is based on a nonviolent code: drawings combined with music and with messages written in Italian. The background music in the video leads to sadness and melancholy.

The AD 1 "Rag Doll" tells the story of Fadi, a young Ethiopian woman. The doll, which accompanies Fadi since childhood, shows wounds on the body.

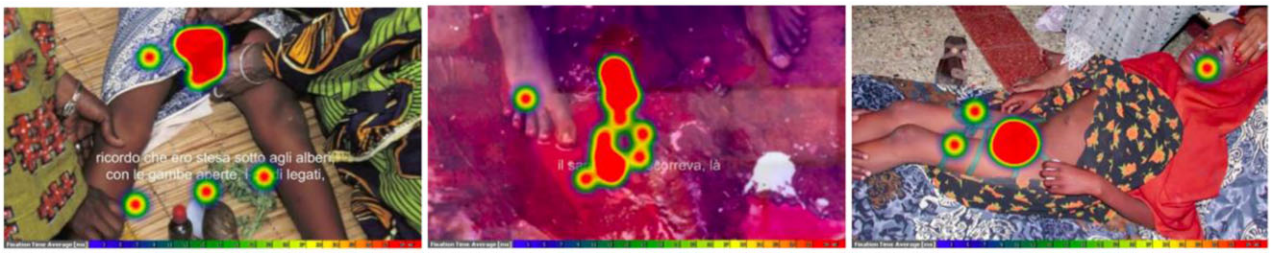
Fadi, who migrated to Italy, decided to mend his wounds and to donate that same doll to her daughter.

A different future awaits the newborn that will not suffer what her mother suffered.

The message is of acceptance of a culture but at the same time a refusal to maintain a practice considered inadmissible. The ad ends with this subtitle: "I will not tear the pages of our past, but turn a new page and move forward."

APPENDIX B

Social Ads 2 (duration 180 s)



The AD 2 "Every 11 seconds" is a social communication in French subtitled in Italian.

The communication strategy of this ad is based on a violent code, as can be seen in the images above, that elicits a strong emotional impact. The video shows images of girls subjected to mutilation ritual to raise public awareness about it.

Images of a bloody scissors and cut flowers are accompanied by screams of girls.

An African woman reminds us that every 11 s, a child in the world suffers genital mutilation and tells us what she experienced on her own body.

APPENDIX C
FOLLOW-UP INTERVIEW

Good Morning, I am Dr. XXX and I am calling on behalf of Behavior and Brain Lab. Can I ask you a few things about our lab?

1. Have you ever heard about Behavior and Brain Lab?
2. Have you ever taken part to our experiment?
3. Do you remember about the experiment?
4. So, you talk about social advertising video, do you remember how many videos you have seen?
5. Do you remember which was the topic of the two videos?
6. Can you talk to me about the videos?
7. Can you remember details about the videos?
8. Which was the one that impressed you more?
9. Would you use the spot 1 or the spot 2?

Received: 5 July 2016 | Revised: 7 January 2017 | Accepted: 7 February 2017

DOI: 10.1002/cb.1643

WILEY

ACADEMIC PAPER

Less is more: Online consumer ratings' format affects purchase intentions and processing

Alena Kostyk[1] | Mihai Niculescu[1] | James M. Leonhardt[2]

[1] Marketing Department, New Mexico State University, MSC 5280, PO Box 30001, Las Cruces, NM 88003, USA

[2] Department of Managerial Sciences, The University of Nevada, Reno, MS0028, Reno, NV 89557-0206, USA

Correspondence
Alena Kostyk, Marketing Department, New Mexico State University, MSC 5280, PO Box 30001, Las Cruces, NM 88003, USA.
Email: kostyk@nmsu.edu

Abstract

Online customer ratings of products and services are commonplace in e-commerce; however, the format in which these ratings are presented to consumers can vary. Although not anticipated by classical models of decision making, latter models such as prospect theory and feelings-as-information theory suggest that the presentation format of online customer ratings could affect subsequent consumer decision making. In the present research, 3 empirical studies test whether online customer ratings' formats differentially affect consumer purchase intentions. The results offer support for feeling-as-information theory and suggest that online ratings presented in a mean (vs. distribution) format result in higher purchase intentions as a result of increased processing fluency. Implications for the presentation of online consumer ratings in e-commerce, based on these findings, are addressed.

KEYWORDS

consumer decision making, e-commerce, metacognition, online consumer ratings, processing fluency

1 | INTRODUCTION

Currently, there are over 190 million digital shoppers in the United States alone and 92% of these shoppers rely on online reviews to inform their purchase decisions, with most attention paid to the online rating of a product or service (Kril, 2014; Bright Local, 2015). Online ratings (e.g., three out of five stars) help consumers overcome the inherent limitations of online shopping such as the inability to evaluate products and services in person or directly communicate with sales personnel (Darley, Blankson, & Luethge, 2010; Peterson & Merino, 2003; Simonson & Rosen, 2014). In most cases, online ratings are created by having previous users of the product or service rate their experience using a one- to five-star scale with one star indicating a "poor experience" and five stars indicating an "excellent experience" (Mudambi, 2010). These ratings are then aggregated by the website and visually displayed to potential customers.

Online customer ratings have been shown to significantly affect consumer behavior. Researchers have argued that, although admittedly subjective, online ratings are convenient and offer value to consumers at a low cost (Kozinets, 2016; Simonson, 2016). In addition, de Langhe, Fernbach, and Lichtenstein (2016a, 2016b) suggest that shoppers often rely on online customer ratings more than other quality cues, even when customer ratings do not reflect objective product quality. Previous research has found that online ratings impact consumer brand selection (Shandwick, 2012), purchasing behavior (Chevalier & Mayzlin, 2006) and repurchase intention (Gauri, Bhatnagar, & Rao, 2008). However, despite much behavioral research on the effects of information format on decision making (Schwarz, 2015; Simonson, 2015), little attention has been given to how the format of online customer ratings affects purchase intentions.

The customer ratings displayed to online shoppers can differ in format. Websites such as Yelp, IMDb, and Booking.com typically rely on a *mean format*, in which a weighted average rating is shown to shoppers. For example, shoppers using the mobile app Yelp may see that a hotel has 100 total ratings and an average rating of three out of five stars. Other websites, such as NewEgg and Glassdoor, typically report ratings using a *distribution format*, in which the number of ratings at each "star level" is displayed. For example, shoppers on the NewEgg website could see that a given laptop has 100 total ratings, consisting of 10 five-star ratings, 20 four-star ratings, 40 three-star ratings, 20 two-star ratings, and 10 one-star ratings.

The present research empirically tests whether different ratings formats, such as those described, might result in different consumer outcomes. In doing so, the present investigation does not find support for ratings' formats affecting purchase intentions in ways anticipated by classic models of decision making (studies 1–3; Savage, 1972; Von

Neumann & Morgenstern, 1947) or descriptive models of consumer decision making (study 2; Kahneman & Tversky, 1979; Tversky & Kahneman, 1992). Instead, feelings-as-information theory is most parsimonious with the results of our three studies and helps identify processing fluency as a significant process underlying the effect of ratings' format on purchase intentions.

2 | RATINGS' FORMAT AND PURCHASE INTENTIONS

Online ratings of products and services are thought to help consumers predict their future level of satisfaction with a product or service (Wulff, Hills, & Hertwig, 2015). In addition, all else being equal, it is generally assumed that consumers will prefer products with higher ratings (de Langhe et al., 2016a, 2016b). For example, consumers will likely assume higher future satisfaction from a product with an average rating of three stars compared to a product with an average rating of two stars. This consumer preference for options with greater expected value or utility has been well established in classic models of decision making (Savage, 1972; Shafir, Simonson, & Tversky, 1993; Von Neumann & Morgenstern, 1947). In addition, these models suggest that consumers should be indifferent between choice options with equal expected value, regardless of how information about the options is presented. Thus, classic models of decision making would not anticipate the format of online ratings to differentially affect purchase intentions. This prediction can be formally stated as follows:

> **H1.** Online ratings format (mean vs. distribution) will not affect purchase intentions, given that the number and weighted average of the ratings are equal across formats.

Descriptive models of decision making (Kahneman & Tversky, 1979), on the other hand, do anticipate that information format can affect purchase intentions (Bettman, Payne, & Staelin, 1986; Slovic, Fischhoff, & Lichtenstein, 1980; Tversky & Kahneman, 1981). Prospect theory, for instance, suggests an S-shaped value function that is concave for gains and convex for losses (Kahneman & Tversky, 1979). This value function overweighs small probabilities and underweighs large and moderate probabilities (Tversky & Kahneman, 1992); and the slope of this function is steeper for losses than for gains, resulting in losses being overweighed relative to otherwise equal gains (Kahneman & Tversky, 1979; Tversky & Fox, 1995). Therefore, prospect theory would suggest that ratings' format has the potential to influence purchase intentions. For instance, if ratings were presented in a distribution format, then prospect theory would suggest that lower probability rating levels (i.e., star rating given by fewer reviewers) are overweighed relative to higher probability rating levels (i.e., star rating given by more reviewers). In addition, prospect theory would suggest that lower ratings (e.g., those below three stars on a five-star scale) are weighed more than higher ratings (e.g., those above three stars on a five-star scale).

For example, suppose a shopper for a camera on Amazon.com is viewing ratings that are presented graphically in a distribution format. The graphic informs the shopper that the camera has received 100 ratings, consisting of 10 five-star ratings, 20 four-star ratings, 40 three-star ratings, 20 two-star ratings, and 10 one-star ratings. The weighted average of these ratings is three; however, prospect theory's S-shaped value function would suggest a lower valuation, resulting from the shopper overweighing small probabilities (e.g., star rating given by fewer reviewers) and overweighing losses relative to gains (e.g., ratings below three stars).

In contrast, these biases in value estimation might be less of a consideration should the shopper have been shown online ratings in a mean format. The mean format is devoid of any information on its underlying distribution, disallowing a shopper on Amazon.com, for instance, from overweighing star levels given by fewer reviewers and star levels that are below an average rating. It may be the case, then, that online rating formats can differentially affect purchase intentions. All else being equal, online ratings presented in a distribution (vs. mean) format may result in lower consumer valuations and purchase intentions. Formally,

> **H2.** Online ratings will result in higher purchase intentions when presented in a mean (vs. distribution) format, given that the number and weighted average of the ratings are equal across formats and the ratings distribution is normal.

3 | STUDY 1: RATINGS' FORMAT EFFECT

3.1 | Participants and stimuli

Participants were 73 adults (59% women, 18–63 years old). For all studies, participants were located in the United States and were recruited using Amazon Mechanical Turk.

Stimuli were created to mirror actual consumer ratings from popular websites. Similar to ratings on NewEgg.com, in the distribution format condition, participants were shown a full distribution of 200 customer ratings (Figure 1, top image). Similar to ratings on Yelp.com, in the mean format condition, participants were shown the weighted average of 200 customer ratings (Figure 1, bottom image). Across both conditions, the number of total consumer ratings (200) and the weighted average of the ratings (three out of five stars) were the same.

3.2 | Procedure

Participants were randomly assigned to either the mean format condition or the distribution format condition. In each condition, participants were told that they were being presented with online ratings on a hotel booking Web page. The instructions stated that the ratings indicated prior consumers' overall satisfaction with the hotel. Participants were presented with a graphic of the ratings in the format specific to their condition and were asked to respond to the question: "Please indicate how likely you would be to choose this hotel for your vacation?" (1 = *very unlikely*, 7 = *very likely*). This one-item scale was used to measure purchase intentions (see Bergkvist & Rossiter, 2007). Finally, demographics including age and gender were collected.

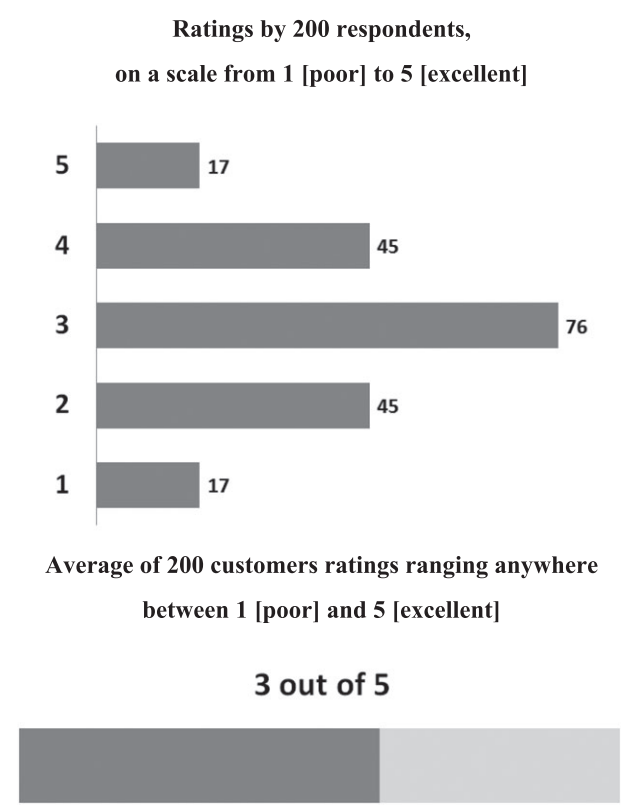


FIGURE 1 Study 1: the experiment stimuli. In the distribution format condition, participants were shown a full distribution of 200 customer ratings (top image). In the mean format condition, participants were shown the weighted average of 200 customer ratings (bottom image)

3.3 | Results

A one-way analysis of variance (ANOVA) assessed whether ratings' format (mean vs. distribution) had an effect on purchase intentions. Ratings' format had a significant effect on purchase intentions, $F(1,71) = 11.02$, $p < .001$. Thus, H2 was supported by our findings, and H1 was rejected. As shown in Figure 2, purchase intentions were higher in the mean format condition ($M = 3.54$, $SD = 1.35$) than in the distribution format condition ($M = 2.47$, $SD = 1.40$).

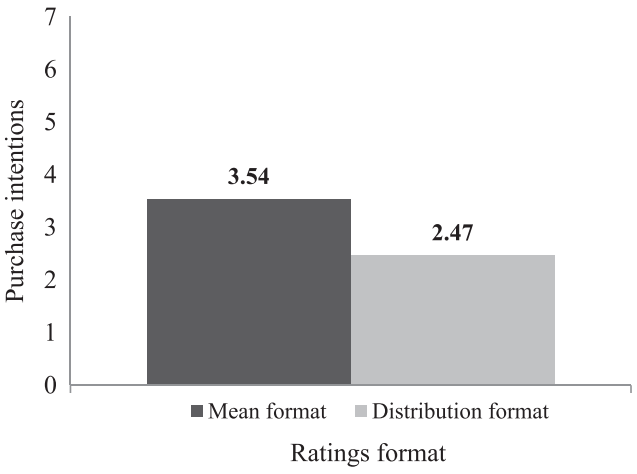


FIGURE 2 Study 1: the effect of ratings' format on purchase intentions. In Study 1, purchase intentions for booking a hotel online were higher when participants ($N = 73$) were presented customer ratings in the mean format versus the distribution format

3.4 | Discussion

The results are in line with expectations based on an S-shaped value function; however, additional concerns remain. For instance, the preference for known over unknown probabilities, also called ambiguity aversion (e.g., Ellsberg paradox), is well established (Chow & Sarin, 2001; Ellsberg, 1961). Given two options with equal expected value, an individual typically prefers the option that offers outcomes with known (vs. unknown) probabilities of occurrence. From this perspective, all else being equal, a distribution format should be preferred to a mean format because outcome probabilities are known in the distribution format but not in the mean format. However, in the previous study, this was not the case.

Instead, purchase intentions were higher in the mean format (with unknown outcome probabilities) than in the distribution format (with known outcome probabilities). Although this preference is in line with prospect theory, it contradicts the notion of ambiguity aversion. However, this discrepancy may lessen when a distribution of ratings is less prone to the estimation biases associated with an S-shaped value function. For instance, both prospect theory and ambiguity aversion might find greater support as all ratings in a distribution become more similar to its average rating.

For example, consider a hypothetical case in which a product has 100 online ratings consisting of all three-star ratings. In such as case, a distribution format would report the following information to the consumer: 0 five-star reviews, 0 four-star reviews, 100 three-star reviews, 0 two-star reviews, and 0 one-star reviews. On the other hand, a mean format would only report an average rating of three out of five stars and would provide no additional information on the distribution of the ratings. Because both prospect theory and ambiguity aversion assume that consumers prefer known over unknown outcomes and dislike uncertainty, they both would predict the distribution (vs. mean) format to result in higher purchase intentions in the outlined scenario. Such a scenario will be empirically tested in our next study, which will test the following hypothesis:

> **H3.** Online ratings will result in higher purchase intentions when presented in a distribution (vs. mean) format, given that all ratings are of the same value.

4 | STUDY 2: AMBIGUITY AVERSION

4.1 | Participants and stimuli

Participants were 102 adults (51% men, 19–72 years old) who were recruited and paid as in the previous study. The stimulus in the mean format condition was the same as in Study 1 (Figure 1, bottom image); however, the stimulus in the distribution format condition was modified so that all ratings were three-star ratings. This was done to eliminate higher (four- and five-star) and lower (one- and two-star) ratings while holding the expected value (three-star) constant across conditions. Indeed, such a distribution is unlikely in the marketplace,

although it could exist for products with low number of accumulated customer reviews. However, from a methodological perspective, use of such a distribution is needed to assess the extent that purchase intentions are driven by an aversion to ambiguity.

4.2 | Procedure

Participants were randomly assigned to either the mean format condition or the distribution format condition. As in the previous study, participants were asked to imagine that they were browsing a hotel booking Web page. Ratings for a hotel were presented to participants in a condition-specific format (mean vs. distribution), and participants were asked to respond to the question: "Please indicate how likely you would be to choose this hotel for your vacation?" (1 = *very unlikely*, 7 = *very likely*). Finally, demographics were collected.

4.3 | Results

A one-way ANOVA assessed whether ratings' format (mean vs. distribution) had an effect on purchase intentions. As in the previous study, ratings format was found to have a significant effect on purchase intentions, $F(1,100) = 15.75$, $p < .001$. However, counter to our prediction (H3), purchase intentions were significantly higher in the mean format condition ($M = 4.94$, $SD = 1.32$) than in the distribution format condition ($M = 3.85$, $SD = 1.46$; Figure 3).

4.4 | Discussion

Although in line with the results of Study 1, these findings are unexpected and do not support H3. Notably, these results also run counter to much research finding a general consumer preference for known over unknown outcomes (Chow & Sarin, 2001; Ellsberg, 1961; Kahneman & Tversky, 1979; Tversky & Kahneman, 1992). An alternative model may better explain how mean versus distribution ratings' formats affect purchase intentions. For instance, the feelings-as-information theory (Schwarz, 2011) may help in explaining the results of the previous studies by emphasizing the role of consumer affect.

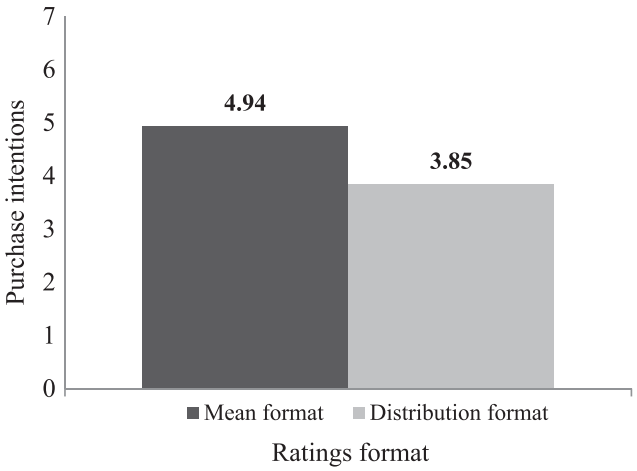


FIGURE 3 Study 2: the effect of ratings' format on purchase intentions. In Study 2, purchase intentions for booking a hotel online were higher when participants ($N = 102$) were presented customer ratings in the mean format versus the distribution format

There is much evidence that feelings influence consumers' decision making (Finucane, Alhakami, Slovic, & Johnson, 2000; Slovic, Finucane, Peters, & MacGregor, 2004, 2007). Such research shows that consumers often rely on their feelings more than on evaluative calculus when assessing products and making purchase decisions (Schwarz, 2011). Consumer feelings are elicited from a variety of sources. For instance, when presented information about a product (e.g., online ratings), the content of the information (e.g., number of positive ratings) can elicit feelings in the consumer, as can the extent to which the consumer is able to easily process the information. This latter form of feeling elicitation is often referred to as processing fluency (Reber, Schwarz, & Winkielman, 2004; Topolinski & Strack, 2009; Whittlesea, 1993).

Processing fluency is described as an affectively valenced experience that arises from the act of information processing itself (Alter & Oppenheimer, 2006). In general, positive affect is elicited when information is easy (vs. difficult) to process (Reber et al., 2004). This elicitation of positive feelings, in turn, has been found to positively affect a variety of consumer outcomes (Schwarz, 2004). For instance, when information associated with a product is easy (vs. difficult) to process, there is a general tendency for consumers to have greater preference for the product (Labroo, Dhar, & Schwarz, 2008; Novemsky, Dhar, Schwarz, & Simonson, 2007; Song & Schwarz, 2009). Similarly, the effect of ratings' format on purchase intentions observed in our previous studies may be the result of processing fluency. Ratings presented in a mean format may be easier for consumers to process than ratings presented in a distribution format (Checkosky & Whitlock, 1973; Reber et al., 2004). As such, the mean (vs. distribution) format may elicit greater processing fluency and, as a result, increase purchase intent. Should this be the case, then we would expect processing fluency to mediate the relationship between ratings' format and purchase intent, established in the previous studies. Formally, we predict the following:

> **H4.** Online ratings will result in higher processing fluency and, as a result, higher purchase intentions when presented in a mean (vs. distribution) format, given that the number and weighted average of the ratings are equal across formats and the ratings' distribution is normal.

5 | STUDY 3: MEDIATION BY PROCESSING FLUENCY

5.1 | Participants and stimuli

Participants were 156 adults (51% women, 20–62 years old) who were recruited and paid as in the previous studies. The stimuli used in the mean format condition and in the distribution format condition were the same as in Study 1 (Figure 1).

5.2 | Procedure

As in the previous studies, participants were randomly assigned to either the mean format condition or the distribution format condition.

As in the previous study, in each condition, participants were presented with the overall online ratings for a hotel on an ostensible hotel booking Web page and were asked to respond to the question: "Please indicate how likely you would be to choose this hotel for your vacation?" (1 = *very unlikely*, 7 = *very likely*). In this study, processing fluency was then measured by asking participants to respond (1 = *strongly disagree*, 5 = *strongly agree*) to the statement: "Please indicate how much you agree or disagree that the customer ratings shown to you were easy to process" (Song & Schwarz, 2008). Finally, demographics were collected.

5.3 | Results

A one-way ANOVA assessed whether ratings' format (mean vs. distribution) had an effect on our dependent variable, purchase intentions. As in the previous studies, purchase intentions were higher in the mean format condition (M = 4.46, SD = 1.38) than in the distribution format condition (M = 3.92, SD = 1.50), $F(1,154) = 5.33$, $p < .05$.

Next, a one-way ANOVA assessed whether ratings' format (mean vs. distribution) had an effect on our proposed mediator, processing fluency. As predicted, processing fluency was higher in the mean format condition (M = 4.22, SD = 1.03) than in the distribution format condition (M = 3.70, SD = 1.30), $F(1,154) = 7.50$, $p < .01$.

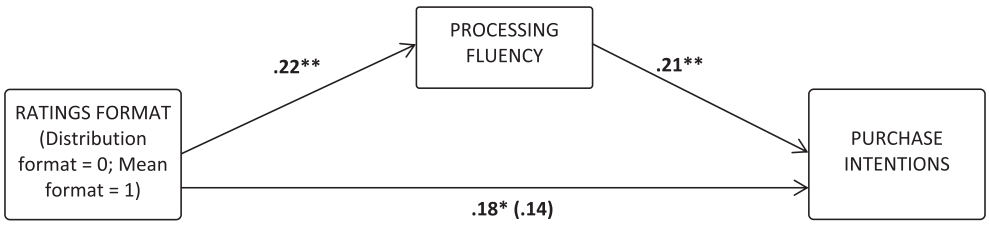
Finally, mediation was assessed using the PROCESS script developed by Hayes (2013). As predicted by H4, the relationship between ratings' format and purchase intentions was mediated by processing fluency. As shown in Figure 4, the regression coefficient between ratings' format and processing fluency was significant (unstandardized coefficient = 0.51, β = 0.22, SE = .19, $p < .01$), as was the regression coefficient between processing fluency and purchase intentions (unstandardized coefficient = 0.25, β = 0.21, SE = .10, $p < .01$). The direct effect of ratings format on purchase intentions was nonsignificant when the mediator (processing fluency) was added to the model (p = .09). The significance of the indirect effect of ratings' format on purchase intentions through processing fluency was assessed using a bootstrapping procedure that computed 5,000 samples of indirect effects at the 5th and 95th percentiles. The bootstrapped indirect effect was 0.13 (SE = .08) and the 95% confidence interval was above zero ranged from 0.02 to 0.31. Thus, by conventional standards (Hayes, 2013), processing fluency fully mediated the effect of ratings' format on purchase intentions.

5.4 | Discussion

The results of Study 3 are in line with those of the previous studies. The mean ratings' format resulted in higher purchase intentions than did the distribution ratings format. In Study 1, this effect was thought to be explained by prospect theory's S-shaped value function; however, the subsequent design and results of Study 2 failed to support this interpretation. In turn, a metacognitive explanation was suggested and found support in Study 3. In Study 3, the effect of ratings' format on purchase intentions was fully mediated by processing fluency. Combined, the results of Studies 1–3 suggest that the effect of rating format on purchase intentions is not the result of deliberate calculation by the consumer, but rather by the feelings elicited from consumer's processing of the online ratings.

6 | GENERAL DISCUSSION

Several theories of consumer decision making were considered in anticipating and understanding the effect that ratings' formats might have on purchase intentions. Classical models of decision making, for instance, suggest that ratings' format should not affect purchase intentions, all else being equal (Savage, 1972; Von Neumann & Morgenstern, 1947). On the other hand, descriptive models of decision making, such as prospect theory, do suggest that ratings' format could affect purchase intentions under some conditions (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992). For instance, prospect theory suggests that consumers presented with a distribution format of online ratings may value an option less than its weighted average as a result of overweighing low probabilities and losses relative to gains (Tversky & Fox, 1995). In addition, prospect theory, as well as findings such as the ambiguity aversion, suggests that consumers will prefer, all else being equal, known over unknown outcomes (Ellsberg, 1961). Ultimately, however, these models of consumer decision making failed to



Note: Significance levels: *$p < .05$; **$p < .01$.

FIGURE 4 Study 3: the mediating role of processing fluency. The effect of ratings' format (mean vs. distribution) on purchase intentions was fully mediated by processing fluency (N = 156). The figure includes standardized regression coefficients for the relationship between ratings' format and purchase intentions as mediated by processing fluency. The regression coefficient between ratings' format and purchasing intentions, controlling for processing fluency, is in parentheses

explain the consistent preference for the mean over the distribution format of online ratings found in our empirical studies.

Instead, the results of the present investigation are best explained by feelings-as-information theory (Schwarz, 2011). This theory of consumer decision making emphasizes the importance that feelings have on consumer judgment. In addition, it considers multiple sources of possible affect elicitation including information processing itself. Under this framework, information that is easy to process gives rise to positive affect and can lead to more positive consumer outcomes including more positive evaluations of products and services (Labroo et al., 2008; Novemsky et al., 2007; Song & Schwarz, 2009). In Study 3, this explanation was tested and support was found for processing fluency serving as the mediating mechanism underlying the relationship between online ratings' format and purchase intentions.

From a managerial perspective, the present research should help managers determine the optimal format for displaying customer ratings to their online shoppers. Currently, a number of customer ratings' formats are used in e-commerce. The present research compared the mean format versus the distribution format. These formats are pervasive in e-commerce and are currently used by a number of leading online retailers (e.g., Amazon.com, Yelp.com, Booking.com, and NewEgg.com). The present findings suggest that the use of a mean format is optimal for increasing consumer purchase intentions. More importantly, however, the present research also explains why this is the case. The mean format was found to result in higher purchase intentions than the distribution format because it was easier for consumers to process. This explanation should aid managers in predicting how additional variations in customer ratings' formats, other than those tested, might affect consumer processing and purchase intentions.

For instance, the mean and distribution ratings' formats can be presented differently. Yelp.com, for example, presents the mean format using "stars," whereas Hostelworld.com and Booking.com use horizontal bars (similar to progress bars). On the other hand, when displaying ratings in a distribution format, Amazon.com displays the percentage of reviewers at each rating level (e.g., 20% of reviewers rated the product three stars), whereas TripAdvisor.com displays the actual number of reviewers at each level (e.g., 20 reviewers rated the product three stars). In addition, some online retailers, such as Amazon.com, choose to display customer ratings in both a distribution format and a mean format. Based on the present research, which form is ideal will depend on how easy consumers find it to process.

For example, a posttest was conducted to assess whether presenting a combined format that includes both the mean and distribution formats (similar to Amazon.com) elicits higher processing fluency in consumers than when presenting only a mean format. Participants (N = 60) were recruited as in the previous studies. Participants were randomly assigned to conditions in which they were presented with the overall customer ratings for a restaurant in a mean format or in a combined (mean and distribution) format (see Appendix for stimuli). In each condition, processing fluency was measured by asking participants to respond (1 = *strongly disagree*, 5 = *strongly agree*) to the statement: "Please indicate how much you agree or disagree that the customer ratings shown to you were easy to process."

Similar to the previous studies, the mean format was found to elicit higher processing fluency (M = 4.38, SD = 0.67) than the combined format, M = 3.93, SD = 1.00; $F(1,58) = 4.18$, $p < .05$. The results of this simple posttest support the earlier recommendation that managers use the mean format when presenting customer ratings. However, managers are also urged to test their selected ratings' format to ensure that their version is optimal to other possibilities. The posttest and the previous studies provide managers with examples of how to determine the optimal ratings' format to enhance processing fluency and purchase intentions.

It is worth noting that online customer ratings are often skewed with more positive than negative ratings (Hu, Zhang, & Pavlou, 2009). When online ratings are presented in the distribution format, skewed distributions would visually differ from normal distributions used in the present research. Although normal distributions appear symmetrical, skewed distributions are asymmetrical. Previous research suggests that symmetrical images elicit higher processing fluency than asymmetrical images (Palmer & Hemenway, 1978; Reber, 2002; Reber et al., 2004). As a result, a consumer should find a normal distribution of online ratings to be easier to process compared to a skewed distribution. The present research took a conservative approach by using normally distributed online ratings and yet still found the mean format to result in more positive consumer outcomes than the distribution format. It is likely that found effect would strengthen when the mean format is compared to the distribution format with skewed distributions. However, this remains to be empirically tested along with other possible formats of online ratings.

Continual testing and improvement of customer ratings' formats will be needed as technology evolves. Changes in the consumer-to-retailer interface, for example, brought on by increased mobile applications' use will demand that customer ratings' formats adapt to new environments. However, despite changes in technology and the ways that consumers engage in e-commerce, it is likely that electronic word-of-mouth in the form of customer ratings will continue to have a significant impact on consumer behavior (Simonson, 2016). By identifying the process by which customer ratings' formats affect purchase intentions, the present research provides general guidance on how to select an optimal ratings' format. There is likely not a single ideal ratings' format for all applications. Rather, on the basis of the present research, managers are urged to use ratings' formats that are easier for consumers to process.

REFERENCES

Alter, A. L., & Oppenheimer, D. M. (2006). Predicting short-term stock fluctuations by using processing fluency. *Proceedings of the National Academy of Sciences of the United States of America*, *103*(24), 9369–9372. doi:10.1073/pnas.0601071103

Bergkvist, L., & Rossiter, J. R. (2007). The predictive validity of multiple-item versus single-item measures of the same constructs. *Journal of Marketing Research*, *44*(2), 175–184. doi:10.1509/jmkr.44.2.175

Bettman, J. R., Payne, J. W., & Staelin, R. (1986). Cognitive considerations in designing effective labels for presenting risk information. *Journal of Public Policy & Marketing*, *5*, 1–28.

Bright Local. 2015. Local consumer review survey. Available at https://www.brightlocal.com/learn/local-consumer-review-survey/ [accessed 4 November 2015].

Checkosky, S. F., & Whitlock, D. (1973). Effects of pattern goodness on recognition time in a memory search task. *Journal of Experimental Psychology*, *100*(2), 341–348. doi:10.1037/h0035692

Chevalier, J. A., & Mayzlin, D. (2006). The effect of word of mouth on sales: Online book reviews. *Journal of Marketing Research*, *43*(3), 345–354. doi:10.1509/jmkr.43.3.345

Chow, C. C., & Sarin, R. K. (2001). Comparative ignorance and the Ellsberg paradox. *Journal of Risk and Uncertainty*, *22*(2), 129–139. doi:10.1023/A:1011157509006

Darley, W. K., Blankson, C., & Luethge, D. J. (2010). Toward an integrated framework for online consumer behavior and decision making process: A review. *Psychology and Marketing*, *27*(2), 94–116. doi:10.1002/mar.20322

de Langhe, B., Fernbach, P. M., & Lichtenstein, D. R. (2016a). Navigating by the stars: Investigating the actual and perceived validity of online user ratings. *Journal of Consumer Research*, *42*(6), 817–833. doi:10.1093/jcr/ucv047

de Langhe, B., Fernbach, P. M., & Lichtenstein, D. R. (2016b). Star wars: Response to Simonson, Winer/Fader, and Kozinets. *Journal of Consumer Research*, *42*(6), 850–857. doi:10.1093/jcr/ucw007

Ellsberg, D. (1961). Risk, ambiguity, and the savage axioms. *The Quarterly Journal of Economics*, *75*(4), 643–669.

Finucane, M. L., Alhakami, A., Slovic, P., & Johnson, S. M. (2000). The affect heuristic in judgments of risks and benefits. *Journal of Behavioral Decision Making*, *13*(1), 1–17.

Gauri, D. K., Bhatnagar, A., & Rao, R. (2008). Role of word of mouth in online store loyalty. *Communications of the ACM*, *51*(3), 89. doi:10.1145/1325555.1325572

Hayes AF. 2013. Introduction to mediation, moderation, and conditional process analysis: A regression-based approach.

Hu, N., Zhang, J., & Pavlou, P. A. (2009). Overcoming the J-shaped distribution of product reviews. *Communications of the ACM*, *52*(10), 144. doi:10.1145/1562764.1562800

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica: Journal of the Econometric Society*, 263–291.

Kozinets, R. V. (2016). Amazonian forests and trees: Multiplicity and objectivity in studies of online consumer-generated ratings and reviews, a commentary on de Langhe, Fernbach, and Lichtenstein. *Journal of Consumer Research*, *42*(6), 834–839. doi:10.1093/jcr/ucv090

Kril J. 2014. Statistics and facts about online shopping. Available at http://www.statista.com/topics/871/online-shopping/ [accessed 27 July 2014].

Labroo, A. A., Dhar, R., & Schwarz, N. (2008). Of frog wines and frowning watches: Semantic priming, perceptual fluency, and brand evaluation. *Journal of Consumer Research*, *34*(6), 819–831. doi:10.1086/523290

Mudambi, S. (2010). What makes a helpful online review?: A study of customer reviews on Amazon.Com. *Management Information Systems Quarterly*, *34*(1), 185–200.

Novemsky, N., Dhar, R., Schwarz, N., & Simonson, I. (2007). Preference fluency in choice. *Journal of Marketing Research*, *44*(3), 347–356. doi:10.1509/jmkr.44.3.347

Palmer, S. E., & Hemenway, K. (1978). Orientation and symmetry: Effects of multiple, rotational, and near symmetries. *Journal of Experimental Psychology: Human Perception and Performance*, *4*(4), 691–702. doi:10.1037/0096-1523.4.4.691

Peterson, R. A., & Merino, M. C. (2003). Consumer information search behavior and the internet. *Psychology and Marketing*, *20*(2), 99–121. doi:10.1002/mar.10062

Reber, R. (2002). Reasons for the preference for symmetry. *Behavioral and Brain Sciences*, *25*(03). doi:10.1017/S0140525X02350076

Reber, R., Schwarz, N., & Winkielman, P. (2004). Processing fluency and aesthetic pleasure: Is beauty in the perceiver's processing experience? *Personality and Social Psychology Review an Official Journal of the Society for Personality and Social Psychology, Inc*, *8*(4), 364–382. doi:10.1207/s15327957pspr0804_3

Savage, L. J. (1972). *The foundations of statistics. 2d rev. ed. // 2d* (rev. ed.). New York: Dover Publications.

Schwarz, N. (2004). Metacognitive experiences in consumer judgment and decision making. *Journal of Consumer Psychology*, *14*(4), 332–348. doi:10.1207/s15327663jcp1404_2

Schwarz N. 2011. Feelings-as-information theory. In *Handbook of theories of social psychology*. Vol. 1, Van Lange, Paul A. M. (ed.). Sage: Los Angeles, Calif. [u.a.]; 289–308.

Schwarz, N. (2015). Which mission? Thoughts about the past and future of BDT. *Journal of Marketing Behavior*, *1*(1), 53–58. doi:10.1561/107.00000003

Shafir, E., Simonson, I., & Tversky, A. (1993). Reason-based choice. *Cognition*, *49*(1), 11–36.

Shandwick W. 2012. Buy it, try it, rate it. Available at http://www.webershandwick.com/resources/ws/flash/reviewssurveyreportfinal.pdf [accessed 6 January 2017].

Simonson, I. (2015). The BDT effect and future: A reply to John lynch and Norbert Schwarz. *Journal of Marketing Behavior*, *1*(1), 59–73. doi:10.1561/107.00000004

Simonson, I. (2016). Imperfect progress: An objective quality assessment of the role of user reviews in consumer decision making, a commentary on de Langhe, Fernbach, and Lichtenstein. *Journal of Consumer Research*, *42*(6), 840–845. doi:10.1093/jcr/ucv091

Simonson I, Rosen E. 2014. Absolute value: What really influences customers in the age of (nearly) perfect information. First edition. Harper-Business.

Slovic, P., Finucane, M. L., Peters, E., & MacGregor, D. G. (2004). Risk as analysis and risk as feelings: Some thoughts about affect, reason, risk, and rationality. *Risk Analysis*, *24*(2), 311–322.

Slovic, P., Finucane, M. L., Peters, E., & MacGregor, D. G. (2007). The affect heuristic. *European Journal of Operational Research*, *177*(3), 1333–1352.

Slovic, P., Fischhoff, B., & Lichtenstein, S. (1980). Facts and Fears: Understanding Perceived Risk. In R. C. Schwing, & W. A. Albers (Eds.), *Societal risk assessment* (pp. 181–216). Boston, MA: Springer US.

Song, H., & Schwarz, N. (2008). If it's hard to read, it's hard to do: Processing fluency affects effort prediction and motivation. *Psychological Science*, *19*(10), 986–988. doi:10.1111/j.1467-9280.2008.02189.x

Song, H., & Schwarz, N. (2009). If it's difficult to pronounce, it must be risky. Fluency, familiarity, and risk perception. *Psychological Science*, *20*(2), 135–138.

Topolinski, S., & Strack, F. (2009). The analysis of intuition: Processing fluency and affect in judgements of semantic coherence. *Cognition & Emotion*, *23*(8), 1465–1503.

Tversky, A., & Fox, C. R. (1995). Weighing risk and uncertainty. *Psychological Review*, *102*(2), 269.

Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, *211*(4481), 453–458. doi:10.1126/science.7455683

Tversky, A., & Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and Uncertainty*, *5*(4), 297–323.

Von Neumann, J., & Morgenstern, O. (1947). *Theory of games and economic behavior*. Princeton University Press.

Whittlesea, B. W. A. (1993). Illusions of familiarity. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *19*, 1235–1253.

Wulff, D. U., Hills, T. T., & Hertwig, R. (2015). Online product reviews and the description-experience gap. *Journal of Behavioral Decision Making*, *28*(3), 214–223. doi:10.1002/bdm.1841

Alena Kostyk is a PhD candidate at New Mexico State University. Her research focuses on consumer decision making and research methodology. She is especially interested in decision making processes in online and digital environment.

Mihai Niculescu is an associate professor of marketing at New Mexico State University. His current research focuses on human information processing and decision making under risk, uncertainty, and missing information to help consumers make healthier choices in the grocery store.

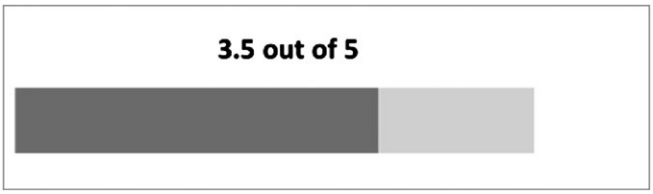
James M. Leonhardt is an assistant professor of marketing at the University of Nevada, Reno. His research and teaching interests address how technology, information, and culture affect consumer behavior and welfare in traditional and screen-based marketplaces.

How to cite this article: Kostyk A, Niculescu M, Leonhardt JM. Less is more: Online consumer ratings' format affects purchase intentions and processing. *J Consumer Behav*. 2017;16:434–441. https://doi.org/10.1002/cb.1643

APPENDIX

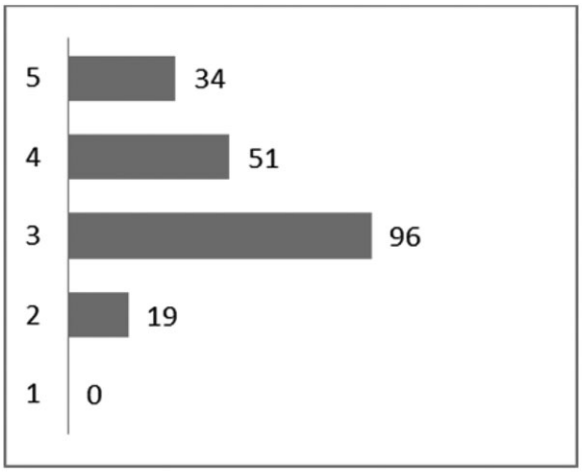
A1 | Mean format stimuli

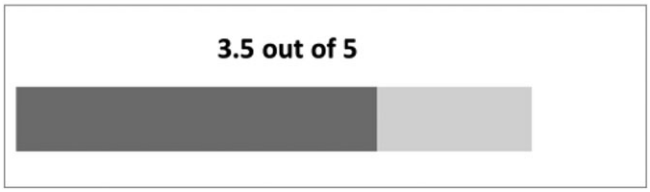
Average of 200 customers' ratings ranging anywhere between 1 (*poor*) and 5 (*excellent*)



A2 | Combined format stimuli

Ratings by 200 respondents, on a scale from 1 (*poor*) to 5 (*excellent*)





Received: 27 July 2015 | Revised: 21 January 2017 | Accepted: 8 February 2017

DOI: 10.1002/cb.1645

WILEY

ACADEMIC PAPER

Music is awesome: Influences of emotion, personality, and preference on experienced awe

Leanne Pilgrim[1] | J. Ian Norris[2] | Jana Hackathorn[1]

[1] Department of Psychology, Murray State University, Murray, KY, USA

[2] Department of Economics and Business, Berea College, Berea, KY, USA

Correspondence
J. Ian Norris, Economics and Business, Berea College, Berea, KY, USA.
Email: ian_norris@berea.edu

Abstract

Awe is a complex, cognitive–conceptual emotion associated with transcendence and wonder. Music has the power to create this kind of transcendence. Can music evoke awe? Previous research demonstrates that awe is associated with individual differences in personality such as openness. This study examined whether different kinds of music across a wide variety of genres can evoke awe and whether the experience of awe depends on individual differences. The study further investigated the relationship of awe to patterns of emotional responses to different dimensions of musical genre. Study 1 demonstrated that high need for cognition and low cognitive closure predicted awe for reflective and complex music, that felt happiness predicted awe for all kinds of music, and that perceived happiness and sadness predicted awe only for reflective and complex music. Study 2 replicated the finding that perceived sadness can evoke awe in reflective and complex music and further demonstrated that experienced musical awe correlates with individual differences in the tendency to experience awe more generally. These results are of interest to advertisers interested in evoking awe with music and marketers interested in segmenting to target the appropriate populations for this purpose.

KEYWORDS

awe, emotion, music, need for cognition, openness, personality

1 | INTRODUCTION

> *Music is mediator between spiritual and sensual life.* —
> Ludwig Von Beethoven

Expansive mountainsides and sublime sunsets, rousing oratory, soaring cathedrals, and national monuments are often described as awe inspiring. Yet perhaps nothing has the range, power, and universal ability to inspire awe than the simple pleasure of music. Awe is of recent and growing interest to researchers (Keltner & Haidt, 2003). Modern perspectives on awe closely mirror Beethoven's on musical emotion: Like all emotions, awe is embodied in sensual experience; unlike any other, awe has the power to transport us to spiritual places.

Emotion theorists often invoke the power of music in attempts to capture the feeling of awe, yet little research has actually examined the ability of music to produce it. Although few may argue the ability of Beethoven to induce overwhelmingly powerful feelings, it is not clear that individuals would characterize these feelings as awe and even less clear that all music possesses this ability equally. Music has the ability to produce a wide range of emotional experiences, both felt and perceived (Gabrielsson, 2002; Zentner, Grandjean, & Scherer, 2008), and different kinds of music evoke different kinds of emotions. Likewise, individuals themselves may differ in their capacity to experience certain emotions, such as awe.

This research examined several related questions. First, we were interested in whether specific genres (e.g., classical, country, and pop) or dimensions (e.g., reflective and complex and energetic and rhythmic) of music are more likely than others to elicit awe and how these experiences are more generally related to felt and perceived emotions in music. Second, we were interested in whether some individuals are more likely to experience awe in music and whether individuals' musical preferences play a role in their ability to experience awe in music.

These questions are of interest to both psychology and marketers alike. Although awe has received some attention in the psychology literature over the last decade, it has received far less in the consumer behavior literature specifically (Berger & Milkman, 2012). Yet inspiring awe is a goal that marketers strive for, from product design to branding and advertising. Awe has been used as a term to characterize iconic brands such as Nike and Apple (Holt, 2003). A quick Google search with the conjunction of words “awe” and “marketing” yielded over six

million hits, many of which were marketing and advertising agencies with the term "awe" in their own brand descriptions. Music may be particularly useful to marketers interested in cultivating awe as part of their brand image (e.g., Oakes & North, 2013).

More generally, emotional reactions to music are well studied in the psychology literature. Yet given the ubiquity of music in advertising and the increasing importance of arts marketing in a far more competitive music industry, understanding musical emotion is of increasing importance to marketers (North & Hargreaves, 2010).

1.1 | Awe

According to Keltner and Haidt (2003), awe is widely considered to be a vital component of our experiences with art, nature, and religion. Prior their landmark exploration, however, there was little understanding of how awe fit into existing models of emotion. Like happiness, awe can be invoked by a range of experiences. Although awe is overwhelmingly described as a positive experience, it can be distinguished from happiness by the physical and affective responses it evokes. At the physiological level, awe has been strongly associated with the experience of "chills" or "shivers-down-the-spine," a response that is not typically evoked by feelings of happiness (Shiota, Keltner, & Mossman, 2007).

Awe is also distinguishable from other emotions at a cognitive–conceptual level. Theorists agree that in order to evoke feelings of awe, the experience must be both vast and require accommodation. That is, it must project a perception of something larger than oneself in terms of physical or social size and challenge the perceiver to adapt or adjust their thinking in order to conceivably grasp their experience (Keltner & Haidt, 2003). Experiences lacking in one or both of these features cannot be described as awe and should be called by another name. For instance, "surprise" requires accommodation but not vastness.

Like all emotions, awe seems to have a specific adaptive function. Awe diminishes the importance of the individual self (Shiota et al., 2007) and increases feelings of closeness with others (Van Cappellen & Saroglou, 2012). Awe helps explain why people share extraordinary news with each other (Berger & Milkman, 2012). Most recently, research indicates that awe can promote prosocial behavior across a variety of domains (Piff, Dietze, Feinberg, Stancato, & Keltner, 2015). Thus, awe is thought to be an emotion that promotes collective interests (e.g., Keltner & Haidt, 2003). This may in part explain the importance of awe in religious experience.

Although awe has been examined in a number of domains, music does not appear to be one of them. Music provides fertile ground for exploring the ability of individuals to experience awe. Keltner and Haidt (2003) suggest that various musical selections may be perceived as both vast and accommodating. It is an experience for which the listener must utilize structures outside of what they use on a regular basis in order to comprehend the greatness of skill the musician possesses and the beauty of the music that results. If a selection of music challenges or goes beyond the expectations of the listener, it is more likely to induce a sense of awe that is often accompanied by feelings of amazement and the physical sensation of chills or shivers-down-the-spine.

Music is a central component of religious ceremony. Beethoven believed that music is what enables spiritual transcendence. Indeed, "spiritual" and "transcendent" are both terms that appear in Zentner et al.'s (2008) comprehensive taxonomy of musical emotions. Live music experiences in particular are often described in transcendent terms. Like religious ceremony, live music fosters social connectedness, positive emotion, and feelings of arousal (Grant, Bal, & Parent, 2012).

Like awe, music's relationship to emotion is complex and multidimensional (e.g., Bigand, Vieillard, Madurell, Marozeau, & Dacquet, 2005; Gabrielsson, 2002; Larsen & Stastny, 2011; Zentner et al., 2008). Music has the ability to elicit mixed emotions or simultaneous feelings of happiness and sadness (Larsen & Stastny, 2011). Music also has the ability to generate both felt and perceived emotions, which may or may not be consistent with one another (Zentner et al., 2008). Perceiving sadness in a musical selection, such as a slow dirge or a melancholy minor-key hymn, does not necessarily equate to felt sadness.

Although the awe experience is thought to be universal, the extent to which music has the extent to elicit awe may vary among individuals. Some research suggests that personality differences may affect a person's ability to experience awe more generally. Shiota et al. (2007) found that awe-prone individuals tend to describe themselves with a greater representation of "universal" or self-diminishing descriptors (e.g., defining oneself as being a part of something bigger). They also found that such individuals are low in need for cognitive closure. Cognitive closure is associated with discomfort with ambiguity and dislike of change in the environment, which suggests that awe-prone individuals may be more open to new ideas and experiences (Roets & Van Hiel, 2011) and have higher tolerance for ambiguity or uncertainty (Valdesolo & Graham, 2013). This also suggests that awe-proneness may be associated with cognitive flexibility, allowing such individuals to be comfortable with revising their world and self views. For instance, viewing time as expansive may facilitate engagement in prosocial behaviors, such as donating time rather than material goods (Rudd, Vohs, & Aaker, 2012).

Closely related to the cognitive characteristic of preference for closure is the personality characteristic openness to experience, which refers to a motivation to enlarge one's cognitive and conscious experiences (McCrae, 2007). As a stimulus must be vast and require accommodation, whether structural or cognitive, in order to evoke awe, it makes sense that individuals who are high in openness may be more inclined to experience awe. Nusbaum and Silvia (2011) confirmed this in a study that explored the relationship between personality traits, genre preference and one's reported ability to experience chills to music. Openness was the strongest predictor of self-reported propensity for chills as well as the preference for reflective and complex music (classical and jazz). Preference for this type of music in and of itself, however, did not predict the reported experience of chills.

Although openness has been shown to associate with chills, to date, there is little empirical research examining the correlation between personality traits and the ability to experience music-induced awe while listening to selections of music (cf. Silvia, Fayn, Nusbaum, & Beaty, 2015). What is known is the relationship between genres of music and the personality trait of openness. A series of studies by Rentfrow and Gosling (2003) examined the relationship between personality traits and music preference by identifying four music preference dimensions (energetic and rhythmic, upbeat and conventional, intense and rebellious, and reflective and complex) and then examining the relationship between the Big Five personality traits and the level of preference for each music dimension.

Their results indicated that a relationship exists between certain musical preferences and personality traits. The energetic and rhythmic dimension (i.e., rap or hip-hop, soul or funk, and electronica or dance) was positively related to extraversion and agreeableness. The upbeat and conventional dimension (i.e., country, pop, religious, and soundtracks) was positively correlated with extraversion, agreeableness, and conscientiousness, and negatively correlated with openness. Intense and rebellious music (i.e., alternative, rock, and heavy metal) and reflective and complex music (i.e., classical, jazz, blues, folk) were positively correlated with openness.

1.2 | Overview of the current research

The purpose of this research was to examine the relationships among music genre, personality, musical emotions, and the experience of awe. Our work is built on the foundation provided by Nusbaum and Silvia (2011), who correlated the Big Five personality factors with the reported tendency to experience chills while listening to music as categorized by Rentfrow and Gosling's four genre dimensions. Whereas their work utilized retrospective self-reports, we were interested in the experience of awe more specifically. Therefore, we had participants report their experience of awe while actually listening to music across the four genre dimensions. This allowed us to utilize an experimental behavioral approach to explore the ability of different kinds of music to evoke awe. It also allowed us to capture felt and perceived emotions in situ in order to examine their relationship to experienced awe, something that is not possible with retrospective self-reports.

With these research objectives in mind, we made several distinct hypotheses. First, it was hypothesized that individual characteristics related to openness (such as the personality trait of openness and need for cognition) would be positively correlated with the experience of aesthetic awe. Conversely, it was hypothesized that need for closure would be negatively related to awe. Second, it was expected that individuals would be most likely to experience awe when listening to their preferred selections. For example, Liljeström, Juslin, and Västfjäll (2012) found that participants' psychophysiological arousal was higher when listening to their own musical selections. Finally, we predicted that preference and personality might interactively predict the experience of awe. That is, someone high in openness who prefers reflective and complex music might be most likely to experience awe when listening to these selections.

With respect to the affective bases of musical awe, given the affective complexity of musical experience, both felt and perceived emotions were predicted to contribute to the awe experience. Some have even suggested that music might invoke awe by virtue of affective complexity—that is, it might be associated with complex patterns of experience and perceived or even mixed patterns of positive and negative affect (Schubert, 2013).

2 | STUDY 1

2.1 | Methods

2.1.1 | Participants

Participants included 150 undergraduate students (M_{age} = 20.85; 93 females; 82% Caucasian) enrolled in a regional Midwestern university. Nearly half (48%) of the participants had formal training in music, with a median of 7 years of training. No participants were removed from the analyses.

2.1.2 | Materials and procedure

Participants first completed a measure of demographics and music preference, which was assessed using the Short Test of Music Preference (STOMP; Rentfrow & Gosling, 2003). This measure assesses an individuals' level of preference for 14 music genres (i.e., alternative, blues, classical, country, electronica or dance, folk, heavy metal, rap or hip-hop, jazz, pop, religious, rock, soul or funk, and soundtracks) on Likert-type scales from 1 (*not at all*) to 7 (*extremely*).

Participants were then informed they would be hearing several clips of music and were instructed to rate the extent to which they felt awe, happiness, and sadness in response to each selection, as well as the extent to which they perceived the music itself to be happy or sad. The following definitions were read aloud and listed at the top of each page:

- Awe—feeling as if one is filled with wonder or admiration; this is often accompanied by the physical sensation of chills or shivers-down-the-spine.
- Happiness—feeling joyful or pleasant; content.
- Sadness—feeling unhappy or "down."

Participants then listened to 2-min excerpts chosen to include the least amount of lyrics possible. This was to decrease the influence lyrics may have on a listener's emotional responses to a selection. Each selection of music represented one of the four dimensions of music preference (reflective and complex, intense and rebellious, upbeat and conventional, and energetic and rhythmic) identified and based on guidelines provided by Rentfrow and Gosling (2003). Three songs, resulting in 12 excerpts, represented each dimension (see Appendix A). The selections were based on examples from a taxonomy provided in Rentfrow and Gosling (2003). The selections were the same for each testing session; however, the order of excerpts was randomized for each group of participants. Randomization was achieved by using iTunes to shuffle the order of songs for each testing group into 16 playlist orders. Each playlist was then saved and labeled for each session.

After all selections were played and rated, participants completed a modified version of the Ten-Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003), which served as a brief measure of the Big Five domains: neuroticism, extraversion, openness, conscientiousness, and agreeableness. We were particularly interested in openness or the inclination to explore new ideas and engage in creative endeavors. Openness has been shown to predict the tendency to experience chills in music in previous research (Nusbaum and Silvia, 2011).

We also examined two individual differences measures that are related to openness: need for cognition and cognitive closure. The need for cognition scale (Cacioppo, Petty, & Kao, 1984) measures individual differences in the tendency to engage in intellectual endeavors. The cognitive closure scale (Roets & Van Hiel, 2011) measures individual differences in the desire for predictability, order and structure, as well as discomfort with ambiguity. Studies show that need for cognition is positively related to openness (e.g., Sadowski & Cogburn,

1997), whereas cognitive closure is negatively related to openness (Shiota et al., 2007).

2.2 | Results

The results section is organized as follows: First, we examined differences in the ability of music dimensions to predict awe. We then examined individual differences in the tendency to experience awe, including the contributions of both personality and music preference. Finally, we examined affective state differences in the ability of music to evoke awe by predicting awe from felt emotions.

2.2.1 | Musical dimension

Our first goal was to determine whether any of the four dimensions had a greater ability to elicit awe than others (see Figure 1). To examine this possibility, we averaged self-reported awe across each of the three tracks in each dimension and submitted these to a one-way analysis of variance, which was significant, $F(1, 146) = 16.43$, $p < .001$. A series of pairwise comparisons revealed that upbeat music elicited the greatest amount of awe ($M = 3.89$, $SD = 1.29$), which was significantly more than complex music ($M = 3.50$, $SD = 1.47$), $t(146) = 3.29$, $p < .001$. Complex music, in turn, elicited greater awe than energetic music ($M = 3.24$, $SD = 1.30$), $t(146) = 2.22$, $p < .05$. Energetic music did not elicit significantly greater awe than intense music, which elicited the least ($M = 3.19$, $SD = 1.35$).

2.2.2 | Individual differences

The correlations among the Big Five personality factors, need for cognition, and cognitive closure, with the experience of awe by each musical dimension are in Table 1. To determine if the experience of awe for any musical dimension could be predicted by individual differences in personality or cognition, we conducted separate regression models for each dimension predicting the experience of awe from each of the individual differences measures, controlling for years of music training. For reflective and complex music, higher need for cognition was associated with greater experienced awe, $\beta = .26$, $t(146) = 2.03$, $p = .003$. Conversely, higher need for cognitive closure was associated with diminished experience of awe, $\beta = -.17$, $t(146) = 1.99$, $p = .049$. The effect of openness was nonsignificant when accounting for these two variables. The models predicting experienced awe for intense, upbeat, and energetic music from the personality variables were nonsignificant.

TABLE 1 Correlations of personality traits and the experience of awe by dimension, Study 1

Dimension	E	A	C	N	O	NFC	CC
Reflective and complex	.06	−.01	−.17*	.07	.14	.32***	−.23**
Intense and rebellious	.01	−.15	−.12	.04	.09	.15	−.14
Upbeat and conventional	.16*	-.02	−.12	.15	.10	.06	−.09
Energetic and rhythmic	.12	−.06	−.19*	.05	.20*	.22**	−.19*

Note. E = extraversion; A = agreeableness; C = conscientiousness; N = neuroticism; O = openness; NFC = need for cognition; CC = cognitive closure.

*$p < .05$.

**$p < .01$.

***$p < .001$.

2.2.2.1 | Personality and preference

Table 2 illustrates correlations among these three variables and preference for each of the genres measured by the STOMP. Need for cognition was positively correlated with the preference for classical ($r = .33$), jazz ($r = .26$), blues music ($r = .25$), and folk ($r = .26$), the four genres that make

TABLE 2 Correlations of openness, need for cognition (NFC), cognitive closure (CC), and genre preference

	Openness	NFC	CC
Classical	−.08	.33***	−.22**
Jazz	<.01	.26**	−.27***
Blues	.03	.25**	−.30***
Folk	.02	.26**	−.32***
Alternative	.13	.23**	−.26**
Rock	−.06	.002	−.22**
Metal	.09	.13	−.29***
Country	−.14	−.20*	.29***
Religious	−.06	−.11	.08
Soundtrack	−.02	.10	.01
Pop	−.03	−.12	.06
Dance	.14	.12	−.04
Rap	.09	−.16*	−.05
Soul	.04	.11	−.30***

Note.

*$p < .05$.

**$p < .01$.

***$p < .00$.

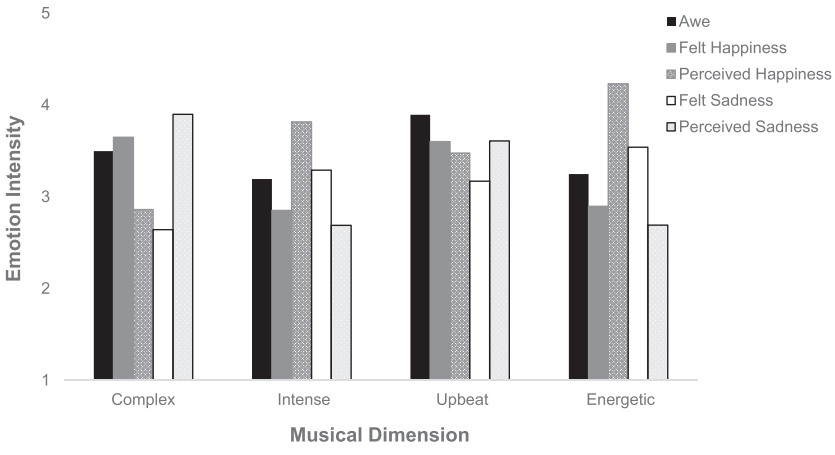


FIGURE 1 Experienced awe, felt happiness and sadness, and perceived happiness and sadness by dimension in Study 1

up the reflective and complex dimension. Need for cognitive closure was positively correlated with the preference for country music (r = .29) and negatively correlated with preference for jazz (r = −.27), blues (r = −.30), folk (r = −.32), alternative (r = −.26), metal (r = −.29), and soul (r = −.30). Openness was unrelated to preference for any of the musical dimensions.

2.2.2.2 | Preference and awe

To test the hypothesis that listening to one's most preferred style of music would most likely elicit awe, we estimated separate regressions for the experience of awe for each musical dimensions. The first model predicted the experience of awe for complex music from preference for each of the four dimensions as measured by the STOMP. In this model, only a preference for complex music predicted the experience of awe for complex music, β = .35, $t(146)$ = 4.48, p < .001. In the second model, only a preference for intense music predicted the experience of awe for intense music, β = .27, $t(146)$ = 2.31, p = .001. In the third model, only a preference for upbeat music predicted the experience of awe for upbeat music, β = .23, $t(146)$ = 2.86, p = .005. In the fourth model, a preference for energetic music predicted the experience of awe for energetic music, β = .31, $t(146)$ = 3.82, p < .001. A preference for complex music also predicted the experience of awe for energetic music, β = .17, $t(146)$ = 2.13, p = .035.

2.2.2.3 | Preference, personality, and awe

The final regression model tested the hypothesis that personality and preference would interactively contribute to the experience of awe when listening to one's preferred music. Given that only the model predicting reflective and complex music from personality was significant, we focused on this dimension. However, because both need for cognition and cognitive closure were associated with significant main effects on the experience of awe, we focused on openness in this analysis. A hierarchical regression was conducted to predict the experience of awe for reflective and complex selections from openness and preference for reflective and complex music, controlling for years of formal training in music. The first step yielded main effects of formal training, β = .16, $t(146)$ = 2.30, p = .02; preference for reflective and complex music, β = .50, $t(146)$ = 7.00, p < .001; and openness, β = .16, $t(146)$ = 2.28, p = .02. In the second step, there was a significant interaction between openness and preference for reflective and complex music on the experience of music-induced awe for reflective and complex selections of music, β = .14, $t(146)$ = 2.00, p = .05. Follow-up regressions revealed that the effect of openness was significant only in the regression equation predicting the experience of awe for individuals with a higher level of preference for reflective and complex music, β = .24, $t(146)$ = 3.01, p = .003.

2.3 | Affective state

In order to determine the extent to which felt and perceived happiness and sadness could predict the experience of awe, we estimated four separate regression models, one for each of the four dimensions. In each model, experienced awe for the selections of music in the dimension was predicted from felt happiness, felt sadness, perceived happiness, and perceived sadness. We also controlled for participants' expertise by including years of musical training in each model. All four overall models were significant (see Table 3 for the standardized regression coefficients).

2.3.1.1 | Reflective and complex music

Formal training in music significantly predicted the experience of awe for reflective and complex music, β = .22, $t(146)$ = 3.23, p = .002. Both greater felt happiness, β = .29, $t(146)$ = 2.61, p = .010, and perceived happiness, β = .24, $t(146)$ = 2.62, p = .010, predicted the experience of awe. Only perceived sadness predicted awe, β = .22, $t(146)$ = 2.02, p = .045. The effect of felt sadness was nonsignificant, p = .746.

2.3.1.2 | Intense and rebellious music

The effect of formal training on experienced awe was nonsignificant for intense music, p = .318. Both felt happiness, β = .35, $t(146)$ = 3.02, p = .003, and felt sadness, β = .34, $t(146)$ = 2.93, p = .004, predicted awe. Neither perceived happiness (p = .299) nor perceived sadness (p = .468) predicted awe for intense music.

2.3.1.3 | Upbeat and conventional music

The effect of musical training was nonsignificant, p = .974. Only felt happiness significantly predicted awe, β = .43, $t(146)$ = 3.21, p = .002. The effect of felt sadness was marginally significant, p = .080. Neither perceived happiness (p = .859) nor perceived sadness (p = .579) predicted awe for intense music.

2.3.1.4 | Energetic and rhythmic music

The effect of musical training was marginally significant, p = .094. Both felt happiness, β = .46, $t(146)$ = 3.09, p = .002, and felt sadness, β = .48, $t(146)$ = 4.08, p < .001, significantly predicted awe. Neither perceived

TABLE 3 Relationship of perceived and felt happiness and sadness to awe by dimension in Study 1

			Felt		Perceived	
Dimension	Overall *F*	Training	Happiness	Sadness	Happiness	Sadness
Complex	16.39	.22**	.29**	−.03	.24**	.23*
Intense	14.33	.07	.35**	.34**	.12	.09
Upbeat	10.11	.97	.43**	.25	.03	.07
Energetic	16.09	.12	.46**	.48***	.02	−.03

Note.

*p < .05.

**p < .01.

***p < .00.

happiness (p = .881) nor perceived sadness (p = .851) predicted awe for energetic music.

2.4 | Discussion

The four musical dimensions differed in their ability to evoke awe. Upbeat music elicited the greatest amount of awe, followed by reflective and complex music and energetic music. Intense music elicited the least amount of awe. For reflective and complex music, however, participants differed in their tendency to experience awe. Specifically, high need for cognition and low need for closure were associated with greater awe. Preferences played a powerful role as well, as participants reported experiencing awe most greatly for the kinds of music they preferred. Finally, for the personality trait openness, personality and preference interactively predicted awe for reflective and complex music.

Just as trait differences in preference and personality predicted unique patterns of awe experiences for each musical dimension, state differences in affect also predicted unique patterns of awe experiences. For all dimensions, felt happiness predicted experienced awe. This is consistent with the idea that awe is a positive emotion (Shiota et al., 2007). Awe is a complex emotion, however. For intense music, felt sadness also predicted awe. Perhaps of greatest interest, the experience of awe did not necessarily depend on the experience of affect at all, as both perceived happiness and perceived sadness predicted awe for reflective and complex music. In a review of the literature on mixed emotional reactions to music, Schubert (2013) suggests that such mixed patterns of felt and perceived emotions might be specifically characteristic of awe-like experiences. Although a detailed review of his arguments are beyond the scope of this paper, Schubert likens felt emotion to the enjoyment that participants feel from listening to their preferred music. This may explain both why felt positive emotion predicted awe for all dimensions as well as preferences for each dimension.

The primary purpose of Study 2 was to replicate and extend Study 1 in a more representative sample of working adults. We focused specifically on the reflective and complex dimension, given that this dimension seemed to be associated with the most unique relationships of the awe experience with both trait differences and state differences in affect. We also sought to increase the validity of our findings by utilizing different musical selections. For instance, we used Cannonball Adderley's *Work Song* in Study 1. Jazz is a diverse style of music and its many subgenres differ greatly in their complexity (Friedwald et al., 2002). Given that this style of jazz is arguably not as reflective and complex as some other forms, we utilized John Coltrane's *Blue Train* in Study 2. Coltrane is included as one of the artists in the reflective and complex dimension in Rentfrow and Gosling's (2003) taxonomy. Critics have described the album *Blue Train* as both reflective (Blue Note, 2012) and complex (Jazz Loop, 2014), making this track a particularly respectable representation of the dimension.

3 | STUDY 2

The primary goal of Study 2 was to replicate the findings that perceived emotions can predict the experience of awe for reflective and complex music. The second goal was to demonstrate a relationship between the experience of musical awe and individual differences in the tendency to experience awe. So as to increase the validity of our findings, it was important to demonstrate that the kind of awe participants report experiencing when they listen to reflective and complex music is predicted by the tendency to experience awe more generally.

3.1 | Method

3.1.1 | Participants

Participants were 97 individuals recruited from Amazon Mechanical Turk (M_{age} = 32; Range = 20–67; 35 females). Three participants that failed a manipulation check, which required them to identify the correct genre of music for each musical selection were removed, for a final sample of 94. Participants were compensated $1.00 for their participation.

3.1.2 | Procedure

Participants completed the survey in Qualtrics survey software. They were first informed that they would be listening to a series of musical selections and were required to verify they had working speakers or headphones with the volume adjusted properly before continuing.

Participants then listened to two 45-s musical selections from the reflective and complex dimension: *Blue Train* by John Coltrane (jazz) and *Adagio for Strings* by Samuel Barber (classical). Their order of presentation was randomized. After each selection, participants responded to the exact same prompts as in Study 1 in order to report their felt happiness and sadness, the extent to which they perceived happiness and sadness in the music and the extent to which they experienced awe. Participants responded on 7-point scales anchored by *not at all* and *intensely*.

After responding to these items for each selection, participants completed the 6-item awe subscale from the Dispositional Positive Emotional Scale (Shiota, Keltner, & John, 2006). The scale measures individual differences in the tendency to experience awe (sample items: "I see beauty all around me" and "I feel wonder almost every day"). Participants answered on 7-point Likert-type scales (*strongly disagree* to *strongly agree*).

Finally, participants reported their age, gender, and their years of formal musical training.

3.1.3 | Results

We conducted two separate regression analyses for each musical selection, predicting the experience of awe from felt happiness and sadness, perceived happiness and sadness, years of formal musical training, and awe-proneness as measured by the Dispositional Positive Emotional Scale. For the jazz selection *Blue Train* the overall model was significant, R = .57, $F(6, 84)$ = 6.81, p < .001. As for all the genres examined in Study 1, felt happiness strongly predicted experienced awe, β = .48, $t(84)$ = 3.32, p < .01. Replicating the findings for reflective and complex music specifically, perceived sadness also predicted experienced awe, β = .45, $t(84)$ = 1.97, p = .05. No other effects were significant.

For the classical selection *Adagio for Strings*, the overall model was also significant, R = .58, $F(6, 82)$ = 6.86, p < .001. For this selection, awe proneness was significantly related to experienced awe, β = .31, $t(82)$ = 2.35, p < .05. Felt sadness strongly predicted awe, β = .48,

$t(82) = 3.55$, $p < .01$, as did perceived happiness, $\beta = .49$, $t(84) = 2.32$, $p < .01$.

3.1.4 | Discussion

To sum, Study 2 yielded findings that were generally consistent with Study 1 findings, but in a more representative sample of working adults. Study 2 also replicated Study 1 findings using different musical selections that more greatly generalize the findings, including the reflective and complex selection *Blue Train* by Coltrane. We also obtained a similar pattern of results utilizing a different classical music selection, Barber's *Adagio*.

Study 2 also demonstrated that awe-prone individuals are more likely to experience awe when they listen to some kinds of music, although in this study the effect only held for the classical selection. At the very least, this finding lends some construct validity to our results by demonstrating that a validated measure that has been shown to predict a wide range of attitudes and behaviors related to awe is also related to the kind of awe participants report actually experiencing when they listened to Barber's *Adagio*.

4 | GENERAL DISCUSSION

The general purpose of this study was to examine music-induced awe. Results indicate that the ability of music to induce awe differed for different musical dimensions. More specifically, we were interested in the relationship of music-induced awe to affect and personality. Below, we summarize the results and address several findings of note. We then highlight limitations of the research and directions for future research in marketing and consumer behavior.

Several studies suggest that personality traits are associated with an individual's ability to experience awe (Panksepp, 1995; Roets & Van Hiel, 2011; Shiota et al., 2007). According to McCrae (2007), one of the best indicators of the trait openness is the frequent experience of chills in response to aesthetic stimuli. In Study 1, openness was not significantly related to preferences for any specific genre of music. Need for cognition and cognitive closure, however, which are both related to openness, were more closely related to musical preferences and the experience of awe. High need for cognition and low cognitive closure were related to preference for all four genres that comprise the reflective and complex dimension—classical, jazz, blues, and folk.

We hypothesized that individuals would be most likely to experience awe when listening to the music that they prefer (e.g., Liljeström et al., 2012; Schubert, 2013). This was the case for every dimension. For instance, the preference for reflective and complex music was the only preference that predicted the experience of awe for reflective and complex music.

We further hypothesized that individual differences would predict the actual experience of awe. For reflective and complex music, both high need for cognition and low cognitive closure, but not openness, predicted awe. We believe this is an important finding. Openness is arguably the most consistent personality characteristic linked to awe in the literature. Yet our findings suggest that some of these relationships may be better accounted for by the unique variance contributed by these more cognitively oriented constructs. Openness only predicted awe interactively with preference—that is, individuals high in openness experienced awe only when they also preferred reflective and complex music. Finally, all of these effects emerged controlling for musical training, indicating musical expertise is not a necessary condition of experiencing musical awe.

Just as there were predictable trait differences in the experience of awe by musical dimension, affective states also differentially contributed to the experience. Felt happiness significantly predicted awe for all four dimensions. This is not surprising, given that awe is considered to be a positive emotion (Shiota et al., 2007), and consistent with Schubert's (2013) contention that felt happiness in music may be an indicator of liking or preference for a musical selection.

Felt sadness also predicted awe, however, suggesting that awe is more complex than other positive emotions. Interestingly, this was true for all dimensions to some extent except for reflective and complex music in Study 1. For this dimension, perceived sadness predicted awe, an effect we replicated with the reflective and complex jazz track *Blue Train* in Study 2. Perceived happiness also predicted awe for this dimension in Study 1, further supporting the idea that reflective and complex music can evoke awe based on relatively complex patterns of emotional response.

Reflective and complex music was the only dimension for which the experience of awe was related to the perception of sadness in the music. This suggests that music in this genre in particular can contribute to aesthetic awe in rather subtle ways, perhaps without even influencing one's own affective state. This is not to say that only reflective and complex music is capable of this, of course. Any music sophisticated enough to communicate complex emotions within the musical structure itself may have this ability regardless of its genre. The classification scheme we used for our musical dimensions in Study 1 is just a convenient way of investigating musical emotions across a broad sampling of selections. Our findings demonstrate the existence of this relationship between perceived emotion and experienced awe, and although such patterns may be highly characteristic of the genres that make up the reflective and complex dimension in Rentfrow and Gosling's (2003) taxonomy, music that is “reflective” and “complex” is likely found in a broad range of genres.

Finally, individuals who tend to experience aesthetic awe generally also reported experiencing awe in Study 2 while listening to the classical selection, Barber's *Adagio*. This was significant in the model even after accounting for self-reported affect, suggesting that the tendency to experience awe cannot be completely accounted for by one's current emotional state at any given time. Most important, this finding clearly provides some internal validity to our findings. The kind of awe participants are reporting experiencing conceptually resembles the kinds of experiences the measure is designed to capture.

4.1 | Limitations

The fact that openness was not strongly related to preferences or to the experience of awe generally may seem at odds with prior research and theory. Indeed, McCrae (2007) indicates that this should be one of the best indicators of aesthetic chills. Nusbaum and Silvia (2011) found that openness was the best of the Big Five predictors of music-induced chills. Some of this may be due to our operational definition of awe. As

reported in the literature review, chills are thought to be the physiological component of awe, but it is also a cognitive–conceptual emotion. More important, though, our data were dependent entirely on what participants reported experiencing while they were actually listening to musical selections. Such online reports may differ from participants' self-reported retroactive evaluations like those utilized by Nusbaum and Silvia (2011). Because we actually had participants listen to music, we had to make selections that were generally representative of the genres in each dimension. There was undoubtedly wide-ranging variance in the extent to which these tracks were consistent with the kinds of tracks that participants remember when they reflect on their experience of chills. Of course, our study was about the experience of awe, not chills, and it is also possible that experiencing chills does not always or necessarily translate into the experience of the emotion aesthetic awe.

There were also some limitations to the methodology. There is a certain level of subjectivity involved with selecting tracks that are representative of each genre. The excerpts were chosen because the artist or the song itself could be identified as belonging to or representing a specific genre based on the taxonomy provided by Rentfrow and Gosling (2003). Furthermore, although we were only able to utilize one selection per genre, Study 1 included 150 participants in a within-subjects design. Therefore, individual differences in preference and subjective classifications for each selection should be expected to normalize across our sample.

Most important, it should be noted that preferences, as categorized by the STOMP (Rentfrow & Gosling, 2003), were excellent predictors of experienced awe. This provides powerful evidence that the selections used in this study were in fact good exemplars of the preferences participants reported, given that we categorized participants' preferences on our selections with the exact same classification system.

Finally, Study 1 utilized a sample of college students, whose findings may not generalize to a more representative population. For this reason, we utilized a representative sample of working adults in Study 2. In order to obtain this population, we conducted the study online, reducing the potential time and intensiveness of the research study and limiting us to a smaller number of audio selections. Although this is a potential limitation of the design, we were able to replicate the basic pattern of findings that perceived and even felt sadness can contribute to the experience of awe for reflective and complex music.

4.2 | Future directions

The literature on awe indicates that awe may be described as either a positive or a negative experience (Keltner & Haidt, 2003); however, our study suggests the experience of aesthetic awe may also result from more complex emotional responses to music. Results showed that although individuals felt high levels of happiness and awe when listening to reflective and complex selections, they also perceived the music itself to be sad. Conversely, it was found that when individuals felt high levels of sadness and awe while listening to upbeat and energetic music they perceived the music itself to be happy. Prior research has examined mixed emotional responses to conflicting cues in music (e.g., upbeat songs in minor modes and sad songs in major modes; Hunter, Schellenberg, & Schimmack, 2010). Individuals are more likely to experience mixed emotions to music when conflicting cues are present (Larsen & Stastny, 2011). This research further suggests a relationship between mixed emotions and the experience of awe in music, particularly for reflective and complex selections. Furthermore, it suggests that music may be an ideal context in which to more closely examine the relationship between mixed emotions and the experience of awe in future research.

These results should be of interest to psychologists and marketers alike interested in consumer behavior. Music is ubiquitous in marketing and advertising, and since Gorn's original study (1982) demonstrating that music can be used to classically condition product preferences (see also Vermeulen & Beukeboom, 2015), understanding emotional reactions to music is of increasing interest to marketers (North & Hargreaves, 2010). Need for cognition (e.g., Haugtvedt, Petty, & Cacioppo, 1992; Reinhard & Messner, 2009) and cognitive closure (Kardes, Sanbonmatsu, Cronley, & Houghton, 2002; Niculescu, Payne, & Luna-Nevarez, 2014) have been of interest to consumer behavior researchers for some time. However, this work is the first to examine them in the context of the experience of awe in any domain. Finally, awe has received some attention in the psychology literature but has only relatively recently been examined in a consumer context (Berger & Milkman, 2012; Rudd et al., 2012). Given the incredible power of music and its ubiquity in advertising, marketers may specifically be interested in tailoring their ability to elicit awe in their target audiences appropriately with respect to differences in musical preference and characteristics such as openness and need for cognition. This may be particularly useful to marketers wishing to cultivate an awe-inspiring brand image. Oakes and North (2013) found that different kinds of music can play a powerful role in this regard. For example, students perceived a university to be more sophisticated when an advertisement was paired with classical music but more exciting when paired with dance music.

One potentially rewarding area to explore is the impact of awe on prosocial behavior. Piff et al. (2015) showed that individuals higher in the tendency to experience awe, as measured by the same scale used in this study, are more generous in economic bargaining games. Individuals induced to experience awe also behave more generously, suggesting that state effects have awe can have real consequences for consumer behavior. Our results demonstrate that such manipulations of awe can be made relatively easily with short musical excerpts, which are ubiquitous in advertising. Audio clips selected to evoke awe may be particularly useful for charitable organizations or nonprofits that rely on consumers' generosity. Our results suggest that awe-inspiring music may have consequences for behavior even if the music does not impact one's emotional state directly, as long as it is reflective and complex enough to communicate emotions within its structure.

Finally, the suggested relationship between mixed emotions and the experience of awe may be of specific interest to consumer behavior researchers in future research as well. Mixed emotions have been shown to have unique effects on persuasion (Williams & Aaker, 2002) and purchase intention (Bee & Madrigal, 2013). These results indicate that music may be a particularly important domain in which to investigate the effect of mixed emotions on attitudes and purchase intentions in addition to their impact on the experience of awe.

5 | CONCLUSION

Beethoven believed that music connected the spiritual and the physical. To the extent that awe is a transcendent emotion that is ultimately embodied, our results indicate that music has the power to induce it. But not all music appears to possess this ability, and not all people have the ability to grasp it. The relationship of need for cognition to awe indicates that, to Beethoven's spiritual and physical dimensions of musical experience, we can add the mental.

REFERENCES

Bee, C. C., & Madrigal, R. (2013). Consumer uncertainty: The influence of anticipatory emotions on ambivalence, attitudes, and intentions. *Journal of Consumer Behaviour*, *12*(5), 370–381.

Berger, J., & Milkman, K. L. (2012). What makes online content viral? *Journal of Marketing Research*, *49*(2), 192–205.

Bigand, E., Vieillard, S., Madurell, F., Marozeau, J., & Dacquet, A. (2005). Multidimensional scaling of emotional responses to music: The effect of musical expertise and of the duration of excerpts. *Cognition and Emotion*, *19*(8), 1113–1139.

Blue Note. (2012). Far from old fashioned: Blue Train at 55. Retrieved from http://www.bluenote.com/spotlight/far-from-old-fashioned-blue-train-at-55

Cacioppo, J. T., Petty, R. E., & Kao, C. F. (1984). The efficient assessment of need for cognition. *Journal of Personality Assessment*, *48*(3), 306–307.

Friedwald, W., Gioia, T., Macnie, J., Margasak, P., Nicholson, S., Ratliff, B., … Williams, K.L. (2002). *The future of jazz*. Chicago, Illinois: Chicago Review Press.

Gabrielsson, A. (2002). Perceived emotion and felt emotion: Same or different? *Musicae Scientiae*, *6*, 123–148.

Gorn, G. (1982). The effects of music in advertising on choice behavior: A classical conditioning approach. *Journal of Marketing*, *46*, 94–101.

Gosling, S., Rentfrow, P., & Swann, W. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, *37*(6), 504–528.

Grant, P. S., Bal, A., & Parent, M. (2012). Operatic flash mob: Consumer arousal, connectedness and emotion. *Journal of Consumer Behaviour*, *11*(3), 244–251.

Haugtvedt, C. P., Petty, R. E., & Cacioppo, J. T. (1992). Need for cognition and advertising: Understanding the role of personality variables in consumer behavior. *Journal of Consumer Psychology*, *1*(3), 239–260.

Holt, D. B. (2003). What becomes an icon most? *Harvard Business Review*, *81*(3), 43–49.

Hunter, P., Schellenberg, E. G., & Schimmack, U. (2010). Feelings and perceptions of happiness and sadness induced by music: Similarities, differences, and mixed emotions. *Psychology of Aesthetics, Creativity, and the Arts*, *4*(1), 47–56.

Jazz Loop. (2014). Album of the week: John Coltrane—Blue Train. Retrieved from https://thejazzloop.wordpress.com/2014/02/04/album-of-the-week-john-coltrane-blue-train/

Kardes, F. R., Sanbonmatsu, D. M., Cronley, M. L., & Houghton, D. C. (2002). Consideration set overvaluation: When impossibly favorable ratings of a set of brands are observed. *Journal of Consumer Psychology*, *12*(4), 353–361.

Keltner, D., & Haidt, J. (2003). Approaching awe, a moral, spiritual, and aesthetic emotion. *Cognition and Emotion*, *17*(2), 297–314.

Larsen, J., & Stastny, B. (2011). It's a bittersweet symphony: Simultaneously mixed emotional responses to music with conflicting cues. *Emotion*, *11*(6), 1469–1473.

Liljeström, S., Juslin, P. N., & Västfjäll, D. (2012). Experimental evidence of the roles of music choice, social context, and listener personality in reaction to music. *Psychology of Music*, *41*(5), 1–21.

McCrae, R. (2007). Aesthetic chills as a universal marker of openness to experience. *Motivation and Emotion*, *31*(1), 5–11.

Niculescu, M., Payne, C. R., & Luna-Nevarez, C. (2014). Consumer response to interruption features and need for cognitive closure. *Journal of Consumer Behaviour*, *13*(1), 60–72.

North, A. C., & Hargreaves, D. J. (2010). Music and marketing. In P. N. Juslin, & J. A. Sloboda (Eds.), *Handbook of music and emotion: Theory, research, applications* (pp. 909–930). New York: Oxford University Press US.

Nusbaum, E. C., & Silvia, P. J. (2011). Shivers and timbres: Personality and the experience of chills from music. *Social Psychological And Personality Science*, *2*(2), 199–204.

Oakes, S., & North, A. (2013). Dance to the music! How musical genres in advertisements can sway perceptions of image. *Journal of Advertising Research*, *53*, 411–416.

Panksepp, J. (1995). The emotional source of "chills" induced by music. *Music Perception*, *13*(2), 171–207.

Piff, P. K., Dietze, P., Feinberg, M., Stancato, D. M., & Keltner, D. (2015). Awe, the small self, and prosocial behavior. *Journal of Personality and Social Psychology*, *108*(6), 883.

Reinhard, M. A., & Messner, M. (2009). The effects of source likeability and need for cognition on advertising effectiveness under explicit persuasion. *Journal of Consumer Behaviour*, *8*(4), 179–191.

Rentfrow, J., & Gosling, S. (2003). The do re mi's of everyday life: The structure and personality correlates of music preferences. *Journal of Personality and Social Psychology*, *84*(6), 1236–1256.

Roets, A., & Van Hiel, A. (2011). Item selection and validation of a brief, 15-item version of the need for closure scale. *Personality and Individual Differences*, *50*(1), 90–94.

Rudd, M., Vohs, K. D., & Aaker, J. (2012). Awe expands people's perception of time, alters decision making, and enhances well-being. *Psychological Science*, *23*(10), 1130–1136.

Sadowski, C., & Cogburn, H. (1997). Need for cognition in the Big Five factor structure. *The Journal of Psychology: Interdisciplinary and Applied*, *131*(3), 307–312.

Shiota, M., Keltner, D., & John, O. P. (2006). Positive emotion dispositions differentially associated with Big Five personality and attachment style. *The Journal of Positive Psychology*, *1*, 61–71.

Shiota, M., Keltner, D., & Mossman, A. (2007). The nature of awe: Elicitors, appraisals, and effects on self-concept. *Cognition and Emotion*, *21*(5), 944–963.

Schubert, E. (2013). Emotion felt by the listener and expressed by the music: Literature review and theoretical perspectives. *Frontiers in Psychology*, *4*, 1–18.

Silvia, P., Fayn, K., Nusbaum, E., & Beaty, R. (2015). Openness to experience and awe in response to nature and music: Personality and profound aesthetic experiences. *Psychology of Aesthetics, Creativity, and the Arts*, *9*, 376–384.

Valdesolo, P., & Graham, J. (2013). Awe, uncertainty, and agency detection. *Psychological Science*, *20*(10), 1–9.

Van Cappellen, P., & Saroglou, V. (2012). Awe activates religious and spiritual feelings and behavioral intentions. *Psychology of Religion and Spirituality*, *4*(3), 223.

Vermeulen, I., & Beukeboom, C. (2015). Effects of music in advertising: Three experiments replicating single-exposure musical conditioning of consumer choice (Gorn, 1982) in an individual setting. *Journal of Advertising*, *45*(1), 1–9.

Williams, P., & Aaker, J. L. (2002). Can mixed emotions peacefully coexist? *Journal of Consumer Research*, *28*(4), 636–649.

Zentner, M., Grandjean, D., & Scherer, K. (2008). Emotions evoked by the sound of music: Characterization, classification, and measurement. *Emotion*, *8*(4), 494–521.

How to cite this article: Pilgrim L, Norris JI, Hackathorn J. Music is awesome: Influences of emotion, personality, and preference on experienced awe. *J Consumer Behav*. 2017;16:442–451. https://doi.org/10.1002/cb.1645

APPENDIX A

Study 1 musical selections with genre and dimension

Artist/composer	Song title	Genre	Dimension
Beethoven	Sonata No. 8 in C minor	Classical	Reflective and complex
Mahler	Symphony No. 5—Mov 4	Classical	Reflective and complex
Cannonball Adderley	Work Song	Jazz	Reflective and complex
Taking Back Sunday	New American Classic	Alternative	Intense and rebellious
Tool	Schism	Metal	Intense and rebellious
Pink Floyd	Shine On You Crazy Diamond	Rock	Intense and rebellious
Devotchka	The Winner Is	Soundtrack	Upbeat and conventional
Perry	If I Die Young	Country	Upbeat and conventional
Rebecca St. James	Emmanuel	Religious	Upbeat and conventional
The Fugees	Killing Me Softly	Hip-hop	Energetic and rhythmic
Boyz II Men	It's So Hard to Say Goodbye to Yesterday	R&B/soul	Energetic and rhythmic
Radiohead	Reckoner	Electronic	Energetic and rhythmic

Received: 14 September 2016 | Revised: 3 February 2017 | Accepted: 20 February 2017

DOI: 10.1002/cb.1647

WILEY

ACADEMIC PAPER

Direct evaluative conditioning in brand placement: The impact of scene valence and prominence on brand placement repetition effects

Serena C. D'Hooge | Liselot Hudders | Veroline Cauberghe

Department of Communication Sciences, Ghent University, Korte Meer 7-9-11, 9000 Ghent, Belgium

Correspondence
Serena C. D'Hooge, Department of Communication Sciences, Ghent University, Korte Meer 7-9-11, 9000 Ghent, Belgium.
Email: serena.dhooge@ugent.be

Abstract

Whereas previous studies investigated the affect transfer from one specific affective stimulus of the brand placement context (such as an artist or the genre) to the brand, this research study investigates the effect of the valence of various scenes in which the brand is repeatedly placed on brand attitude. Direct evaluative conditioning theory suggests that pairing a brand repeatedly with various positive (negative) stimuli positively (negatively) affects brand attitude. The results of 2 experimental studies indicate that when a brand is repeatedly and prominently placed in different affective scenes of the same valence (a series of either positive or negative scenes), the affect aroused by those scenes influences explicit and implicit brand attitudes. In addition, whereas previous research found negative effects of brand prominence on brand evaluations, this study found that prominence positively moderates the affect transfer from the valence of various scenes on brand attitude. This implies that by placing the brand in various positive scenes, prominent brand placements can have a positive effect on recall and recognition and on brand attitude, which transcends the previously declared paradox of prominent placement.

KEYWORDS

brand placement, brand prominence, evaluative conditioning, explicit and implicit brand attitude, scene valence

1 | INTRODUCTION

Brand placement is the paid integration of a brand into noncommercial contexts such as television programmes, movies, or music videos (Balasubramanian, 1994; Williams, Petrosky, Hernandez, & Page, 2011). Consumers prefer this popular format because it enhances the realism of the noncommercial content (D'Astous & Chartier, 2000), and because it is seen less as a persuasive message than traditional advertising (Balasubramanian, 1994). Brand placement is also more effective than traditional advertising because it is practically impossible to avoid the commercial content without missing the media content (Avery & Ferraro, 2000; D'Astous & Chartier, 2000). However, because the brand is embedded into distracting media content, a single brand placement may remain unnoticed. Therefore, brand integrations are more optimal when done repeatedly to grasp the recipient's attention and enhance their recall of the brand (Schmidt & Eisend, 2015). Mere exposure theory states that repeated exposure to a brand leads to a positive shift in brand attitude because the brand becomes more familiar to the recipient (Zajonc, 1968); several researchers have confirmed this theory in a brand placement context (e.g., Matthes, Wirth, Schemer, & Pachoud, 2012; Ruggieri & Boca, 2013). However, when the brand is placed in noncommercial content, this content could also have an impact on brand attitude. Following evaluative conditioning theory, pairing brands repeatedly with affective stimuli can cause an affect transfer from the affective stimuli to the brands (Martin & Levey, 1978). Existing studies have previously investigated the affect transfer of one specific affective stimulus of the content, such as the artist or the genre, to the brand in brand placement (Schemer, Matthes, Wirth, & Textor, 2008; Redker, Gibson, & Zimmerman, 2013). Schemer et al. (2008) found that pairing the brand with a positively perceived artist results in a positive shift in attitude toward the brand, while pairing the brand with a negatively perceived artist results in a negative shift in brand attitude. The reason for these findings is that repeated pairings of the brand with one particular affective stimulus causes an

association in the brain between both stimuli (stimulus–stimulus association); an effect referred to as indirect evaluative conditioning (Sweldens, Van Osselaer, & Janiszewski, 2010).

The valence of various scenes in which the brand is repeatedly placed in a television programme or movie might also have a strong influence on how consumers evaluate the placed brand (Martin & Levey, 1978; De Houwer, Thomas, & Baeyens, 2001). For instance, in the latest James Bond movie *Spectre*, the logo of the brand Sony is first visible on a television set displaying a video of Bond's former boss who tells him to murder Sciarra, and in the next scene, the Sony logo can be noticed on a smartphone showing a picture of the person who Sciarra was ordered to kill. Placing the brand Sony in various negative scenes raises the question of whether these scenes have a negative impact on brand attitude. To our knowledge, no previously published studies have investigated the impact of placing the brand repeatedly in various affective scenes of a television programme or movie. Because the various scenes in which the brand is placed repeatedly are not identical, stimulus–stimulus associations cannot be formed. However, previous research has shown that repeated pairings with various different (not identical) negative or positive stimuli can also affect the viewer's attitude toward the brand (Stahl & Unkelbach, 2009; Sweldens et al., 2010). The affective reaction caused by the different affective stimuli may be implicitly misattributed to the brand when presented simultaneously (Jones, Fazio, & Olson, 2009; Hütter & Sweldens, 2012). This effect is referred to as direct evaluative conditioning, because the affect becomes directly associated with the neutral stimulus (stimulus–response association; Sweldens et al., 2010). However, direct evaluative conditioning has not yet been investigated in a brand placement context.

In addition, as the integrations of the brand into media content can be either subtle or prominent, the current study aims to investigate the moderating role of the brand's prominence on the direct evaluative conditioning effect. Although prominent placements lead to higher brand recall and recognition, they also activate an individual's knowledge of persuasion more than subtle placements (Homer, 2009; Kozary & Baxter, 2010; Dens, Pelsmacker, Wouters, & Purnawirawan, 2012). This persuasion knowledge refers to people's ability to distinguish commercial content from media content and understand the persuasive intent of advertising and the tactics used within advertising (Wright, Friestad, & Boush, 2005). This persuasion knowledge gives people the ability to critically reflect on the advertisement. In this respect, when people become aware of the brand placement and its persuasive intent, affect transfer may be disrupted by counterarguments (Russell, 1998). However, when brands are repeatedly placed in different affective scenes and no stimulus–stimulus associations occur, the source of the affect is less identifiable and might therefore eliminate a correction of the affect transfer through increased persuasion knowledge. In this case, we can expect that persuasion knowledge would have less or even no attenuating impact on the direct affect transfer (Sweldens et al., 2010). Therefore, in contrast to previous research, which found negative effects of prominence, prominence might have no negative impact on the direct affect transfer.

In sum, the current paper investigates the affect transfer of brand placement caused by repeatedly placing a brand in different positive (negative) scenes and the moderating impact of prominence. We first describe the theoretical framework and the development of our hypotheses and then present our methods, results, and discussions of two experimental studies. In the first study, we measure explicit self-reported brand attitudes, and in the second study, we measure more automatic implicit brand attitudes. The paper ends with a general conclusion and discussion, theoretical and practical implications, and limitations and directions for future research.

2 | THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

2.1 | Evaluative conditioning theory

Evaluative conditioning theory states that an individual's affective response to a neutral stimulus can be changed by combining this stimulus repeatedly with other inherently liked or disliked stimuli. In other words, there is a change in attitude toward a stimulus (conditioned response = CR) due to the repeated pairing of that stimulus (conditioned stimulus = CS) with another affective stimulus (unconditioned stimulus = US). The attitude toward the conditioned stimulus positively changes when it is repeatedly paired with a positive stimulus, and it becomes more negative when it is repeatedly paired with a negative stimulus (Martin & Levey, 1978; De Houwer et al., 2001). In persuasive communication, several studies found a shift in brand attitude because of the repeated pairing with, amongst others, affective words (e.g., Allen & Janiszewski, 1989; Blask, Walther, Halbeisen, & Weil, 2012), pictures (e.g., Pleyers, Corneille, Luminet, & Yzerbyt, 2007; Sweldens et al., 2010), or music (Gorn, 1982). The effect of evaluative conditioning can therefore be seen as a genuine phenomenon (De Houwer, Baeyens, & Field, 2005; Hofmann, De Houwer, Perugini, Baeyens, & Crombez, 2010). Within evaluative conditioning, one can distinguish direct and indirect evaluative conditioning (Sweldens et al., 2010).

The process behind indirect evaluative conditioning is the creation of a stimulus–stimulus association due to the repeated pairing of the neutral stimulus with one particular affective stimulus. The association with the affective stimulus is activated when thinking about the neutral stimulus, and this consequently causes an evaluative response toward the neutral stimulus (Sweldens et al., 2010). In stimulus–stimulus associations, the evaluative response is intermediated by the activation of the association, which is in line with the human associative memory theory. This theory states that the repeated pairing of two stimuli develops an association in the brain between both stimuli (Anderson & Bower, 1973; Van Osselaer & Janiszewski, 2001). Indirect evaluative conditioning is activated for both simultaneous (when two stimuli are presented together) and sequential (when two stimuli are shown after each other) pairings, but only when the neutral stimulus is repeatedly paired with the same particular affective stimulus so that the association between the two stimuli can be formed (Sweldens et al., 2010). For instance, the repeated pairing of Nespresso with George Clooney creates an association in the brain between those two stimuli. Thinking about Nespresso consequently activates the association with George Clooney, which causes an affective reaction.

Conversely, the process behind direct evaluative conditioning is the formation of stimulus–response associations due to the repeated

and simultaneous pairing of a neutral stimulus with the same or different affective stimuli of a particular valence. In this process, the neutral stimulus becomes associated with a certain affect instead of a particular stimulus (stimulus–response association; Sweldens et al., 2010). This process is caused by implicit misattribution of the affect to the neutral stimulus because of the simultaneous presentations. The mere co-occurrence of a neutral stimulus and an affective stimulus can lead to an (incorrect) attribution of the feeling to the neutral stimulus (Jones et al., 2009; Sweldens et al., 2010). According to Murphy, Monahan, and Zajonc (1995), the affective response is a diffuse affect; because the initial rapid affective response is not yet cognitively attributed to a particular source, confusion about the source of the feeling may arise. As a result, the feeling can be attached to totally unrelated stimuli presented at the same time (Murphy et al., 1995). In this case, there is no need to pair the neutral stimulus repeatedly with one particular affective stimulus. Merely repeated simultaneous co-occurrence of the neutral stimulus with affective stimuli of a specific (similar) valence (positive or negative) appears to be sufficient (Sweldens et al., 2010).

2.2 | Evaluative conditioning in brand placement

The evaluative conditioning mechanism has also been found specifically in brand placement (Schemer et al., 2008; Redker et al., 2013). For example, *Redker et al*. (2013) found an affect transfer from the genre of a movie to the brand that was repeatedly placed in the background of the movie; liking the genre of the movie resulted in positive attitudes toward the brand, while disliking the movie genre resulted in negative brand attitudes. Likewise, van Reijmersdal, Smit and Neijens (2010) found spillover effects from programme attitude and genre liking on brand attitudes. Additionally, brand attitude is not only affected by liking a movie genre or programme, but also by certain features in the media content. For example, Schemer et al. (2008) found an affect transfer from the artist in a music video to the brand that was repeatedly placed in the music video; whereas, Russell and Stern (2006) found product attitude to be affected by the attitude toward a character when placing a product in a sitcom. A positively or negatively perceived character resulted in a positive or negative product attitude, respectively. These previous studies on affect transfer in brand placement investigated the affect transfer of one specific stimulus (e.g., artist or genre) to the brand in brand placement. In those cases, stimulus–stimulus associations could be formed through the repeated pairing of the brand with a particular affective stimulus. Thinking about the brand causes viewers to think about the genre or the artist, which consequently influences the evaluation of the brand.

When the brand is repeatedly placed in (and thus simultaneously linked to) different scenes of the same valence (e.g., the appearance of Coca Cola in a scene in which friends are telling jokes in a bar, and later when a couple is kissing), stimulus–stimulus associations are not possible. In this case, we expect a direct affect transfer to occur. Russell (1998) also suggested that placing a product into an emotionally rich television programme or movie would cause an affect transfer from the television programme or movie to the product. In line with this study and direct evaluative conditioning theory, we expect that if a brand is repeatedly placed in various positive scenes of a television programme, the brand attitude will become more positive than when the brand is repeatedly placed in various negative scenes. We thus posit the following hypothesis:

> **H1.** Brand attitude will be more positive when the brand is repeatedly placed in various positive scenes, than when it is repeatedly placed in various negative scenes.

2.3 | The moderating impact of brand placement prominence

Brand placement prominence refers to the way brands are integrated in the media content, either subtly or prominently (Homer, 2009). Gupta and Lord (1998) defined prominence as the extent to which the brand placement can attract people's central attention. Brands that are small and placed nearer the back of the scene are typified as subtle brand placements, while brands that appear bigger and more central to the foreground are typified as prominent (Gupta & Lord, 1998; Kozary & Baxter, 2010). Past studies indicate that brand placement prominence positively affects brand recall and recognition, but that brand attitudes and brand choice suffer from highly prominent placements (Andriasova, 2006; Homer, 2009; Kozary & Baxter, 2010; Dens et al., 2012). The reason for this negative impact is that higher persuasion knowledge is more aroused by prominent placements than subtle placements because they are more noticeable and easy to recognize as commercial content (Wei, Fischer, & Main, 2008; Kozary & Baxter, 2010). According to the persuasion knowledge model (Friestad & Wright, 1994), and the reactance theory (Brehm, 1989), consumers resist any persuasive attempt that limits their personal freedom of choice. Accordingly, van Reijmersdal (2015) and Janssen, Fransen, Wulff, and van Reijmersdal (2016) found a negative impact of disclosing the brand placement on brand attitude. In this respect, prominent placements might obstruct the mechanism of affect transfer because of the increased critical resistance consumers hold against the persuasive attempt. However, this effect might depend on whether the affect transfer is direct or indirect; previous research found persuasion knowledge to influence indirect but not direct affect transfer (Sweldens et al., 2010).

When the brand is repeatedly paired with one specific affective stimulus that causes stimulus–stimulus associations (indirect evaluative conditioning), the affect transfer is vulnerable to persuasion knowledge. People may defend themselves by disrupting the association of the brand with the particular affective stimulus (Sweldens et al., 2010). Schemer et al. (2008) investigated how persuasion knowledge affects the affect transfer of an artist to a brand that was repeatedly placed in a music video. They found that brand recognition (one key aspect of consumers' persuasion knowledge) has an attenuating impact on the affect transfer. However, recent research suggests that this might not be the case when a brand is repeatedly and simultaneously paired with different affective stimuli (Sweldens et al., 2010). In this case, stimulus–response associations are formed due to implicit misattribution (direct evaluative conditioning), which results into no or less conscious knowledge about the source of the affect. In addition, Gast et al. (2012) suggested that implicit processes of evaluative conditioning, as is the case for implicit misattribution,

are not influenced by the goal to prevent or stop the effect or process, which may be activated when persuasion knowledge is high.

Conversely, Jones et al. (2009) found that a larger conditioned stimulus strengthens the implicit misattribution. The bigger the conditioned stimulus, the more eye gaze shifting between the affective and the conditioned stimuli. This increase in eye gaze shifting leads to a higher chance of confusion about the source of the affective response caused by the affective stimulus, which thus increases the chance that the affective response is implicitly misattributed to the conditioned stimulus (Jones et al., 2009). In a brand placement context, this suggests that the more prominently the brand is repeatedly placed into different affective scenes, the higher the chance that the affect that is caused by the scenes could be misattributed to the brand. We therefore expect that the direct evaluative conditioning effect strengthens when the prominence of the brand increases. Consequently, we expect the impact of placing the brand in various positive versus negative scenes on brand attitude to be stronger when the brand is prominently placed than when it is subtly placed into those scenes. We thus posit the following hypothesis:

> **H2.** The impact of valence of the scenes on brand evaluation will be stronger when the brand is prominently placed than when the brand is subtly placed into the different affective scenes.

3 | STUDY 1

3.1 | Method

3.1.1 | Design and procedure

A 2 (valence of placement scene, positive versus negative) x 2 (placement prominence, subtle versus prominent) between-subjects experimental design was used to test the hypotheses. The respondents were randomly assigned to one of the four conditions in an online experiment. Each respondent was exposed to five different fictitious screenshots of a nonspecified television programme (see Figure 1). Each screenshot included one visual brand placement. We chose to present the brand five times visually in five different scenes because Baeyens, Eelen, Crombez, and Van den Bergh (1992) found significant evaluative conditioning effects for five pairings but not for a lower number of pairings. The respondents, who were not told that the scenes contained brand placements, were merely told that they would see screenshots of a new television programme (nonspecified) and that they had to look briefly at those screenshots and imagine the situation. After looking at the screenshots one by one, the respondents had to fill in a questionnaire in which we measured successively (a) explicit (self-reported) attitude toward the embedded brand, (b) the perceived valence and prominence as a manipulation check, and (c) some sociodemographic variables.

3.1.2 | Participants

The participants were recruited in Flanders (located in Belgium) by online calls via Facebook and by putting flyers in letterboxes and handing them out on the street. This led to 111 valid respondents (61% women), aged 18–69 years (M = 27; SD = 10). Most of the respondents held a bachelor's (48%) or master's (37%) degree.

3.1.3 | Stimuli

The respondents were exposed to screenshots of a nonspecified television programme, which integrated a fictitious soda brand (Zimo). We used screenshots instead of real brand placement videos because we wanted to control for as much as possible while only manipulating the valence of the scenes and the prominence of the brand placements. The brand was repeatedly paired with different affective stimuli in five different situations: (a) couple sitting on a bed, (b) friends playing a game, (c) two boys playing football, (d) friends at a bar, and (e) a boy and girl at a bar. Each situation was manipulated to evoke either positive or negative feelings (e.g., a kissing versus quarrelling couple; see Figure 1). These manipulated situations were pretested using Priluck and Till's (2004) scale with three 7-point semantic differentials to measure perceived valence (α_{pos} = .95, α_{neg} = .96; unpleasant/pleasant, dislike very much/like very much, and left me with a bad feeling/left me with a good feeling). The results of this pretest (66 respondents; M_{age} = 22, SD_{age} = 5; 44% men) revealed that the positively manipulated scenes were perceived as more positive (M = 4.72, SD = .94) than the negatively manipulated scenes (M = 2.14, SD = 1.11, t (45) = 11.88, p < .001). Brand prominence was manipulated after the pictures were taken by placing the brand either subtly or prominently in the pictures using Adobe Photoshop CS5. In the subtle situation, the brand was small and integrated in the back of the scene; whereas in the prominent situation, the brand was big and integrated in the front of the scene (see Figure 2).

FIGURE 1 Five screenshots of various negative (first row) versus positive (second row) scenes

FIGURE 2 Example of the subtle versus prominent brand placement manipulation

3.1.4 | Measures

Brand attitude was measured with an extended version of Spears and Singh's (2004) scale. The scale consists of six 7-point semantic differentials that measures respondents' explicit (self-reported) attitudes toward the placed brand (α = .95; unappealing/appealing, negative/positive, bad/good, unpleasant/pleasant, unfavourable/favourable, and unlikable/likable). For the manipulation check of prominence, we also used a self-constructed four-item Likert scale (α = .97; "I saw the brand in the front," "I saw the brand immediately," "I saw the brand in my central focus," and "I saw the brand clearly"). All Likert-items were measured on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Finally, to measure the perceived valence, we used Priluck and Till's (2004) scale, as used in the pretest (α = .96).

3.2 | Results

3.2.1 | Manipulation check

A two-way ANOVA with manipulated scene valence and prominence as the independent variables and perceived valence as the dependent variable was conducted. This test revealed that the positive scenes (M = 4.89, SD = 1.34) evoked more positive feelings than the negative scenes, M = 2.85, SD = 1.08, $F(1, 107) = 76.72$, $p < .001$, $\eta_p^2 = .42$. Prominence of the brand placements did not moderate this effect, $F(1, 107) = .13$, $p = .72$, $\eta_p^2 = .001$. These results indicate that the manipulation of valence was successful. The manipulation check, which was conducted using a two-way ANOVA with scene valence and prominence as the independent variables and perceived prominence as the dependent variable, revealed that prominent placements (M = 6.15, SD = 1.02) were perceived to be more prominent than subtle placements, M = 4.74, SD = .93, $F(1, 89) = 46.26$, $p < .001$, $\eta_p^2 = .34$. No moderation of valence of the scenes was found, $F(1, 89) = 1.13$, $p = .29$, $\eta_p^2 = .01$. The manipulation of prominence was thus also successful.

3.2.2 | Explicit brand attitude

A two-way ANOVA with prominence and valence as the independent variables and brand attitude as the dependent variable showed a significant main effect of valence on brand attitude, $F(1, 107) = 9.84$, $p = .002$, $\eta_p^2 = .08$. The attitude toward the brand was more positive when the brand was placed in various positive scenes (M = 3.74, SD = 1.13) than when it was placed in various negative scenes (M = 3.12, SD = 1.07), thus supporting our first hypothesis. In addition, a significant positive interaction effect of scene valence and prominence on brand attitude was found, $F(1, 107) = 5.22$, $p = .02$, $\eta_p^2 = .05$, which supported our second hypothesis. The impact of scene valence on brand attitude appeared to be only significant when the brand was prominently placed ($p < .001$, 95% CI [−1.72, −.52]), and it was not significant when the brand was subtly placed ($p = .54$, 95% CI [−.74, .39]). Placing the brand prominently in various positive scenes led to a higher brand attitude (M = 3.92, SD = 1.31) than placing the brand prominently in various negative scenes (M = 2.8, SD = 1.03; see Figure 3).

3.3 | Discussion

In this first study, we found a significant impact of the valence of various scenes on brand attitude, but only if the brand was prominently placed into those scenes. Attitude toward the brand was more positive when the brand was prominently placed in various positive scenes than when it was prominently placed in various negative scenes. However, no significant difference was found between the valence conditions for the subtle placements. We had expected an increasing impact of prominence on the affect transfer; however, we did not expect the affect transfer to be insignificant in the subtle situation.

In this study, brand attitude was measured by explicitly asking the respondents to evaluate their attitudes. In the second study, we aimed to replicate the results by measuring implicit attitudes that are more automatic and less controllable than explicit attitudes (Gawronski & Bodenhausen, 2006; De Houwer, Teige-Mocigemba, Spruyt, & Moors, 2009). As Andriasova (2006) concluded in her dissertation on brand placement, implicit measures might be more

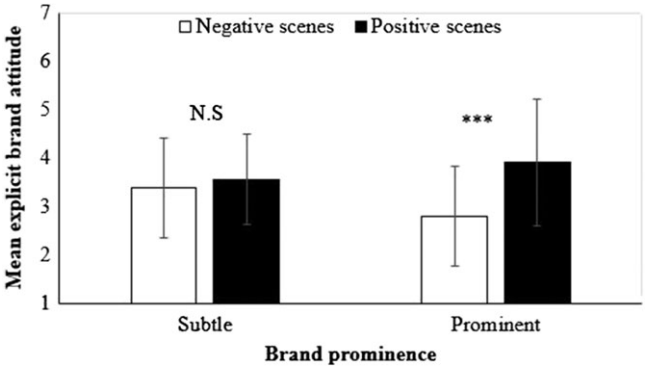


FIGURE 3 Mean explicit brand attitude of each condition

effective in showing the true effects of brand placement than explicit self-reported measurements. Additionally, Rudman (2012) claimed that implicit attitudes are more easily influenced by affective experiences than explicit attitudes. Previous research has also found that if evaluative conditioning does not affect explicit attitudes (as is the case for the subtle placements in our first study), implicit attitudes can still be affected (Gibson, 2008). Direct evaluative conditioning has been found for implicit and explicit attitudes (Sweldens et al., 2010). However, several researchers have suggested that implicit processes more likely affect implicit than explicit attitudes (Gawronski & Bodenhausen, 2006). As implicit misattribution is an automatic and implicit process (Hütter & Sweldens, 2012), its impact on implicit attitudes could be stronger than its impact on explicit attitudes. Moreover, Wennekers, Vandeberg, Zoon, and van Reijmersdal (2015) suggested that subtle placements more likely cause an implicit affect transfer and influence implicit brand attitudes, whereas prominent placements tend to cause a more cognitive form of affect transfer and therefore influence explicit brand attitudes. By replicating the first study, but now measuring the implicit attitudes, we aimed to investigate whether the direct affect transfer in this case would also be revealed for the subtle placements. Similar to the first study, we expected the direct affect transfer on implicit brand attitude to be positively moderated by prominence. Implicit misattribution is more likely to take place when the unconditioned stimulus is presented more clearly (Jones et al., 2009), given that persuasion knowledge seems to have no effect on the direct affect transfer on implicit or explicit brand attitudes (Sweldens et al., 2010).

To enhance the imagination of the television programme and to make it more realistic, we added a more concrete description of the fictitious television programme storyline and told them that the following pictures were screenshots of that programme. The respondents were asked to read the description of the television programme carefully and to keep the scenario in mind while watching the screenshots. In this study, the respondents could only look at the screenshots for 3 s to limit their cognitive reasoning about the content of the screenshots (similar to real life brand placement situations).

4 | STUDY 2

4.1 | Method

4.1.1 | Design and procedure

This study replicates the design of study one: a 2 (valence of placement scene, positive versus negative) x 2 (placement prominence, subtle versus prominent) between-subjects experimental design. The respondents were randomly assigned to one of the four conditions. The stimuli were the same as those used in the first study; however, different from the first study, the respondents had to read a description of the fictitious television programme first and then view the screenshots. After viewing the screenshots, the respondents had to take a brief single category-implicit association test (SC-IAT; Karpinski & Steinman, 2006) to measure their implicit brand attitude and complete a questionnaire using additional self-reported scales (see Study 1).

4.1.2 | Participants

This study consisted of 111 valid participants (71% women), who did not participate in the first study. The participants were students aged 18–27 years (M = 21; SD = 2) from a West-European country (Belgium), who participated in the study voluntarily. The experiment took place in a laboratory setting at a middle large West-European university to ensure that the screenshots were shown in their entirety on the screen and that the SC-IAT was properly performed.

4.1.3 | Stimuli

Identical to the first study, the respondents were exposed to pictures of a particular situation, presented as screenshots of a television programme, which integrated a fictitious soda brand (Zimo). The screenshots were the same as in the first study, but the television programme was specified as a new series, *The Student House*. The respondents were given a short description about the series, which focused on students living together in a student house, and they were told to imagine this series while viewing the screenshots.

4.1.4 | Measures

The second study used the same measures for perceived valence (α = .93) and perceived prominence (α = .98) as those used in the first experiment. However, instead of measuring brand attitude using self-reported measurements, we used a brief version of Karpinski and Steinman's (2006) SC-IAT. Although the general implicit association test measures the implicit attitude of one target category compared to another opposite target category (Greenwald, McGhee, & Schwartz, 1998), the SC-IAT is used to measure the implicit attitude toward one single attitude object (in this case, the fictitious soda brand Zimo). The respondents were asked to sort stimuli presented in a random order using two keys: One represented the category or categories on the left side, and the other represented the category or categories on the right side. The target category Zimo was presented on the same side as the attribute category "positive" in the first two tasks (Task 1 with 20 practice trials and Task 2 with 40 critical trials), but it was presented on the side of the attribute category "negative" in the following two tasks (Task 3 with 20 practice trials and Task 4 with 40 critical trials; see the article of Karpinski and Steinman (2006) for more information about the process of the SC-IAT test). Different from Karpinski and Steinman (2006), we used 20 instead of 24 practice trials and 40 instead of 72 critical trials to avoid jadedness or irritation and to shorten the duration of the experiment. The amount of trials we chose for each task was similar to existing studies that have used the general implicit association test (Greenwald, Nosek, & Banaji, 2003). The presented stimuli were randomly chosen from a pool of 12 different stimuli, and each category (positive, negative, and Zimo) consisted of four stimuli. The stimuli concerning the target category Zimo were the logo of the brand and the word Zimo in different typefaces. For the attribute categories, we used the positive words *happy*, *honest*, *pleasant*, and *sincere* and the negative words *villainous*, *brutal*, *aggressive*, and *deceptive*.

The sorting task should be easier when the target category has to be categorised on the same side (with the same key) as the attribute category that has the same valence as the implicit brand attitude than

when it has to be categorised on the side of the attribute category that has the opposite valence. Therefore, when the mean latency of Task 4 (Zimo on the same side as negative) is bigger than the mean latency of Task 2 (Zimo on the same side as positive), the implicit brand attitude will be more positive. Tasks 1 and 3 do not have to be included in the calculation because these were practice trials (Karpinski & Steinman, 2006). As recommended by Greenwald et al. (2003), the trials with a latency greater than 10000 ms (7 trials) and the respondents who had a latency less than 300 ms for more than 10% of the trials were removed (six respondents). Error latencies were replaced with the block mean of all correct latencies plus a penalty of 600 ms. We then calculated the SC-IAT effects as the difference of the mean latencies of Tasks 4 and 2 divided by the standard deviation of the latencies of all correct trials from both tasks (see Karpinski & Steinman, 2006). This is a modified version of Greenwald et al.'s (2003) D-score. A positive score implies a positive implicit brand attitude, and a negative score implies a negative implicit brand attitude. A split-half reliability test, using the Spearman-Brown correction, showed a reliability of the applied SC-IAT that is not very high but reasonable (r_{SB1} = .56), which is in line with the low reliability scores of some SC-IATs in Karpinski and Steinman's (2006) studies. In addition, Cronbach's alpha tests of the latencies of Tasks 2 (α = .84) and 4 (α = .90) showed that the latencies of all trials in each task were internally consistent. In addition, the error rate was only 4.68%, only 5.9% of the respondents had latencies higher than 1000 ms, and only 5.1% of the respondents had more than 10% of the trials less than 300 ms. We therefore considered that the reliability of our SC-IAT was sufficient.

4.2 | Results

4.2.1 | Manipulation check

A two-way ANOVA with the valence of the scenes and prominence as the independent variables and perceived valence as the dependent variable showed that the positive scenes (M = 4.74, SD = 1.23) were perceived to be more positive than the negative scenes, M = 3.40, SD = .95, $F(1, 107)$ = 40.32, p < .001, η_p^2 = .27. No moderation of prominence of the brand placements was found, $F(1, 107)$ = .63, p = .43, η_p^2 = .01. Further, a two-way ANOVA with the same independent variables but with perceived prominence as the dependent variable revealed that prominent placements were perceived to be more prominent (M = 5.22, SD = 1.85) than subtle placements, M = 3.46, SD = 2.17, $F(1, 107)$ = 20.17, p < .001, η_p^2 = .16. No moderation of valence of the scenes was found, $F(1, 107)$ = .04, p = .85, η_p^2 < .001.

4.2.2 | Implicit brand attitude

A two-way ANOVA with brand prominence and scene valence as the independent variables and implicit brand attitude as the dependent variable showed no significant main effect of scene valence on implicit brand attitude, $F(1, 107)$ = .98, p = .32, η_p^2 = .01 , which did not confirm our first hypothesis. Nevertheless, a significant positive interaction effect of scene valence and brand prominence was found on implicit brand attitude, $F(1, 107)$ = 5.87, p = .02, η_p^2 = .05, which confirms our second hypothesis. As in the first study, the difference between the positive and negative scenes seemed only to be significant when the brand was prominently placed (p = .02, 95% CI [−.41, −.03]) and not when the brand was subtly placed (p = .30, 95% CI [−.08, .27]). Prominent placements in various positive scenes led to a higher implicit brand attitude (M = .19, SD = .38) than prominent placements in various negative scenes (M = −.03, SD = .33; see Figure 4).

4.3 | Discussion

Similar to the first study, this second study investigated direct evaluative conditioning effects and the moderating impact of brand prominence in a brand placement context. However, this study measured implicit instead of explicit brand attitudes. In line with the results of the first study, the results of the second study showed significantly higher implicit brand attitudes for brand placements in positive scenes compared to negative scenes, but only when the brand was placed prominently into these scenes. These findings suggest that prominent brand placement is an important condition for the occurrence of direct evaluative conditioning.

5 | GENERAL CONCLUSION AND DISCUSSION

The current paper investigated the direct evaluative conditioning effects of brand placement. The results of two experimental studies revealed that feelings evoked by media scenes may affect the viewer's attitude toward a brand that is repeatedly and prominently placed in these scenes. In particular, this research study showed that placing the brand prominently in various positive scenes causes a more positive explicit and implicit attitude toward the brand than placing it prominently in various negative scenes. The difference we found between placing a brand repeatedly in positive versus negative scenes can be explained by an affect transfer mechanism rather than simple mere exposure effects; the latter would result in a positive impact in both valence scenes (Zajonc, 1968). For subtle placements, we did not find a significant difference in implicit and explicit brand attitude between placing the brand in various positive versus negative scenes. Placing the brand prominently could thus be a necessary condition for the occurrence of the affect transfer from the various affective scenes to the brand. This can be explained by the lack of implicit misattribution due to the small size of the brand compared to that of the media scenes. Consequently, the source of the affect is rather

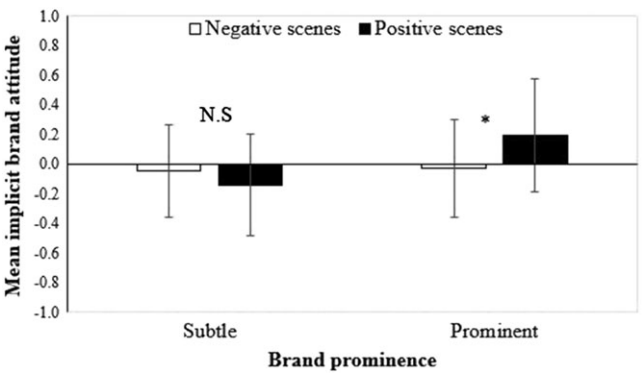


FIGURE 4 Mean implicit brand attitude of each condition

immediately assigned to the media scenes than to the small brand appearing in the background. Future research should further investigate whether implicit misattribution can occur when placements are subtle by manipulating the congruency of the brand placement, as this may increase source confusability. In this respect, we expect that implicit misattribution might be activated for subtle placements that are highly congruent to the noncommercial scenes. Moreover, attention toward the brand placement and its elaboration seems to improve if the visual placement is connected to the plot of the television show in which it is placed (Russell, 2002). This higher attention toward the subtle placement might increase the change for implicit misattribution because this would result in a higher eye gaze shifting between the affective scenes and the brand placement (Jones, Olson, & Fazio, 2010). Likewise, verbally mentioning the placement or presenting the brand on a larger screen might also direct the attention toward the subtle brand placement. By contrast, placing other brands simultaneously into the scenes might reduce the viewer's attention toward the subtle brand placement and thus lessen its effectiveness (Bressoud, Lehu, & Russell, 2010).

6 | THEORETICAL AND PRACTICAL IMPLICATIONS

The results of the current studies indicate that attitude toward placed brands is not only affected by programme attitude, genre, characters, and artists but also by the valence of the scenes in which the brand is repeatedly placed. Marketers should thus not only ensure that their brand is not repeatedly paired with a negatively perceived stimulus such as a certain celebrity but also that their brand is not repeatedly and prominently integrated into various negative scenes because this could also cause a negative affect transfer to their brand. Conversely, they should stipulate that their brand is integrated prominently into various positive scenes to improve brand attitude.

In addition, whereas previous research declared a negative impact of prominence on brand evaluation, this study found a positive moderating effect of prominence on the direct affect transfer from various scenes to the brand. Both studies herein found that placing the brand prominently is an important condition for the direct affect transfer to occur. Consequently, this study provides a way in which the paradox of prominent placements (positive impact on recall and recognition, but negative impact on brand attitude) could be altered. Previous research on the affect transfer in brand placement could not provide such a solution because persuasion knowledge (which increases when prominence increases) has been found to override the affect transfer in the case of repeatedly pairing a brand with one particular stimulus (Schemer et al., 2008). Placing the brand prominently in various positive scenes might enhance explicit and implicit brand attitude as well as recall and recognition. Moreover, this finding is also relevant for the presence of other factors that might activate persuasion knowledge, such as the "PP" logo or any other warning that has to announce product placement according the European Audiovisual Media Services Directive. Similar to prominent brand placements, brand placement disclosures have been found to negatively affect brand attitude because they also cause higher persuasion knowledge (Janssen et al., 2016; van Reijmersdal, 2015). By placing the brand in various positive scenes, this negative effect of brand disclosures might be altered by positive direct affect transfer.

7 | LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

This study has some limitations that provide guidance for future research. First, this study uses pictures instead of real brand placement videos. Future research should replicate the results of this study using scenes of an existing television programme or movie including repeated brand placements. Another possible method is to incorporate the theatre methodology proposed by Russell (2002) in which the researcher creates manipulated screenplays to make it realistic but controlled for unwanted noise.

Second, this study compared placements between positive and negative scenes. To investigate the net impact of positive or negative direct affect transfer, placements in positive versus negative scenes should be compared with placements in neutral scenes. In addition, the positive and negative pairings could be mixed to investigate the effect of scene valence within subjects instead of between subjects; this would enable possible mood effects to be controlled for. Following Bakamitsos and Siomkos (2004), a positive mood might result in a more positive evaluation of the brand or increase the level of processing compared to a negative mood. Mixing the pairings and adding a delay between the pairings would also make the experiment more realistic, because in real life, the repeated pairings rarely follow consecutively. Furthermore, we proposed a situation in which the brand is repeatedly placed in various affective scenes of the same valence, which can be the case when a brand is, for example, repeatedly placed in humorous scenes of a comedy television series. A situation in which the brand appears in a mix of positive and negative scenes is, however, also possible, which raises the question about whether the affect transfer would still occur in this situation. Future studies could thus investigate the wear in of the direct affect transfer (i.e., how many repeated placements in positive or negative scenes are successively needed for the positive or negative affect transfer to occur?) and the impact of counterconditioning in a brand placement context (placing the brand in a negative scene after several placements in positive scenes). In addition, future research should consider using more extreme affective scenes because, in this study, the positive scenes scored between 4.5 and 5 on perceived valence in the pretest and the manipulation checks, which is only slightly positive on a seven-point scale.

Besides the remarks on the affective scenes, we also make some suggestions concerning the placed brand. In this study, we used a fictitious brand so that the participants could have no prior attitude toward the brand. Nevertheless, evaluative conditioning has been found to work for familiar brands as well (Dijksterhuis, 2004; Gibson, 2008). A meta-analysis by Hofmann et al. (2010) indicated that the evaluative conditioning effect may be stronger for new, unknown brands than for familiar brands, because evaluative

conditioning may be more effective in forming new attitudes than in changing existing attitudes. As this has not yet been investigated for direct evaluative conditioning specifically, future research could compare mature and novel brands for direct affect transfer in brand placement. Next, although we used visual brand placements in this study, auditory or a mix of visual and auditory placements are also possible. Evaluative conditioning effects have been found for both visual and auditory stimuli, but might be stronger for cross-modal presentations (as would be the case for auditory brand placements in visual affective scenes) than for unimodal presentations (as was the case in the current studies; visual brand placements in visual affective scenes), because it is easier to process both stimuli if presented in different modalities than when presented in the same modality (Blask et al., 2012).

Future studies could also investigate how many repetitions are needed for such direct evaluative conditioning processes to occur and from how many repetitions the effect would wear out. Some contradictions were present among existing studies about the wear in and wear out of evaluative conditioning effects (Baeyens et al., 1992; De Houwer et al., 2001). Although some studies found an affect transfer from only one CS-US pairing (e.g., Stuart, Shimp, & Engle, 1987), other studies found that repetition was needed (e.g., Baeyens et al., 1992). Nevertheless, affect transfer seems to become stronger when the number of CS-US pairings increases (Baeyens et al., 1992; Hofmann et al., 2010), and after 10 pairings, the evaluative conditioning effect seems to wear out (e.g., Baeyens et al., 1992). For direct evaluative conditioning, specifically, the wear in and wear out have not yet been investigated.

Finally, to further investigate the impact of prominence of the placement on the direct affect transfer, it might be worth manipulating the social scene; Coker, Altobello, and Balasubramanian (2013) found prominent placements to be more effective in changing brand attitude when participants silently watched the sitcom with friends than with strangers. Finally, as explained previously in the "general conclusion and discussion" section, many other aspects could be investigated as possible moderators of the direct evaluative conditioning effect in brand placement such as (a) plot connection, (b) verbally mentioning the placement or not, (c) the size of the screen, and (d) placing or not placing other brands simultaneously in the same scenes (Bressoud et al., 2010; Russell, 2002).

REFERENCES

Allen, C. T., & Janiszewski, C. A. (1989). Assessing the role of contingency awareness in attitudinal conditioning with implications for advertising research. *Journal of Marketing Research*, *26*(1), 30–43. https://doi.org/10.2307/3172667

Anderson, J. R., & Bower, G. H. (1973). *Human associative memory*. New York, NY: Halstead.

Andriasova, A. V. (2006). They placed, I saw, I was conquered: Evaluating the effects of persuasion knowledge and prominence of brand placement on viewers' attitudes and behavior. *ProQuest Dissertations and Theses*, 251. Retrieved from http://ezproxy.net.ucf.edu/login?url=http://search.proquest.com/docview/304978443?accountid=10003%5Cnhttp://sfx.fcla.edu/ucf?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:dissertation&genre=dissertations+&+theses&sid=ProQ:ProQuest+Dissertations+&+The

Avery, R. J., & Ferraro, R. (2000). Verisimilitude or advertising? Brand appearances on prime-time television. *Journal of Current Issues & Research in Advertising*, *34*(2), 217–244. https://doi.org/10.1111/j.1745-6606.2000.tb00092.x

Baeyens, F., Eelen, P., Crombez, G., & Van den Bergh, O. (1992). Human evaluative conditioning: Acquisition trials, presentation schedule, evaluative style and contingency awareness. *Behaviour Research and Therapy*, *30*(2), 133–142. https://doi.org/10.1016/0005-7967(92)90136-5

Bakamitsos, G. A., & Siomkos, G. J. (2004). Context effects in marketing practice: The case of mood. *Journal of Consumer Behaviour*, *3*(4), 304–314. https://doi.org/10.1002/cb.144

Balasubramanian, S. K. (1994). Beyond advertising and publicity: Hybrid messages and public policy issues. *Journal of Advertising*, *4*(4), 29–46. https://doi.org/10.1080/00913367.1943.10673457

Blask, K., Walther, E., Halbeisen, G., & Weil, R. (2012). At the crossroads: Attention, contingency awareness, and evaluative conditioning. *Learning and Motivation*, *43*(3), 99–106. https://doi.org/10.1016/j.lmot.2012.03.004

Brehm, J. W. (1989). Psychological reactance: Theory and applications. *Advances in Consumer Research*, *16*(1), 72–75 Retrieved from http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?sid=297c9dfc-908c-4acc-ae8d-bcde9a647d08@sessionmgr4001&vid=1&hid=4206.

Bressoud, E., Lehu, J. M., & Russell, C. A. (2010). The product well placed: The relative impact of placement and audience characteristics on placement recall. *Journal of Advertising Research*, *50*(4). https://doi.org/10.2501/S0021849910091622

Coker, K. K., Altobello, S. A., & Balasubramanian, S. K. (2013). Message exposure with friends: The role of social context on attitudes toward prominently placed brands. *Journal of Consumer Behaviour*, *12*(2), 102–111. https://doi.org/10.1002/cb

D'Astous, A., & Chartier, F. (2000). A study of factors affecting consumer evaluations and memory of product placement in movies. *Journal of Current Issues & Research in Advertising*, *22*(2), 31–40. https://doi.org/10.1080/10641734.2000.10505106

De Houwer, J., Thomas, S., & Baeyens, F. (2001). Associative learning of likes and dislikes: A review of 25 years of research on human evaluative conditioning. *Psychological Bulletin*, *127*(6), 853–869. https://doi.org/10.1037/0033-2909.127.6.853

De Houwer, J., Baeyens, F., & Field, A. P. (2005). Associative learning of likes and dislikes: Some current controversies and possible ways forward. *Cognition & Emotion*, *19*(2), 161–174. https://doi.org/10.1080/02699930441000265

De Houwer, J., Teige-Mocigemba, S., Spruyt, A., & Moors, A. (2009). Implicit measures: A normative analysis and review. *Psychological Bulletin*, *135*(3), 347–368. https://doi.org/10.1037/a0014211

Dens, N., Pelsmacker, P. D., Wouters, M., & Purnawirawan, N. (2012). Do you like what you recognize ? The effects of brand placement prominence and movie plot connection on brand attitude as mediated by recognition. *Journal of Advertising*, *41*(3), 35–53. https://doi.org/10.2753/JOA0091-3367410303

Dijksterhuis, A. (2004). I like myself but I don't know why: Enhancing implicit self-esteem by subliminal evaluative conditioning. *Journal of Personality and Social Psychology*, *86*(2), 345–355. https://doi.org/10.1037/0022-3514.86.2.345

Friestad, M., & Wright, P. (1994). The persuasion knowledge model: How people cope with persuasion attempts. *Journal of Consumer Research*, *21*(1), 1–31. https://doi.org/10.1086/209380

Gast, A., Gawronski, B., & De Houwer, J. (2012). Evaluative conditioning: Recent developments and future directions. *Learning and Motivation*, *43*(3), 79–88. https://doi.org/10.1016/j.lmot.2012.06.004

Gawronski, B., & Bodenhausen, G. V. (2006). Associative and propositional processes in evaluation: An integrative review of implicit and explicit attitude change. *Psychological Bulletin*, *132*(5), 692–731. https://doi.org/10.1037/0033-2909.132.5.692

Gibson, B. (2008). Can evaluative conditioning change attitudes toward mature brands? New evidence from the implicit association test. *Journal of Consumer Research*, *35*(1), 178–188. https://doi.org/10.1086/527341

Gorn, G. J. (1982). The effects of music in advertising on choice behavior: A classical conditioning approach. *Journal of Marketing*, *46*(1), 94–101. https://doi.org/10.2307/1251163

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology*, *74*(6), 1464–1480. https://doi.org/10.1037/0022-3514.74.6.1464

Greenwald, A. G., Nosek, B. A., & Banaji, M. R. (2003). Understanding and using the implicit association test: I. An improved scoring algorithm. *Journal of Personality and Social Psychology*, *85*(2), 197–216. https://doi.org/10.1037/0022-3514.85.2.197

Gupta, P., & Lord, K. (1998). Product placement in movies: The effect of prominence and mode on audience recall. *Journal of Current Issues and Research in Advertising*, *20*(1), 47–59. https://doi.org/10.1080/10641734.1998.10505076

Hofmann, W., De Houwer, J., Perugini, M., Baeyens, F., & Crombez, G. (2010). Evaluative conditioning in humans: A meta-analysis. *Psychological Bulletin*, *136*(3), 390–421. https://doi.org/10.1037/a0018916

Homer, P. M. (2009). Product placements. The impact of placement type and repetition on attitude. *Journal of Advertising*, *38*(3), 21–32. https://doi.org/10.2753/JOA0091-3367380302

Hütter, M., & Sweldens, S. (2012). Implicit misattribution of evaluative responses: Contingency-unaware evaluative conditioning requires simultaneous stimulus presentations. *Journal of Experimental Psychology*. *General*, *142*(3), 638–643. https://doi.org/10.1037/a0029989

Janssen, L., Fransen, M. L., Wulff, R., & van Reijmersdal, E. A. (2016). Brand placement disclosure effects on persuasion: The moderating role of consumer self-control. *Journal of Consumer Behaviour.*. https://doi.org/10.1002/cb.1587

Jones, C. R., Fazio, R. H., & Olson, M. A. (2009). Implicit misattribution as a mechanism underlying evaluative conditioning. *Journal of Personality and Social Psychology*, *96*(5), 933–948. https://doi.org/10.1037/a0014747

Jones, C. R., Olson, M. A., & Fazio, R. H. (2010). Chapter five - evaluative conditioning: The "how" question. *Advances in Experimental Social Psychology*, *43*(10), 205–255. https://doi.org/10.1016/S0065-2601(10)43005-1

Karpinski, A., & Steinman, R. B. (2006). The single category implicit association test as a measure of implicit social cognition. *Journal of Personality and Social Psychology*, *91*(1), 16–32. https://doi.org/10.1037/0022-3514.91.1.16

Kozary, B., & Baxter, S. (2010). The influence of product placement prominence on consumer attitudes and intentions: A theoretical framework. *University of Newcastle*. Retrieved from http://ogma.newcastle.edu.au:8080/vital/access/manager/Repository/uon:11643

Martin, I., & Levey, A. B. (1978). Evaluative conditioning. *Advances in Behaviour Research and Therapy*, *1*(2), 57–102. https://doi.org/10.1016/0146-6402(78)90013-9

Matthes, J., Wirth, W., Schemer, C., & Pachoud, N. (2012). Tiptoe or tackle? The role of product placement prominence and program involvement for the mere exposure effect. *Journal of Current Issues & Research in Advertising*, *33*(2), 129–145. https://doi.org/10.1080/10641734.2012.700625

Murphy, S. T., Monahan, J. L., & Zajonc, R. B. (1995). Additivity of nonconscious affect: Combined effects of priming and exposure. *Journal of Personality and Social Psychology*, *69*(4), 589–602. https://doi.org/10.1037/0022-3514.69.4.589

Pleyers, G., Corneille, O., Luminet, O., & Yzerbyt, V. (2007). Aware and (dis)liking: Item-based analyses reveal that valence acquisition via evaluative conditioning emerges only when there is contingency awareness. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *33*(1), 130–144. https://doi.org/10.1037/0278-7393.33.1.130

Priluck, R., & Till, B. D. (2004). The role of contingency awareness, involvement and need for cognition in attitude formation. *Journal of the Academy of Marketing Science*, *32*(3), 329–344. https://doi.org/10.1177/0092070303257646

Redker, C., Gibson, B., & Zimmerman, I. (2013). Liking of movie genre alters the effectiveness of background product placements. *Basic and Applied Social Psychology*, *35*(3), 249–255. https://doi.org/10.1080/01973533.2013.785400

van Reijmersdal, E. A. (2015). Disclosing brand placements in movies: Effects of disclosure type and movie involvement on attitudes. *Journal of Media Psychology*, *28*(2), 78–87. https://doi.org/10.1027/1864-1105/a000158

van Reijmersdal, E., Smit, E., & Neijens, P. (2010). How media factors affect audience responses to brand placement. *International Journal of Advertising*, *29*(2), 279. https://doi.org/10.2501/S0265048710201154

Rudman, L. A. (2012). Sources of implicit attitudes sources of implicit attitudes. *Psychological Science*, *13*(2), 79–82. https://doi.org/10.1111/j.0963-7214.2004.00279.x

Ruggieri, S., & Boca, S. (2013). At the roots of product placement: The mere exposure effect. *Europe's Journal of Psychology*, *9*(2), 246–258. https://doi.org/10.5964/ejop.v9i2.522

Russell, C. A. (1998). Toward a framework of product placement: Theoretical propositions. *Advances in Consumer Research*, *25*, 357–362 Retrieved from http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?sid=151c2805-811c-4737-8b58-73c97a151d76@sessionmgr4003&vid=1&hid=4206.

Russell, C. A. (2002). Investigating the effectiveness of product placements in television shows: The role of modality and plot connection congruence on brand memory and attitude. *Journal of Consumer Research*, *29*(3), 306–318. https://doi.org/10.1086/344432

Russell, C. A., & Stern, B. B. (2006). Consumers, characters and products: A balance model of sitcom product placement effects. *Journal of Advertising*, *35*(1), 7–21. https://doi.org/10.2753/JOA0091-3367350101

Schemer, C., Matthes, J., Wirth, W., & Textor, S. (2008). Does "passing the courvoisier" always pay off? Positive and negative evaluative conditioning effects of brand placements in music videos. *Psychology & Marketing*, *25*(10), 923–943. https://doi.org/10.1002/mar.20246

Schmidt, S., & Eisend, M. (2015). Advertising repetition: A meta-analysis on effective frequency in advertising. *Journal of Advertising*, *44*(4), 415–428. https://doi.org/10.1080/00913367.2015.1018460

Spears, N., & Singh, S. N. (2004). Measuring attitude toward the brand and purchase intentions. *Journal of Current Issues and Research in Advertising*, *26*(2), 53–66. https://doi.org/10.1080/10641734.2004.10505164

Stahl, C., & Unkelbach, C. (2009). Evaluative learning with single versus multiple unconditioned stimuli: The role of contingency awareness. *Journal of Experimental Psychology*. *Animal Behavior Processes*, *35*(2), 286–291. https://doi.org/10.1037/a0013255

Stuart, E. W., Shimp, T. A., & Engle, R. W. (1987). Classical conditioning of consumer attitudes: Four experiments in an advertising context. *Journal of Consumer Research*, *14*(3), 334–349. https://doi.org/10.1086/209117

Sweldens, S., Van Osselaer, S. M. J., & Janiszewski, C. (2010). Evaluative conditioning procedures and the resilience of conditioned brand attitudes. *Journal of Consumer Research*, *37*(3), 473–489. https://doi.org/10.1086/653656

Van Osselaer, S. M. J., & Janiszewski, C. (2001). Two ways of learning brand associations. *Journal of Consumer Research*, *28*(2), 202–223. https://doi.org/10.1086/322898

Wei, M.-L., Fischer, E., & Main, K. J. (2008). An examination of the effects of activating persuasion knowledge on consumer response to brands engaging in covert marketing. *Journal of Public Policy & Marketing*, *27*(1), 34–44. https://doi.org/10.1509/jppm.27.1.34

Wennekers, A., Vandeberg, L., Zoon, K., & van Reijmersdal, E. (2015). Distinguishing implicit from explicit brand attitudes in brand placement research. In P. W. J. Verlegh, H. A. M. Voorveld, & M. Eisend (Eds.), *EAA advances in advertising research series (Vol. VI): The digital, the classic, the*

subtle, and the alternative. (pp. 253–268). Wiesbaden: Springer Gabler. 10.1007/978-3-658-10558-7_20

Williams, K., Petrosky, A., Hernandez, E., & Page, R. (2011). Product placement effectiveness: Revisited and renewed. *Journal of Management and Marketing Research*, *7*, 1–24 Retrieved from http://www.aabri.com/manuscripts/10712.pdf.

Wright, P., Friestad, M., & Boush, D. M. (2005). The development of marketplace persuasion knowledge in children, adolescents, and young adults. *Journal of Public Policy & Marketing*, *24*(2), 222–233. https://doi.org/10.1509/jppm.2005.24.2.222

Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology*, *9*(2p2), 1–27. https://doi.org/10.1037/h0025848

Serena C. D'Hooge is a research and teaching assistant at the department of Communication Sciences at Ghent University, Belgium and a PhD student at the doctoral school of social and behavioral sciences. Her research interests are evaluative conditioning, emotional competent stimuli and evolutionary psychology in advertising.

Liselot Hudders is an assistant professor at the department of Communication Sciences at Ghent University, Belgium. Her research focus lays on the effectiveness of persuasive communication and advertising literacy, and the link between (sustainable) consumption and consumer well-being.

Veroline Cauberghe is an associate professor at the department of Communication Sciences at Ghent University, Belgium. Leading the research group on persuasive communication (HYPERLINK "http://www.cepec.ugent.be" www.cepec.ugent.be) her research focus lays on the effectiveness of persuasive communication and advertising literacy, risk and crisis communication and promoting pro-environmental behavior.

How to cite this article: D'Hooge SC, Hudders L, Cauberghe V. Direct evaluative conditioning in brand placement: The impact of scene valence and prominence on brand placement repetition effects. *J Consumer Behav*. 2017;16:452–462. https://doi.org/10.1002/cb.1647

Received: 7 September 2016 | Revised: 5 February 2017 | Accepted: 16 March 2017

DOI: 10.1002/cb.1652

WILEY

ACADEMIC PAPER

Compulsive buying behavior: Re-evaluating its dimensions and screening

Agata Maccarrone-Eaglen[1] | Peter Schofield[2]

[1] Salford Business School, University of Salford, Greater Manchester M5 4WT, UK

[2] Sheffield Business School, Sheffield Hallam University, Stoddart Building, City Campus, Howard Street, Sheffield S1 1WB, UK

Correspondence
Salford Business School, University of Salford, Greater Manchester M5 4WT, UK.
Email: A.Maccarrone-Eaglen@salford.ac.uk

Abstract

Despite the significant research in the consumer behavior literature on compulsive buying behavior (CBB), there is still no general agreement about the dimensionality or diagnostic screening of the disorder. Previous studies have identified two principal dimensions: compulsivity and impulsivity, although more recent strands of theory characterize CBB with reference to loss of self-control and behavioral addiction. This study challenges the impulsive–compulsive paradigm by validating a new model with compulsive and self-control impaired spending dimensions. The model more closely reflects the disorder's ego-dystonic character, routed in an anxiety-based reactive mechanism with uncontrollable buying and an inability to rationalize the behavior and its consequences. The study also develops and cross-validates a new seven-item CBB screening tool, using a comparative analysis with three existing screeners and an independent sample. The findings indicate that compulsive buying results from both compulsive and self-control impaired impulsive elements, which are characteristic of behavioral addiction.

KEYWORDS

compulsive purchasing, screening tool, self-control, spending

1 | INTRODUCTION

Research has shown that compulsive buying behavior (CBB) is typified by an inability to resist a strong inner urge to make repeated purchases in order to provide relief from mental disquiet (d'Astous, 1990; Dittmar, 2005; Elliott, 1994; Kwak, Zinkhan, & Lester-Roushanzamir, 2004; Lejoyeux, Tassain, & Ades, 1995; Monahan, Black, & Gabel, 1996; Roberts, Manolis, & Pulling, 2014), and it is also characterized by a loss of control over these purchasing actions (Achtziger, Hubert, Kenning, Raab, & Reisch, 2015; Baumeister, 2002; Baumeister, Sparks, Stillman, & Vohs, 2008; Schlosser, Black, Repertinger, & Freet, 1994; Tangney, Baumeister, & Boone, 2004). The underpinning psychological strain is caused by anxiety, low self-esteem (De Sarbo & Edwards, 1996; Faber & O'Guinn, 1989; Valence, d'Astous, & Fortier, 1988), shame (Yi, 2012), or a negative self-perception within a social context (Roberts et al., 2014). A number of previous studies (e.g., Faber & O'Guinn, 1992; Ridgway, Kukar-Kinney, & Monroe, 2008; Valence et al., 1988) have focused on understanding the characteristics and causes of this phenomenon and on the design of measurement instruments to screen consumers for compulsive purchasing in order to assess the extent of the problem in society. However, progress has been hampered by the conflicting theories, relating to CBB's impulsive (e.g., Shoham & Makovec Brencic, 2003) or compulsive nature (e.g., Kwak et al., 2004). These theories are reflected in the varied configurations of coexisting screening tools and the conflicting results from screening (Manolis & Roberts, 2008). This study attempts to address this issue by evaluating both CBB's theoretical dimensions and the existing screening tools in light of recent theoretical advances. It develops a new screening tool that addresses the disagreement in the literature; more specifically, it distinguishes more effectively between compulsive and non-compulsive buying and between mild and severe CBB and is applicable to services as well as products. The study then cross validates the instrument by favorably comparing its predictive validity with three existing screeners using a second, independent, sample and the same discriminating points between compulsive and non-compulsive buyers and between mild and severe cases. This is particularly valuable considering the variation in the proportion of populations affected by CBB reported in previous studies, which have used different samples, different screeners, and different discriminating criteria. This research is therefore important for the consumer behavior discipline in general and for public policy research and practice in particular because CBB is now recognized as a psychological disorder with serious long-term psychological and financial consequences (Dittmar, 2005; Frost et al., 1998) and is becoming more

widespread (Black, 2007). CBB has also been defined as a form of behavioral addiction that has psychopathological commonalities with substance abuse and other addictive behaviors (Aboujaoude, 2014; Albrecht, Kirschner, & Grusser, 2007; Andreassen, 2014; Davenport, Houston, & Griffiths, 2012; Foxall, 2008; Hartston, 2012).

2 | LITERATURE REVIEW

2.1 | Characteristics and dimensions of CBB

Compulsive purchasing has been defined as an irresistible urge to buy, a dependency on shopping, which in extreme circumstances can lead to the loss of self-control and withdrawal syndromes ranging from uneasiness to psychosomatic indisposition (Achtziger et al., 2015; Scherhorn, Reisch, & Raab, 1990). This can result in a cognitive and practical concern with buying unnecessary products to compensate for negative emotional states (Dodd, Linaker, & Grigg, 2005; Williams & Grisham, 2011) and counterbalance unmet needs and desires (Neuner, Raab, & Reisch, 2005; Thornhill, Kellett, & Davies, 2012). Compulsive consumption is also a copying mechanism for anxiety-related symptoms (Elliott, 1994), which may be caused by social pressure (Baker, Moschis, Rigdon, & Fatt, 2016). CBB is prevalent among women (Achtziger et al., 2015; Black, 2007; Dittmar, 2005; Garcia, 2007; Kilbourne & LaForge, 2010; Neuner et al., 2005) and among homosexuals (Black, Monahan, Schlosser, & Repertinger, 2001; Dodd et al., 2005). The prevalence of CBB in populations reported in previous studies indicates that it has a limited though significant impact in societies: 6% (Faber & O'Guinn, 1989), 7% (Koran, Faber, Aboujaoude, Large, & Serpe, 2006), 8.9% (Ridgway et al., 2008), 9% (Roberts & Jones, 2001), 10% (Dittmar, 2005), 15% (Yurchisin & Johnson, 2004), and 17% (Kwak et al., 2004).

Previous research suggests that CBB exhibits both compulsive and impulsive traits (Schlosser et al., 1994), although there is no clear agreement about the extent to which each dimension characterizes the disorder. Some studies have conceptualized CBB exclusively as an impulse control disorder (ICD; e.g., Shoham & Makovec Brencic, 2003). However, ICD is defined as *ego-syntonic*, that is, consistent with the individual's self-perception, and implies a degree of rationality in response to external stimuli (McElroy, Philips, & Keck, 1994). Scherhorn et al. (1990) and Shoham & Makovec Brencic (2003) refer, in particular, to in-store decision making in response to external stimuli. Hollander & Allen (2006) allege that impulsiveness in compulsive buying only relates to the initial phase of arousal, Edwards (1993) has argued that CBB is an extreme form of impulsive buying, while others state that it is a continuous and chronic failure in self-regulation and therefore much more serious than impulse buying (Faber & O'Guinn, 1992; Faber & Vohs, 2003).

CBB exhibits characteristics consistent with obsessive compulsive disorder (Frost et al., 1998; Kwak et al., 2004). In contrast to ICD, compulsive behaviors are defined as *ego-dystonic* because the intrusive, irrational thoughts and obsessions which drive compulsions are inconsistent with the individual's self-perception (McElroy et al., 1994); the compulsions enable sufferers to quickly find a cognitive solution to their anxiety igniting a reactive mechanism with an action (De Sarbo & Edwards, 1996; Elliott, 1994; Lejoyeux et al., 1995; Valence et al., 1988). Some researchers believe that there is commonality between CBB and both ICD and obsessive compulsive disorder (e.g. Ridgway et al., 2008). Valence et al. (1988) argue that a lack of self-constraint is the distinguishing characteristic between compulsive and impulsive buyers, while Rodriguez-Villarino, Gonzalez-Lorenzo, Fernandez-Gonzalez, Lameiras-Fernandez, & Foltz (2006) state that the degree of predominance of one aspect over another relates to CBB's intensity: the more afflicted have a higher grade of compulsiveness whereas the less afflicted have a higher grade of impulsiveness.

By comparison, De Sarbo & Edwards (1996) believe that CBB results from a combination of impulsive and compulsive urges and addiction. Indeed, Andreassen (2014) recently argued that shopping disorder is best understood from an addiction perspective. This view is shared by Aboujaoude, (2014), Albrecht et al. (2007), Davenport et al. (2012), and Hartston (2012) who allege that CBB is linked to specific addiction symptoms such as craving, withdrawal and loss of self-control as highlighted in previous research (Baumeister, 2002; Faber, 2004). Self-control is defined as an individual's attempts to alter their dominant response tendencies or unwanted behaviors and emotions to resist bad habits and temptations (Baumeister & Vohs, 2004; Baumeister et al., 2008; Vohs & Faber, 2007). Baumeister, Heatherton, & Tice (1994) have argued that lack of self-control is behind many disorders detailed in DSM-V (2013). Moreover, the emotional distress associated with these problems can weaken self-control by producing stressful outcomes that further reduce the individual's regulatory capacity (Tangney et al., 2004). There is empirical evidence of both individual differences in self-control capability and reduced capacity for self-control, that is, “ego depletion” with repeated acts of self-control or even more broadly after making repeated choices (Baumeister, 2002). Studies by Claes et al. (2010) and Rose (2007) have also concluded that CBB is fundamentally a self-regulatory problem. Achtziger et al. (2015) explored the links between self-control, compulsive buying and debts; they found that self-control was negatively related to debts and fully mediated by compulsive buying and that age was significantly negatively related to compulsive buying and positively linked to self-control.

2.2 | Diagnostic screening for CBB

The uncertainty about the extent to which impulsiveness, compulsiveness, and addiction underpin CBB has been debated at length (e.g., Aboujaoude, 2014; Piquet-Pessôa, Ferreira, Melca, & Fontenelle, 2014). This is reflected in both the many terms that have been given to CBB such as “shopaholism,” “impulsive buying,” and “compulsive shopping” (Aboujaoude, 2014; Andreassen, 2014) and by the variation in the instruments that have been used to screen consumers for the disorder over the past 30 years. The original screening tool, Valence et al.'s (1988) Compulsive Buying Measurement Scale, consists of 16 items, clustered into four factors: *reactive*, *tendency*, *postpurchase*, and *family influence*. The scale was tested on self-identified compulsive and non-compulsive consumers and later reduced to 13 items by one of the authors, d'Astous (1990), by eliminating the *family influence* items. Both scales have been used in several subsequent CBB studies including Albrecht et al. (2007), Clark & Calleja (2008), Dittmar

(2005), Garcia (2007), Li, Jiang, An, Shen, & Jin (2009), Neuner et al. (2005), and Rodriguez-Villarino et al. (2006).

Almost simultaneously, Faber & O'Guinn (1989) validated the Compulsive Buying Scale, consisting of 14 items with three dimensions: *obsessive compulsive tendency*, *economic issues*, *feelings*, *and attitude of the individual in relation to their buying habits*. Later, the scale was refined to a seven-item "Clinical Screener" (Faber & O'Guinn, 1992). This has also been used in subsequent studies including Davenport et al. (2012), Horvath & van Birgelen (2015), Kwak et al. (2004), Norum (2008), Park & Davies Burns (2005), Reeves, Backer, & Truluck (2012), and Roberts et al. (2014).

Ridgway et al. (2008) argue that both Faber & O'Guinn's (1989) and Valence et al.'s (1988) scales focus on impulse control and neglect the obsessive compulsive aspect of CBB, as does d'Astous' (1990) scale. They also assert that Faber & O'Guinn's (1989, 1992) screening scales include items relating to both income and the financial consequences of CBB, which, they believe should not be used to screen for CBB but instead, analyzed as independent constructs. On the basis of their critique, Ridgway et al. (2008) designed a six-item scale encompassing both the impulsive and the obsessive compulsive dimensions of the disorder, while excluding its precursors and consequences. Although based on a rigorous methodological approach, the scale focusses on purchasing material goods (referring to things, unopen purchases, and closet), hence excluding services, while some items address behaviors that are applicable to both compulsive and non-compulsive buyers such as unplanned purchases (Wood, 2005). Nevertheless, Ridgway et al.'s (2008) scale has been subsequently used in CBB studies including Kukar-Kinney, Ridgway, & Monroe (2009, 2011), Mikolajczak-Degrauwe, Brengman, Wauters, & Rossi (2012), and Young (2013).

More recent studies have been critical of Ridgway et al.'s (2008) research. Müller, Trotzke, Mitchell, de Zwaan, & Brand (2015) argue that it neglects the financial aspect of CBB, and Andreassen et al. (2015) assert that it ignores the addictive dimensions of CBB, which their Bergen Shopping Addiction Scale directly addresses: salience, mood swing, tolerance, withdrawal, conflicts, relapse, and consequences. However, it is interesting to note the similarity between Andreassen et al.'s (2015) addiction-oriented scale items and those included in the seminal works of Valence et al. (1988) and Faber & O'Guinn (1989). For example, *I shop/buy things in order to change my mood* (Andreassen et al., 2015) and *For me shopping is a way of facing the stress of my daily life and of relaxing* (Valence et al., 1988). Further, *I feel bad if for I some reason are prevented from shopping/buying things* (Andreassen et al., 2015) and *Felt anxious or nervous on days I didn't go shopping* (Faber & O'Guinn, 1989).

3 | METHOD FOR DEVELOPING THE NEW SCREENING TOOL

3.1 | Instrument design

Given the validity and wide recognition of Faber & O'Guinn's (1989) and Valence et al.'s (1988) scales, the development of Ridgway et al.'s (2008) screener based on a critique of these scales, and the similarity between items in these scales and those in later studies (e.g., Andreassen et al., 2015), the items from these three tools formed the basis of the item pool for this study. Items from other sources were also added in an attempt to develop an enhanced screener for CBB, which captured all relevant aspects of the disorder. Items measuring feelings of power or being in control of one's own life (De Sarbo & Edwards, 1996), feelings of regret (Black, 2001; Krueger, 1988), feelings of pleasure in the act of buying (Clark & Calleja, 2008; Krych, 1989; Roberts & Jones, 2001), and irresistibly purchasing goods for no reason (Clark & Calleja, 2008; Lejoyeux, Tassain, Solomon, & Ades, 1997) were included. Additionally, measures of CBB's antecedents and consequences were retained in the item pool despite representing "indirect measures" (Ridgway et al., 2008; Achtziger et al., 2015) because recent studies (Andreassen et al., 2015; Müller et al., 2015) have endorsed their effectiveness to screen for the disorder. Measures of self-control impairment were also included, for example, *I have often bought a product that I did not need, while knowing that I have very little money left* (Valence et al., 1988) and *I often buy things even though I can't afford them* (Faber & O'Guinn, 1989). These are similar to the items relating to lack of self-control used by Tangney et al. (2004): *Sometimes I can't stop myself from doing something, even if I know it is wrong*. Items relating to addiction were also included, for example, *Felt anxious or nervous on days I didn't go shopping* (Faber & O'Guinn, 1989).

Forty screening items were included in a questionnaire survey, including measures of impulsivity, compulsivity, loss of self-control, and addiction in line with current theory relating to CBB. All items, presented in 5-point disagreement/agreement scales, underwent a rigorous evaluation process to ensure that each one was clearly understood by respondents and free from misinterpretation. The reliability pre-test of the items included a protocol analysis (Babbie, 2010; Robson, 2003) with four individuals and a pilot test with 18 respondents. The key issues from the pre-tests and the subsequent modification of the items relate to issues of consistency of item presentation in the present tense, clarification of item content, and updating the language (e.g., changing *spendthrift* into *reckless spender*).

3.2 | Study participants

Given the incidence of CBB in society, a random sample of the general population would be unlikely to produce sufficient numbers of respondents. Young adults have a higher prevalence of CBB compared with older age groups (Achtziger et al., 2015; Neuner et al., 2005; Ridgway et al., 2008; Roberts & Roberts, 2012). Compulsive buyers also tend to have lower incomes than non-compulsive buyers (Koran et al., 2006; Maraz, Van den Brink, & Demetrovics, 2015). On this basis and in line with other CBB studies (e.g., Manolis & Roberts, 2008; Mowen & Spears, 1999; Ridgeway et al., 2008), a sample of university students, 90.7% of whom were aged between 18 and 34 years, was taken to reflect compulsive buyers' demographic and economic characteristics. Twenty-two thousand subjects were invited by e-mail to complete an online survey, which produced 1,711 responses (7.7%). However, 722 of these were discarded either due to incompleteness (11%) or to achieve a high level of cultural homogeneity in the sample: 49% were non British; 40% were not students. The final sample of 989 provided a high level of homogeneity and

confidence (97%) in the sample quality with a 3 to 3.5% error margin (De Vaus, 2002). Additionally, each gender cluster: 345 males (34.9%) and 644 females (65.12%) separately provided a good level of confidence above 95% (sampling error < 5%), recommended by Field (2009). The non-British student respondents to the survey (n = 372) were used to cross validate the proposed new screener in comparison with three extant screening tools (Faber & O'Guinn, 1989; Ridgway et al., 2008; Valence et al., 1988). This second sample consisted of students from a wide range of nationalities, aged between 18 and 34 years; 166 (44.6%) were male and 206 (55.4%) were female.

4 | RESULTS

4.1 | Examining the dimensionality of CBB

The dimensionality of CBB was examined using exploratory (EFA) and confirmatory factor analyses (CFA) with SPSS Version 22 and AMOS Version 22, respectively. The EFA produced a three-dimensional model of CBB and, on the basis of a thematic analysis of items loading on each factor, the dimensions were labelled *Impulsive Purchasing* (α = .86), *Self-control Impaired Spending* (SIS; α = .87), and *Compulsive Purchasing* (CP; α = .87). CFA was used to test the factorial validity of the model (Figure 1). the results show that even after three error covariances were added, the model fit was still unsatisfactory: minimum discrepancy divided by its degree of freedom (CMIN/DF) = 5.69, root mean square residual (RMR) = .5, adjusted goodness-of-fit index (AGFI) = .93, normed fit index (NFI) = .96, Tucker-Lewis index (TLI) = .95, comparative fit index (CFI) = .96, root mean square error of approximation (RMSEA) = .07 (Blunch, 2011; Schumacker & Lomax, 2010).

Two possible reasons were identified; first, two of the items loading on the IP dimension: *I buy things I don't need and I buy things I don't plan to buy* were, on reflection, also considered to be relevant for non-compulsive purchasers, therefore, these items may have been given high scores by non-compulsive purchasers who were buying unnecessary or unplanned goods (Wood, 2005). Second, the two items: *I consider myself an impulse purchaser* and *I am often impulsive in my buying behavior* have similar meanings; it is, therefore, possible that their values were polarized, distorting the model. The items: *Others might consider me a shopaholic* (CP) and *If any money is left at the end of the pay period, I just have to spend it* (SIS) were removed in an effort to improve the model fit and provide a more parsimonious solution, but the model fit was still unsatisfactory.

In Ridgway et al.'s (2008) study, the impulsive dimension consisted of the items: *I consider myself an impulse purchaser*, *I buy things I did not plan to buy*, and *I buy things I don't need*. Therefore, in considering possible alternative model re-specifications, it was thought that these three items may behave in the same way without Valence et al.'s (1988) variable *I am often impulsive in my buying behavior*. Additionally, the latter variable could be substituted for *I consider myself an impulse purchaser*, given their similarity. Therefore, two alternative models were examined: EFA*a* included *I am often impulsive in my buying behavior* from Valence et al. (1988), whereas EFA*b* used *I consider myself an impulse purchaser* from Ridgway et al. (2008); all other items were identical in both models. Both EFA *a* and *b* produced two-dimensional solutions, explaining 70% of the variance in the data in model *a* and 71% in model *b*.

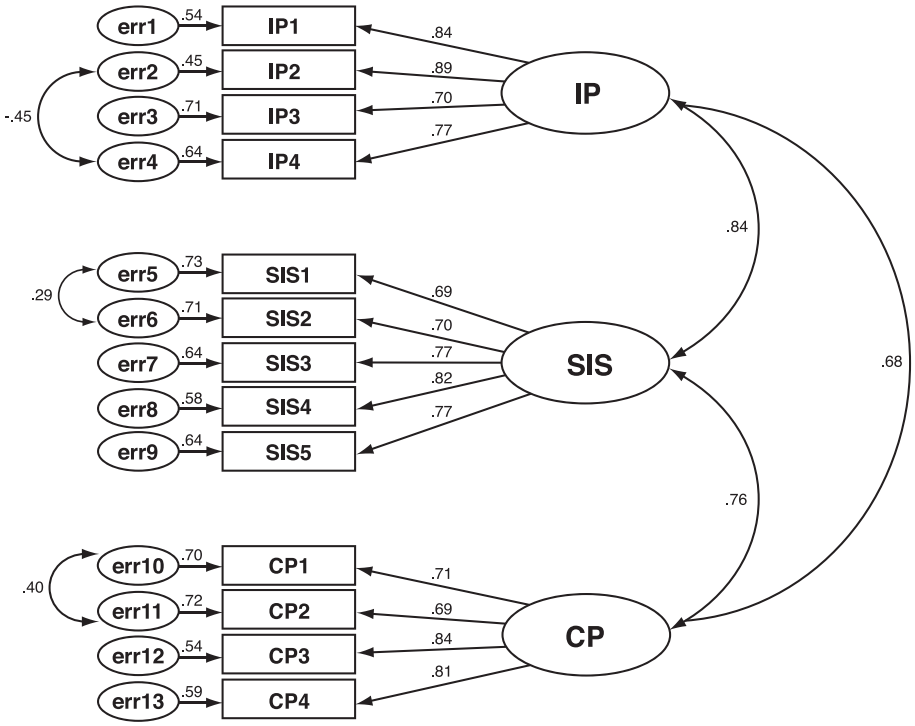


FIGURE 1 CBB (compulsive buying behavior) first-order measurement model. IP = Impulsive Purchasing; SIS = Self-control Impaired Spending; CP = Compulsive Purchasing

4.2 | Validating the two-dimensional CBB model with CFA

Models *a* and *b* were then subjected to CFA. Model *a* (Figure 2) produced the best fit: CMIN/DF = 1.51, RMR = .02, AGFI = .98, NFI = .99, TLI = .99, CFI = .99, RMSEA = .02. Moreover, the convergent and discriminant validity test statistics confirmed the model's legitimacy; for SIS, composite reliability (CR) = 0.85, average variance extracted (AVE) = 0.58, maximum shared variance (MSV) = 0.57, and average shared variance (ASV) = 0.57; for CP, CR = 0.83, AVE = 0.62, MSV = 0.57, and ASV = 0.57. A second-order structural model was used to test the extent to which the dimensions of Model *a* have CBB as a common causality (Figure 3). The model fit statistics were excellent: CMIN/DF = 1.51, RMR = .02, AGFI = .98, NFI = .99, TLI = .99, CFI = .99, RMSEA = .02. The convergent validity statistics were also good: for SIS, CR = .85, AVE = .58; for CP, CR = .83, AVE = .62; for CBB, CR = .86, AVE = .76. The result indicates that the two dimensions have a significant, substantial influence on CBB (SIS: .85; CP: .89). On this basis, seven items were included in the final version of the proposed new two-dimensional CBB screening scale (Table 1). The screener's nomological validity was also established and compared with that of the other three screeners used in this study. First, compulsive buying indexes (CBI)s were developed for each scale by aggregating respondent ratings on their respective items; second, the indexes were correlated with measures of different but related constructs, which were theoretically predicted to produce (a) high positive, (b) medium positive, and (c) low negative correlations, respectively. The results in Table 2 indicate that although the Ridgway et al. (2008) and Valence et al. (1988) scales produced high and medium positive correlations in line with theoretical expectations, they produced non-significant low negative correlations. The Faber & O'Guinn (1992) scale produced lower than theoretically predicted high and medium positive correlations and a notably higher than predicted low negative correlation with the third construct. This demonstrates that the new screener is more theoretically coherent than the other three.

4.3 | Validating the screener with an independent data set

The screening tool was tested with the second sample of non-British students (n = 372). First, the model was tested on the new data set using CFA. This produced a good fit: CMIN/DF = 2.09, RMR = .04, AGFI = .96, NFI = .97, TLI = .98, CFI = .98, RMSEA = .05, indicating that the CBB construct has external validity. Second, the screener was used to identify compulsive buyers in the new sample. Previous studies have used an arbitrary discriminant point (e.g., Faber & O'Guinn, 1989; Valence et al., 1988) or a fixed discriminant point (e.g., Ridgway et al., 2008), but this ignores the staged development of CBB (Clark & Calleja, 2008; De Sarbo & Edwards, 1996; Edwards, 1993). Therefore, two (low and high) groups of compulsive buyers were identified, based on two CBIs calculated from respondents' scores on the 5-point agreement scales for each of the screener's seven items. The low level CBI was derived from an aggregate score of 3 (middle point of Likert scale) × 7 screener items (21) plus 1 (22) and represents a minimum discriminant point to distinguish between compulsive and non-compulsive buyers. The high level CBI was derived from an aggregate score of 4 × 7 items (28) plus 1 (29); 35 (5 × 7) being the maximum score. Respondents who scored between

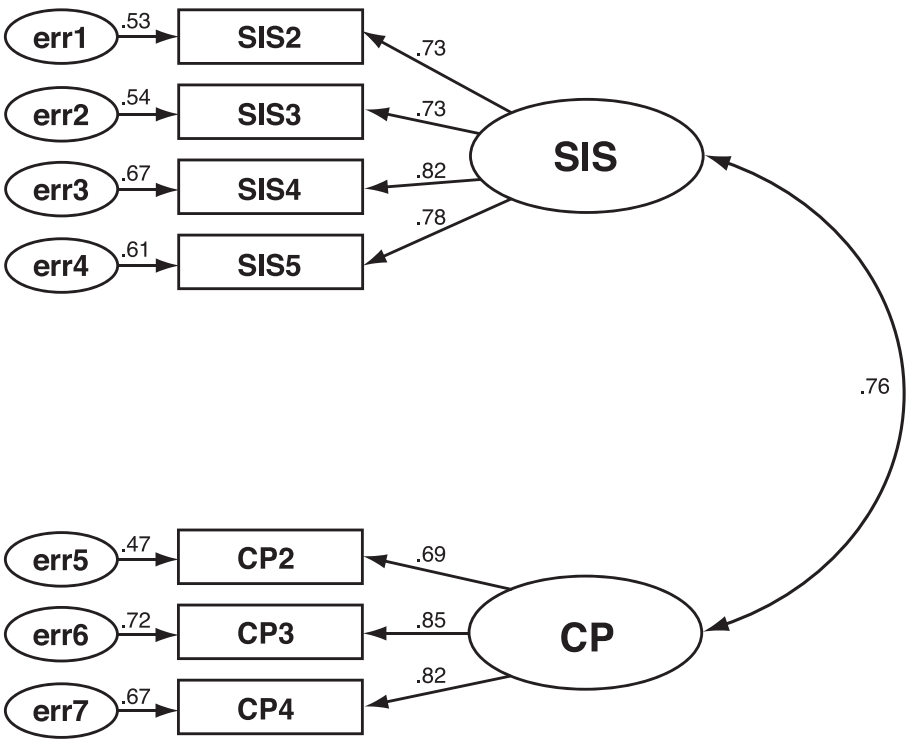


FIGURE 2 CBB (compulsive buying behavior) first-order measurement model *a*. SIS = Self-control Impaired Spending; CP = Compulsive Purchasing

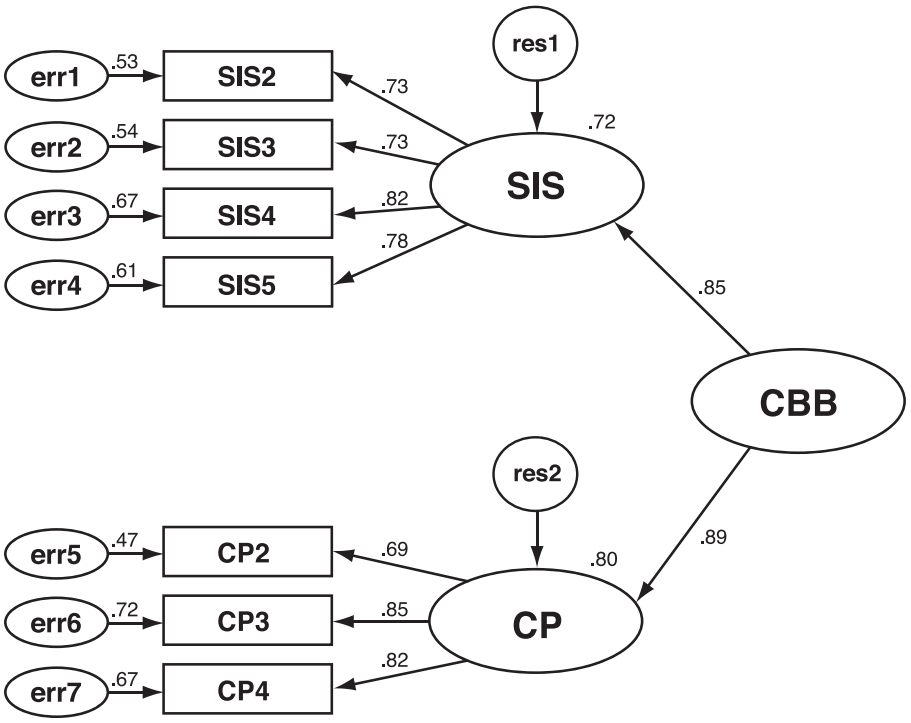


FIGURE 3 CBB (compulsive buying behavior) two-dimensional structural model. SIS = Self-control Impaired Spending; CP = Compulsive Purchasing

TABLE 1 New screener for compulsive buying behavior

Compulsive buying dimensions and scale items
Self-control Impaired Spending (SIS)
• I have often bought a product that I did not need, while knowing that I have very little money left (Valence et al., 1988).
• I am a reckless spender (originally "I am a spendthrift" from Valence et al., 1988).
• I often buy things even though I can't afford them (Faber & O'Guinn, 1989).
• When I have money, I cannot help but spend part or the whole of it (Valence et al., 1988).
Compulsive Purchasing (CP)
• Much of my life centers around buying things (Ridgway et al., 2008).
• For me, shopping is a way of facing the stress of my daily life and relaxing (Valence et al., 1988).
• I sometimes feel that something inside pushes me to go shopping (Valence et al., 1988).

22 and 28 were categorized as having a low level of CBB whereas those scoring between 29 and 35 were categorized as exhibiting a high level of compulsivity.

The screening of the 372 subjects in the sample identified 54 (14.52%) with low (mild) levels of CBB and seven (1.88%) with high (severe) levels of CBB. The use of low and high values provides a more comprehensive picture of the distribution of the disorder in comparison with previous studies, which have produced only one figure for the proportion of compulsive buyers in samples: 6% (Faber & O'Guinn, 1989), 7% (Koran et al., 2006), 8.9% (Ridgway et al., 2008), 9% (Roberts & Jones, 2001), 10% (Dittmar, 2005), 15% (Yurchisin & Johnson, 2004), and 17% (Kwak et al., 2004). The results from this research may indicate that previous studies have underestimated low levels of compulsivity and/or overestimated high levels of CBB. However, a direct comparison with previous research is difficult because of the differences in screening tool items focusing

TABLE 2 Screeners' nomological validity comparison

	Proposed screener	Ridgeway et al. (2008)	Faber & O'Guinn (1992)	Valence et al. (1988)
1. I shop for long periods of time	.55*	.54*	.41*	.54*
2. My urge to buy is often associated with adverts I have seen on TV, newspapers, or the Internet	.33*	.30*	.24*	.38*
3. I always pay off my credit card(s) debts at the end of each month	−.18*	$-.08^{ns}$	−.33*	$-.11^{ns}$

Notes. *Significant at the 0.01 level (two-tailed), ^{ns}nonsignificant.

1. A common trait of compulsive buyers (Edwards, 1993; McElroy et al., 1994)—Expected correlation: High/Positive.

2. Although the urge to buy is triggered by an inner need, it is possible that to a certain extent, advertisements feed a cognitive and subconscious evaluation of the self (Kwak et al., 2004; Valence et al., 1988)—Expected correlation: Medium/Positive.

3. Compulsive buyers make excessive use of their credit cards (d'Astous, 1990; Dittmar, 2005)—Expected correlation: Low/Negative.

on different aspects of the disorder, different methods for determining discriminant points, and cultural differences between the samples. Nevertheless, the results in Table 3 are consistent with previous studies in regard to identifying a higher incidence of CBB among females (e.g., d'Astous, 1990; Ridgway et al., 2008; Shoham & Makovec Brencic, 2003). CBB incidence among gender subgroups by age categories is shown in Tables 4 and 5, for females and males, respectively. The decline in the prevalence of CBB with age is both non-linear and gender specific.

Using the new sample, the proposed screener was also compared directly with Ridgway et al.'s (2008), Faber & O'Guinn's (1992), and Valence et al.'s (1988) screening tools, while adopting the two discriminant points for low and high levels of CBB (Table 6). The new screener identified significantly more cases of CBB than Faber & O'Guinn's (1992) screener, which was to be expected given the lower incidence of CBB in previous studies which used Faber & O'Guinn's (1992) tool, for example, 9% (Roberts & Jones, 2001). However, it is interesting that it identified a similar proportion of cases to Ridgway et al. (2008) screener (which detected 8.9% in their study) and significantly less than Valence et al. (1988) screener, which also identified a lower percentage of CBB incidence in previous studies (e.g., Garcia, 2007: 5.8%). The comparison with Valence et al.'s (1989) screener is particularly interesting given that five of the new screener's seven items were sourced from the former. This pattern is consistent across the four screeners for the identification of low level (mild) CBB cases but inconsistent for the high level CBB cases; the proposed new screener identified the highest number of high level (severe) cases, 11.50% of all CBB cases it identified, compared with 9.43% (Ridgway et al., 2008) and 4.82% (Valence et al., 1989). Faber & O'Guinn's (1992) Clinical Screener failed to identify any severe cases. It is interesting to note the high number of mild cases detected by all of the screeners compared with the number of severe cases. This may indicate that only a small proportion of mild cases develop further, but because most CBB research is based on cross-sectional studies, little is known about the directionality of these relationships (Lieb, 2015; Müller et al., 2014).

To further investigate the discrepancy between the results obtained from the four screeners and to facilitate an evaluation of the proposed screener's discriminant validity, a severe CBB case identification comparison among the screeners was conducted (Table 7). It is notable that cases 135 and 201 were identified as severe by two of the screeners and only cases 73 and 372 were identified as severe by three of the screeners. Case 372 was identified by Faber & O'Guinn (1989) as being mild, but the Clinical Screener failed to identify any severe cases. This may have resulted from its inclusion of items relating to the antecedents and consequences of CBB, which have diluted its screening power. From the seven severe cases identified by the proposed new screener, cases 53, 135, 167, and 194 were identified as mild by Valence et al.' s (1988) scale and cases 53, 167, and 201 were identified as mild by Ridgway et al.'s (2008) screener. The reduced screening ability of these two scales could be attributed to their inclusion of items designed to identify impulsivity rather than loss of self-control. The high level of compulsive consumers in the sample identified by the proposed screener compared with the other instruments is consistent with the beliefs of other researchers (e.g., Müller & de Zwaan, 2004; Ridgway et al., 2008) that CBB incidence is higher than prior estimates. Overall, this indicates that the new screener may discriminate more effectively between mild

TABLE 3 Cases of compulsive buying behavior by gender

	Female (*n* = 206)		Male (*n* = 166)		Total (*n* = 372)	
	n	%	*n*	%	*n*	%
Mild CBB	35	16.99	19	11.45	54	14.52
Severe CBB	5	2.43	2	1.02	7	1.88
Total	40	19.41	21	12.65	61	16.40

Note. CBB = compulsive buying behavior.

TABLE 4 Cases of compulsive buying behavior among females by age

	Age 18–24 (*n* = 134)		Age 25–34 (*n* = 57)		Age 35–44 (*n* = 14)		Age 45–54 (*n* = 1)	
	n	%	*n*	%	*n*	%	*n*	%
Mild CBB	27	20.15	6	10.53	1	7.14	1	100
Severe CBB	3	2.24	2	3.51	-	-	-	-
Total	30	22.39	8	14.04	1	7.14	1	100

Note. CBB = compulsive buying behavior.

TABLE 5 Cases of compulsive buying behavior among males by age

	Age 18–24 (*n* = 94)		Age 25–34 (*n* = 52)		Age 35–44 (*n* = 15)		Age 45–54 (*n* = 5)	
	n	%	*n*	%	*n*	%	*n*	%
Mild CBB	11	11.70	6	11.54	1	6.67	1	20.00
Severe CBB	1	1.06	1	1.92	-	-	-	-
Total	12	12.77	7	13.46	1	6.67	1	20.00

Note. CBB = compulsive buying behavior.

TABLE 6 Comparison of CBB incidence identified by the screening tools

	Proposed screener		Ridgway et al. (2008)		Faber & O'Guinn (1992)		Valence et al. (1988)	
	n	%	*n*	%	*n*	%	*n*	%
Mild CBB	54	14.5	48	12.9	17.0	4.60	79	21.2
Severe CBB	7	1.9	5	1.3	-	-	4	1.1
Total CBB	61	16.40	53	14.25	17.0	4.60	83	22.31

Note. CBB = compulsive buying behavior.

TABLE 7 Comparison of severe CBB cases identified by the screening tools

Proposed screener	Ridgway et al. (2008)	Faber & O'Guinn (1992)	Valence et al. (1988)
53	-	-	-
73	73	-	73
135	135	-	-
167	-	-	-
194	-	-	-
201	-	-	201
-	204	-	-
-	239	-	-
-	-	-	312
372	372	-	372

and severe cases of CBB and possibly between non-compulsive and mild CBB cases, although further testing is needed to verify the findings.

5 | DISCUSSION AND CONCLUSIONS

5.1 | Dimensions of CBB

The study has identified two dimensions of CBB: SIS and CP while the *Impulsive Dimension* (IP) is not directly represented in the model despite including all of the items relating to impulsiveness from earlier screeners in the study's item pool. The SIS dimension therefore challenges the strand of current theory, which alleges that CBB is embedded in the locus of control caused by impulsivity (Edwards, 1993; Ridgway et al., 2008; Shoham & Makovec Brencic, 2003). Instead, CBB's impulsive dimension is represented indirectly through the SIS dimension because self-control represents the capacity to resist temptations, purchases, and other expenditures that are likely to be regretted (Baumeister, 2002). The SIS dimension underlines the importance of self-control deficiency in CBB (Achtziger et al., 2015; Baumeister, 2002; Baumeister et al., 1994; Baumeister et al., 2008; Claes et al., 2010; Rose, 2007; Tangney et al., 2004; Vohs & Faber, 2007). The confirmation of SIS alongside CP rather than an *Impulsive Purchasing* dimension is therefore significant. Individual differences in consumer spending self-control influence different interpretations of external stimuli and considerations of the consequences of their behavior (Haws, Bearden, & Nenkov, 2012); this indicates that the screening of CBB may not be adequately undertaken by using items addressing general ideas of impulsivity (Wood, 2005). The SIS dimension supports the argument that CBB relates more closely to conditions that are characterized by impaired self-control and suggests that impulse purchasing may be indirectly rather than directly linked with CBB, in that loss of spending self-control increases an individual's vulnerability to external stimuli (Baumeister, 2002). Moreover, the notion of self-control impairment also resonates with CBB's *ego-dystonic* character in contrast to ICD's *ego-syntonic* traits (McElroy et al., 1994) in that the act of spending is a form of compensation for an inner imbalance and an apparent solution to anxiety (De Sarbo & Edwards, 1996; Lejoyeux et al., 1997; Scherhorn et al., 1990; Valence et al., 1988). The SIS dimension therefore supports the view that CBB is a continuous and chronic failure in self-regulation, exacerbated by CP (Faber & O'Guinn, 1992; Faber & Vohs, 2003). This dimension also resounds with both recent definitions of CBB as a form of behavioral addiction and its links with other addictive behaviors (Aboujaoude, 2014; Albrecht et al., 2007; Andreassen, 2014; Black, 2007; Davenport et al., 2012; Foxall, 2008; Hartston, 2012; Workman & Paper, 2010). Addictive behaviors may be related to individual differences in psychological distress such as anxiety, which has often been associated with shopping addiction (Maraz et al., 2015; Otero-Lopez & Villardefrancos, 2014; Roberts et al., 2014).

The SIS dimension is twinned with a CP dimension, which reflects the disorder's characteristic obsession with buying (*Much of my life centers around buying things*) and a compulsion from within (*I sometimes feel that something inside pushes me to go shopping*) activated by the need to release psychological strain (*For me, shopping is a way of facing the stress of my daily life and relaxing*) as explained by Valence et al. (1988). The last item also reflects the addictive aspect of CBB in terms of salience of dependency to buy for mood modification (Andreassen et al., 2015). The CP and SIS dimensions of CBB are inextricably linked. The obsessive compulsion to buy is provoked by anxiety, which elicits an action to release the tension it causes (Aardema & O' Connor, 2003, 2007; Christenson et al., 1994; Faber & O'Guinn, 1989, 1992; Lejoyeux et al., 1997), and without the ability to self-control through the allocation of self-regulatory resources, the individual is unable to rationalize the consequences of their behavior or resist the compulsion to buy in order to release their inner tension. The two-dimensional model therefore suggests that the uncontrollable motivation to buy (Andreassen, 2014) results from the combination of both compulsive and self-control impaired impulsive elements, which are characteristic of behavioral addiction.

5.2 | A new screening tool for "compulsive" purchase behavior

The evaluation of previous CBB screeners showed that they have failed to discriminate effectively between compulsive and non-compulsive behavior in relation to the impulsive items. On the basis of this analysis, the study makes a methodological contribution in the form of the new screener, which focusses on compulsive purchase behavior. Seven items used in previous screening tools and related to the core traits and key mechanism of CBB including its addictive character (albeit limited), while excluding items relating to the antecedents or consequences of CBB and non-compulsive consumer buying behavior, were found to be effective in screening for the disorder. No items from later studies in the literature, which were included in the questionnaire survey, survived the scale development process to be included in the new screener. The seven-item construct has high levels of both internal consistency and construct validity. The model and screener were also tested using an independent data set. The relatively high level of compulsive consumers identified by the proposed new screener is consistent with the beliefs of

other researchers regarding CBB levels (Müller & de Zwaan, 2004; Ridgway et al., 2008). The high prevalence of CBB among females and the decline in the prevalence of CBB with age are also consistent with the findings from previous research (d'Astous, 1990; Davenport et al., 2012; Maraz et al., 2015; Ridgway et al., 2008; Shoham & Makovec Brencic, 2003). In addition, the comparative analysis of the four screening tools, using individual cases identified as having high levels of CBB, indicates that the proposed new screener may discriminate more effectively between mild and severe cases of CBB and possibly between non-compulsive and mild compulsive cases, although further testing of the model, as outlined below, is required to verify the findings.

The study's adoption of two discriminating points to identify consumers with low and high levels of CBB is also important because of the staged development of the disorder (Clark & Calleja, 2008; De Sarbo & Edwards, 1996; Edwards, 1993) and/or different levels of CBB severity relating to individual differences in consumer spending self-control (Haws et al., 2012) and different self-esteem perceptions (Andreassen et al., 2015). The results suggest that previous studies may have underestimated low severity and/or developing cases. Distinguishing between low and high levels of CBB is also important in relation to gender because the ratio of female to male CBB prevalence was found to be 1.8:1 in the low-level CBB category, but 2.5:1 in the high level category. This indicates that women are generally more susceptible to CBB and less resistant to its development into a more serious condition.

The study of CBB determinants, dimensions, and distribution is critically important to advance the understanding of this particular aspect of consumer behavior and how to address it. Therefore, this study, focusing on the core characteristics of the disorder, could provide improved opportunities for more effective diagnosis and intervention, which is important given the profound and potentially devastating financial consequences of compulsive spending. The brevity of the seven-item screener also means it can be included in time-limited surveys (Koronczai et al., 2011). The research therefore has important practical implications.

5.3 | Limitations and recommendations for further research

This study builds on and refines previous knowledge on CBB to make a theoretical and methodological contribution to the consumer behavior literature and provides a foundation for further study of the disorder; however, it has a number of limitations. The two-dimensional CBB model and screener were based on an evaluation and subsequent testing of 40 items from a number of widely recognized scales (primarily Faber & O'Guinn, 1989; Ridgway et al., 2008; Valence et al., 1988) and other studies (Black, 2001; Clark & Calleja, 2008; De Sarbo & Edwards, 1996; Krueger, 1988; Krych, 1989; Roberts & Jones, 2001). Although these studies included some scale items that addressed more recent strands of CBB theory relating to loss of self-control (Achtziger et al., 2015; Baumeister, 2002; Baumeister et al., 2008; Schlosser et al., 1994; Tangney et al., 2004) and behavioral addiction (Aboujaoude, 2014; Albrecht et al., 2007; Andreassen, 2014; Davenport et al., 2012; Hartston, 2012), they were given much less emphasis. Therefore, although the results in the current study reflect the prominence of self-control impairment and the addictive characteristics of CBB, and the study acknowledges the importance of more recent research on these aspects of the disorder, future research on CBB should place further emphasis on these characteristics in the design of screening tools.

The samples used in the study reflect the age, gender, and income characteristics of compulsive consumers and are comparable with previous CBB studies, which are subject to similar sampling constraints because of the nature of the topic. Nevertheless, the participants may be better educated than typical compulsive shoppers (Black, 2007; Davenport et al., 2012; Maraz et al., 2015), and as such, the proportion of compulsive buyers identified in the samples cannot be generalized because the variation in lifestyles may reflect different levels of anxiety and self-control. In addition, although the study reflects previous research in its cross-sectional design, the temporal dimension of CBB has been neglected in that the development of the disorder among participants over time has not been examined. Longitudinal designs are therefore needed both with a sample from the general population and with individuals fitting the clinical category of compulsive buyers, although this would be problematic if not impractical. However, given the need for further comparative analysis of the screeners to establish the external validity of the new instrument, future research should attempt to obtain a larger, more diverse sample of consumers, notwithstanding the constraining characteristics of CBB research outlined above. This additional evaluation of the scales should include testing on a sample of known compulsive buyers to establish if the new screener identifies any false–positive cases and compare the results with those from the other three scales.

Moreover, the current study has not addressed the link between CBB and consumer personality traits. Following work by Mikolajczak-Degrauwe et al. (2012), Andreassen et al. (2013), and Thompson & Prendergast (2015), the positive links between CBB and both extroversion and neuroticism could be examined further in future research.

REFERENCES

Aardema, F., & O' Connor, K. P. (2003). Seeing white bears that are not there: Inference processes in obsessions. *Journal of Cognitive Psychotherapy*, *17*(1), 23–37.

Aardema, F., & O' Connor, K. P. (2007). The menace within: Obsessions and the self. *International Journal of Cognitive Therapy*, *21*(3), 182–197.

Aboujaoude, E. (2014). Compulsive buying disorder: A review and update. *Current Pharmaceutical Design*, *20*, 4021–4025.

Achtziger, A., Hubert, M., Kenning, P., Raab, G., & Reisch, L. (2015). Debt out of control: The links between self-control, compulsive buying, and real debts. *Journal of Economic Psychology*, *49*, 141–149.

Albrecht, U., Kirschner, N. E., & Grusser, S. M. (2007). Diagnostic instruments for behavioral addiction: An overview. *GMS Psycho-Social-Medicine*, *4*, ISNN1860-5214.

Andreassen, C. S. (2014). Shopping addiction: An overview. *Journal of Norwegian Psychological Association*, *51*, 194–209.

Andreassen, C. S., Griffiths, M. D., Gjertsen, S. R., Krossbakken, E., Kvam, S., & Pallesen, S. (2013). The relationship between behavioral addictions and the five-factor model of personality. *Journal of Behavioral Addiction*, *2*, 90–99.

Andreassen, C. S., Griffiths, M. D., Pallesen, S., Bilder, R. M., Torsheim, T., & Aboujaoude, E. (2015). The Bergen shopping addiction scale: Reliability and validity of a brief screening test. *Frontiers in Psychology*, *6*, 1–11.

Babbie, E. (2010). *The practice of social research*. Wadworth: Belmont, USA.

Baker, A. M., Moschis, G. P., Rigdon, E. E., & Fatt, C. K. (2016). Linking family structure to impulse-control and obsessive-compulsive buying. *Journal of Consumer Behaviour*, *15*, 291–302.

Baumeister, R. F. (2002). Yielding to temptation: Self-control failure, impulse purchasing and consumer behaviour. *Journal of Consumer Research*, *28*(4), 670–676.

Baumeister, R. F., Heatherton, T. F., & Tice, D. M. (1994). *Losing control: How and why people fail at self-regulation*. San Diego, CA: Academic Press.

Baumeister, R. F., Sparks, E. A., Stillman, T. F., & Vohs, K. D. (2008). Free will in consumer behavior: Self-control, ego depletion, and choice. *Journal of Consumer Psychology*, *18*(1), 4–13.

Baumeister, R. F., & Vohs, K. D. (2004). *Handbook of self-regulation: Research, theory, and applications*. New York: Guilford Press.

Black, D. W. (2001). Compulsive buying disorder: Definition, assessment, epidemiology and clinical management. *CNS Drugs*, *15*(1), 17–27.

Black, D. W. (2007). A review of compulsive buying disorder. *World Psychiatry*, *6*(1), 14–18.

Black, D., Monahan, P., Schlosser, S., & Repertinger, S. (2001). Compulsive buying severity: An analysis of compulsive buying scale results in 44 subjects. *The Journal of Nervous and Mental Disease*, *189*(2), 123–126.

Blunch, N. J. (2011). *Introduction to structural equation modelling using SPSS and AMOS*. London: Sage.

Christenson, G. A., Faber, R. J., de Zwaan, M., Raymond, N. C., Specker, S. M., Ekern, M. D., … Mitchell, J. E. (1994). Compulsive buying: Descriptive characteristics and psychiatric comorbidity. *Journal of Clinical Psychiatry*, *55*(1), 5–11.

Claes, L., Bijttebier, P., Van Den Eynde, F., Mitchell, J. E., Faber, R., de Zwaan, M., & Mueller, A. (2010). Emotional reactivity and self-regulation in relation to compulsive buying. *Personality and Individual Differences*, *49*, 526–530.

Clark, M., & Calleja, K. (2008). Shopping addiction: A preliminary investigation among Maltese university students. *Addiction Research and Theory*, *16*(6), 633–649.

d'Astous, A. (1990). An enquiry into the compulsive side of 'normal' consumers. *Journal of Consumer Policy*, *13*(1), 15–31.

Davenport, K., Houston, J. E., & Griffiths, M. D. (2012). Excessive eating and compulsive buying behaviors in women: An empirical pilot study examining reward sensitivity, anxiety, impulsivity, self-esteem and social desirability. *International Journal of Mental Health and Addiction*, *10*, 474–489.

De Sarbo, W. S., & Edwards, E. A. (1996). Typologies of compulsive buying behavior: A constrained clusterwise regression approach. *Journal of Consumer Psychology*, *5*(3), 231–262.

De Vaus, D. (2002). *Surveys in social research*. Oxon: Routledge.

Dittmar, H. (2005). Compulsive buying—A growing concern? An examination of gender, age, and endorsement of materialistic values as predictors. *British Journal of Psychology*, *96*(4), 467–491.

Dodd, C. A., Linaker, A., & Grigg, N. P. (2005). He's gotta give it: Shopping dependence and the homosexual male clothing consumer. *Journal of Consumer Behaviour*, *4*(5), 374–389.

DSM-V, Diagnostic and Statistical Manual of Mental Disorders (2013). *Fifth Edition (DSM-V)*. Arlington, VA: American Psychiatric Association.

Edwards, E. A. (1993). Development of a new scale for measuring compulsive buying behavior. *Financial Counselling and Planning*, *4*, 67–85.

Elliott, R. (1994). Addictive consumption: Function and fragmentation in postmodernity. *Journal of Consumer Policy*, *17*(2), 159–179.

Faber, R. J. (2004). Self-control and compulsive buying. In T. Kasser, A. Kanner, & D. Allen (Eds.), *Psychology and consumer culture: The struggle for a good life in a materialistic world* (pp. 169–187). Washington DC: American Psychological Association.

Faber, R. J., & O'Guinn, T. C. (1989). Classifying compulsive consumers: Advances in the development of a diagnostic tool. *Advances in Consumer Research*, *16*(1), 738–744.

Faber, R. J., & O'Guinn, T. C. (1992). A clinical screener for compulsive buying. *Journal of Consumer Research*, *19*(3), 459–469.

Faber, R. J., & Vohs, K. D. (2003). Self-regulation and impulsive spending patterns. *Advances in Consumer Research*, *30*(1), 125–126.

Field, A. (2009). *Discovering statistics using SPSS*. London: Sage.

Foxall, G. R. (2008). Reward, emotion and consumer choice: From neuroeconomics to neurophilosophy. *Journal of Consumer Behaviour*, *7*, 368–396.

Frost, R. O., Kim, H. J., Morris, C., Bloss, C., Murray-Close, M., & Steketee, G. (1998). Hoarding, compulsive buying and reasons for saving. *Behaviour Research and Therapy*, *36*(7/8), 657–664.

Garcia, I. (2007). Compulsive buying: An irresistible impulse or a reflection of personal values? *Revista de Psicologia Social*, *22*(2), 125–136.

Hartston, H. (2012). The case for compulsive shopping as an addiction. *Journal of Psychoactive Drugs*, *44*(1), 64–67.

Haws, K. L., Bearden, W. O., & Nenkov, G. Y. (2012). Consumer spending self-control effectiveness and outcome elaboration prompts. *Journal of the Academy of Marketing Science*, *50*(5), 695–710.

Hollander, E., & Allen, A. (2006). Is compulsive buying a real disorder, and is it really compulsive? *The American Journal of Psychiatry*, *163*(10), 1670–1672.

Horvath, C., & van Birgelen, M. (2015). The role of brands in the behavior and purchase decisions of compulsive versus non compulsive buyers. *European Journal of Marketing*, *49*(1/2), 2–21.

Kilbourne, W. E., & LaForge, M. C. (2010). Materialism and its relationship to individual values. *Psychology and Marketing*, *27*(8), 780–798.

Koran, L. M., Faber, R. J., Aboujaoude, E., Large, M. D., & Serpe, R. T. (2006). Estimated prevalence of compulsive buying behavior in the United States. *The American Journal of Psychiatry*, *163*(10), 1806–1812.

Koronczai, B., Urbán, R., Kökönyei, G., Paksi, B., Papp, K., Kun, B., … Demetrovics, Z. (2011). Confirmation of the three-factor model of problematic internet use on off-line adolescent and adult samples. *Cyberpsychoogy Behavior and Social Networking*, *14*, 657–664.

Krueger, D. W. (1988). On compulsive shopping and spending: A psychodynamic inquiry. *American Journal of Psychotherapy*, *17*(4), 574–584.

Krych, R. (1989). Abnormal consumer behavior: A model of addictive behavior. *Advances in Consumer Research*, *16*(1), 745–748.

Kukar-Kinney, M., Ridgway, N. M., & Monroe, K. M. (2009). The relationship between consumers' tendencies to buy compulsively and their motivation to shop and buy on the internet. *Journal of Retailing*, *85*(3), 298–307.

Kukar-Kinney, M., Ridgway, N. M., & Monroe, K. M. (2011). The role of price in the behavior and purchase decision of compulsive buyers. *Journal of Retailing*, *88*(1), 63–71.

Kwak, H., Zinkhan, G. M., & Lester-Roushanzamir, E. P. (2004). Compulsive comorbidity and its psychological antecedents: A cross-cultural comparison between the US and South Korea. *Journal of Consumer Marketing*, *21*(6), 418–434.

Lejoyeux, M., Tassain, V., & Ades, J. (1995). Compulsive buying, depression and antidepressants. *European Neuropsychopharmacology*, *5*(3), 369–370.

Lejoyeux, M., Tassain, V., Solomon, J., & Ades, J. (1997). Study of compulsive buying in depressed patients. *Journal of Clinical Psychiatry*, *58*(4), 169–173.

Li, D., Jiang, Y., An, S., Shen, Z., & Jin, W. (2009). The influence of money attitudes on young Chinese consumers' compulsive buying. *Young Consumers*, *10*(2), 98–109.

Lieb, R. (2015). Epidemiological perspectives on comorbidity between substance use disorders and other mental disorders. In G. Dom, & F. Moggi (Eds.), *Co-occurring addictive and psychiatric disorders* (pp. 3–12). Heidelberg: Springer.

Manolis, C., & Roberts, J. A. (2008). Compulsive buying: Does it matter how it's measured? *Journal of Economic Psychology*, *29*(4), 555–576.

Maraz, A., Van den Brink, W., & Demetrovics, Z. (2015). Prevalence and construct validity of compulsive buying disorder in (shopping) mall visitors. *Psychiatric Research*, *228*, 918–924.

McElroy, S. L., Philips, K. A., & Keck, P. E. Jr. (1994). Obsessive compulsive spectrum disorder. *Journal of Clinical Psychiatry*, *55*, 33–51.

Mikolajczak-Degrauwe, K., Brengman, M., Wauters, B., & Rossi, G. (2012). Does personality affect compulsive buying? An application of the big five personality model. In G. Rossi (Ed.), *Psychology: Selected papers* (pp. 131–144). Riieka: InTech.

Monahan, P., Black, D. W., & Gabel, J. (1996). Reliability and validity of a scale to measure change in persons with compulsive buying. *Psychiatry Research*, *64*(1), 59–67.

Mowen, J. C., & Spears, N. (1999). Understanding compulsive buying among college students: A hierarchical approach. *Journal of Consumer Psychology*, *8*(4), 407–430.

Müller, A., Claes, L., Georgiadou, E., Mollenkamp, M., Voth, E. M., Faber, R. J., … de Zwaan, M. (2014). Is compulsive buying related to materialism, depression or temperament? Findings from a sample of treatment-seeking patients with CB. *Psychiatry Research*, *216*, 103–107.

Müller, A., & de Zwaan, M. (2004). Current status of psychotherapy research on pathological buying. *Verhaltenstherapie*, *14*(2), 112–119.

Müller, A., Trotzke, P., Mitchell, J. E., de Zwaan, M., & Brand, M. (2015). The pathological buying screener: Development and psychometric properties of a new screening instrument for the assessment of pathological buying symptoms. *PloS One*, *10*(10), e0141094. https://doi.org/10.1371/journal.pone.0141094.

Neuner, M., Raab, G., & Reisch, L. A. (2005). Compulsive buying in a maturing consumer society: An empirical re-enquiry. *Journal of Economic Psychology*, *28*(4), 509–522.

Norum, P. S. (2008). The role of time preference and credit card usage in compulsive buying behaviour. *International Journal of Consumer Studies*, *32*(3), 269–275.

Otero-Lopez, J. M., & Villardefrancos, E. (2014). Prevalence, sociodemographic factors, psychological distress, and coping strategies related to compulsive buying; a cross sectional study in Galicia, Spain. *BMC Psychiatry*, *14*, 101.

Park, H. J., & Davies Burns, L. D. (2005). Fashion orientation, credit card use, and compulsive buying. *Journal of Consumer Marketing*, *22*(3), 135–141.

Piquet-Pessôa, M., Ferreira, G. M., Melca, I. A., & Fontenelle, L. F. (2014). DSM-5 and the decision not to include sex, shopping or stealing as addictions. *Current Addiction Reports*, *1*, 172–176.

Reeves, R. A., Backer, G. A., & Truluck, C. S. (2012). Celebrity worship, materialism, compulsive buying, and the empty self. *Psychology and Marketing*, *29*(9), 674–679.

Ridgway, N. M., Kukar-Kinney, M., & Monroe, K. B. (2008). An expanded conceptualization and a new measure of compulsive buying. *Journal of Consumer Research*, *35*(4), 622–639.

Roberts, J. A., & Jones, E. (2001). Money attitude, credit card use, and compulsive buying among American college students. *Journal of Consumer Affairs*, *35*(2), 213–240.

Roberts, J. A., Manolis, C., & Pulling, C. (2014). Contingent self-esteem, self-presentational concerns, and compulsive buying. *Psychology and Marketing*, *31*(2), 147–160.

Roberts, J. A., & Roberts, C. (2012). Stress, gender and compulsive buying among early adolescents. *Young Consumers*, *13*(2), 113–123.

Robson, C. (2003). *Real world research*. Oxford: Blackwell Publishing.

Rodriguez-Villarino, R., Gonzalez-Lorenzo, M., Fernandez-Gonzalez, A., Lameiras-Fernandez, M., & Foltz, M. L. (2006). Individual factors associated with buying addiction: An empirical study. *Addiction Research and Theory*, *14*(5), 511–525.

Rose, P. (2007). Mediators of the association between narcissism and compulsive buying: The role of materialism and impulse control. *Psychology of Addictive Behaviors*, *21*, 576–581.

Scherhorn, G., Reisch, L. A., & Raab, G. (1990). Addictive buying in West Germany: An empirical study. *Journal of Consumer Policy*, *13*(4), 355–387.

Schlosser, S., Black, D. W., Repertinger, S., & Freet, D. (1994). Compulsive buying demography, phenomenology, and comorbidity in 46 subjects. *General Hospital Psychiatry*, *16*(3), 205–212.

Schumacker, R. E., & Lomax, R. G. (2010). *A beginner's guide to structural equation modeling*. Hove: Routledge.

Shoham, A., & Makovec Brencic, M. (2003). Compulsive buying behavior. *Journal of Consumer Marketing*, *20*(2), 127–138.

Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality*, *72*(2), 271–324.

Thompson, E. R., & Prendergast, G. P. (2015). The influence of trait affect and the five-factor personality model on impulse buying. *Personality and Individual Differences*, *76*, 216–221.

Thornhill, K., Kellett, S., & Davies, J. (2012). Heterogeneity within compulsive buyers: A Q-sort study. *Psychology and Psychotherapy: Theory, Research and Practice*, *85*(2), 229–241.

Valence, G., d'Astous, A., & Fortier, L. (1988). Compulsive buying: Concept and measurement. *Journal of Consumer Policy*, *11*(4), 419–433.

Vohs, K. D., & Faber, R. J. (2007). Spent resources: Self-regulatory resource availability affects impulse buying. *Journal of Consumer Research*, *33*(4), 537–547.

Williams, A. D., & Grisham, J. R. (2011). Impulsivity, emotion regulation, and mindful attentional focus in compulsive buying. *Cognitive Therapy and Research*, *36*(5), 451–457.

Wood, M. (2005). Discretionary unplanned buying in consumer society. *Journal of Consumer Behaviour*, *4*(4), 268–281.

Workman, L., & Paper, D. (2010). Compulsive buying: A theoretical framework. *The Journal of Business Inquiry*, *9*(1), 89–126.

Yi, S. (2012). Shame-proneness as a risk factor of compulsive buying. *Journal of Consumer Policy*, *35*(3), 393–410.

Young, H. M. (2013). Materialism and loathing post-purchase behavior. *Journal of Consumer Marketing*, *30*(6), 530–537.

Yurchisin, J., & Johnson, K. K. P. (2004). Compulsive buying behavior and its relationship to perceived social status associated with buying, materialism, self-esteem, and apparel product involvement. *Family and Consumer Sciences Research Journal*, *32*(3), 291–314.

Agata Maccarrone-Eaglen is a senior lecturer at Salford Business School, University of Salford. Her main research interest includes the investigation of compulsive buying behavior, psychology of consumption, and cross-cultural studies in consumer behavior, tourism, and marketing.

Peter Schofield is Professor in Services Management at Sheffield Business School, Sheffield Hallam University. His main research and consultancy interests include consumer decision making and behavior, gambling behavior, place marketing, and services marketing and management.

How to cite this article: Maccarrone-Eaglen A, Schofield P. Compulsive buying behavior: Re-evaluating its dimensions and screening. *J Consumer Behav*. 2017;16:463–473. https://doi.org/10.1002/cb.1652

Received: 1 June 2015 | Revised: 26 January 2017 | Accepted: 23 April 2017

DOI: 10.1002/cb.1657

WILEY

ACADEMIC PAPER

Do ad metaphors enhance or dilute the consumers' brand preferences? Exploring the moderating role of goal orientation

Danny Tengti Kao[1] | Lei Zhang[2] | Annie Pei-I Yu[3] | Pei-Hsun Wu[4]

[1] Division of Industrial and Organizational Psychology, Department of Educational Psychology and Counseling, National Tsing Hua University, Hsinchu, Taiwan

[2] School of Economics and Finance, Xi'an Jiaotong University, Xi'an, China

[3] Department of Business Administration, National Chung Cheng University, Minxiong Township, Chiayi County, Taiwan

[4] Department of International Business at National Taichung University of Science and Technology, Taichung, Taiwan

Correspondence
Dr Annie Pei-I Yu, Department of Business Administration, National Chung Cheng University, 168, Sec.1, University Road, Min-Hsiung Township, Chia-Yi County, Taiwan.
Email: annieyu@ccu.edu.tw

Funding information
Ministry of Science and Technology, Taiwan, Grant/Award Number: MOST- 100-2410-H-134-005-MY2

Abstract

This research aims to explore the impacts of ad metaphors and goal orientation on the relationship between brand commitment and attitudes toward the competitor brands. Results show that prevention-focused consumers with high brand commitment do not exhibit differentially favorable attitudes toward the competitor brands, regardless of ad metaphors. In contrast, prevention-focused consumers with low brand commitment exhibit more favorable attitudes toward competitor brands advocated by highly metaphorical ads than those advocated by low metaphorical ads. Moreover, promotion-focused consumers exhibit more favorable attitudes toward competitor brands advocated by highly metaphorical ads than those advocated by low metaphorical ads, regardless of brand commitment.

1 | INTRODUCTION

Brand commitment can be outlined by the principle of self-brand connections, which argues consumers choose brands that are congruent with their self-concepts (Chaplin & John, 2005; Schau, Muñiz, & Arnould, 2009). The process of self-brand connections is based on people's comparison of their own defining characteristics, such as self-identity and preferences, with characteristics that define a brand (Chaplin & John, 2005). Consumer commitment toward a brand is usually emotion based and can last long once it is built; therefore, new competitor brands always attempt to dilute the consumer commitment toward the existing brand. One of the most frequently used means for advertisers is the ad content strategy, which contributes to affect those who have different extents of brand commitment and differential sensitivity toward ad stimulus.

Toncar and Munch (2001) argue that metaphors help increase consumers' information processing; therefore, advertisers are increasingly applying metaphorical appeals in their advertisements. However, it is a challenging job for advertisers to determine the extent of metaphors to avoid consumers' rejections or failures to comprehend the advertisement.

The effect of ad metaphors varies depending on consumers' personality traits. Goal orientation is one of the most popular personality traits examined in the recent research on consumer behavior (i.e., Chernev, 2004; Malaviya & Sternthal, 2009). Goal orientation refers to the processes by which individuals set their goals, select the means to attain these goals, and assess their progresses toward these goals (Carver & Scheier, 1998). Potential consumers with different types of goal orientation are assumed to engender different attitudes toward the various ad messages.

This research aims to apply the concept of goal orientation to examine how potential consumers evaluate the ad messages. Specifically, this research explores how ad metaphors affect the attitudes of low and highly committed consumers toward the competitor brands (in Study 1) and includes goal orientation as a measured moderator to examine the potential changes in the preceding interaction (in Study 2). In a nutshell, this research explores the moderating roles of goal orientation and ad metaphors in the impact of brand commitment on consumers' attitudes toward the competitor brands.

2 | BACKGROUND OVERVIEW AND THEORETICAL DEVELOPMENT

2.1 | Brand commitment

Brands can signal reputation and serve as proxies for trust (Ubilava, Foster, Lusk, & Nilsson, 2011). Consumers' frequent purchases of a specific brand may form their commitment to this brand. Commitment is regarded as a feeling of psychological attachment to an attitude, an object, or an attitudinal position (Kiesler, 1971). Prior psychology research suggests that commitment is a central relationship-specific motive and that feelings of commitment reliably promote prorelational cognitions, motivations, and behaviors (Rusbult, 1983; Rusbult & Buunk, 1993). Rusbult (1983) defines commitment level as a psychological state that represents the experience of dependence on a relationship, a long-term orientation toward it, feelings of attachment to a person or an object, and a desire to maintain the relationship. Similarly, commitment has been defined as "an enduring desire to maintain a valued relationship" (Moorman, Zaltman, & Deshpande, 1992). In the consumer behavior literature, Sargeant and Lee (2004) propose that commitment has been regarded as a key mediating influence on consumer behaviors. Sung, Choi, and Tinkham (2012) further posit that the moderating effect of self-construal on brand-situation congruity was stronger when consumers held weak commitment to the target brand.

A highly committed person usually generates more emotional connections to the preferred brand and is less willing to switch to competitor brands (Raju, Unnava, & Montgomery, 2009) than a less committed consumer. This sense of being connected to a brand results in the attitudinal insistence on the brand to which consumers are currently committed and increased resistance to attitude changes.

Moreover, brand commitment is mainly driven by consumers' experiences with a brand. Mick and Buhl (1992) further contend that consumers are committed to a brand across situation and usage experiences through how it fits into the consumers' lifestyles rather than how effective it is in meeting a specific need or solving a specific trouble. Brand commitment is deemed as deeply rooted in the minds of the committed consumers; hence, the sponsors of competitor brands have to figure out effective strategies to mitigate these negative impacts of brand commitment on them.

2.2 | Goal orientation

Goal orientation has been discussed in a comprehensive manner in the regulatory focus theory, which views self-regulation as a process by which people seek to align their behavior with relevant goals and standards. Two types of goal orientation have featured prominently in the literature: promotion focus, which seeks to maximize positive outcomes; and prevention focus, which aims to minimize negative outcomes (Higgins, 2002). A major difference between promotion focus and prevention focus is a differential sensitivity toward positive and negative outcomes (Higgins, 1998). The consumer psychology literature has demonstrated that goal orientation has an impact on endowment effect (Higgins, 2002; Liberman, Idson, Camacho, & Higgins, 1999), the status quo bias (Chernev, 2004), mental accounting (Pham & Avnet, 2004), brand extension (Yeo & Park, 2006), framing effect (Jain, Lindsey, Agrawal, & Maheswaran, 2007; Sett, 2014), attractiveness effect (Mourali, Bckenholt, & Laroche, 2007), the extent to which consumers use price information as an indicator of quality or sacrifice (Lin, Wu, Chuang, & Kao, 2007), variety seeking (Wu & Kao, 2011), team performance (Anne, Daan, & Dirk, 2013), radical innovation (Lameez & Daan, 2014), and creativity (Huang & Luthans, 2015).

A major correlation of promotion versus prevention is a different propensity toward taking risks. In most contexts, the priming of promotion focus entails greater risk taking, whereas the priming of prevention focus entails greater risk aversion (Kao, 2012; Zhou & Pham, 2004). Two sets of mechanisms contribute to the differences in risk propensity between the focuses. First, promotion goal centers on finding matches to desired ends and creates an inherent drive to capture as many current opportunities as possible (Higgins, 1998), which generally translates into a more active form of exploration and thus greater risk taking (Crowe & Higgins, 1997; Pham & Avnet, 2004). In contrast, prevention goal highlights the avoidance of mismatches to desired ends and produces a drive to protect against potential mistakes, which generally translates into a more vigilant form of exploration and greater risk aversion. The difference in risk propensity is also a by-product of the differential attention to gains and losses of both focuses. In many domains, options (e.g., surgery) with greater potential upsides (the complete riddance of a medical condition) also present greater potential downsides (life-threatening complications), whereas options (e.g., continuous medication) with smaller potential downsides (few side effects) have smaller potential upsides (relief of symptoms without complete cure; Zhou & Pham, 2004). In a choice between a risky alternative with greater upsides and greater downsides and a conservative alternative with smaller downsides and smaller upsides, promotion-oriented individuals focusing on positive outcomes would prefer the risky option, whereas prevention-oriented individuals focusing on negative outcomes would favor the conservative option (Zhou & Pham, 2004).

2.3 | Ad metaphors

When metaphors are applied in text or images in an advertisement, they are considered rhetorical figures (Lagerwerf & Meijers, 2008). Although rhetorical figures can increase message elaboration (Hoeken, Swanepoel, Saal, & Jansen, 2009) and positively affect the persuasiveness of advertisements (e.g., McQuarrie & Mick, 2009; Stathakopoulos, Theodorakis, & Mastoridou, 2008; van Mulken, le Pair, & Forceville, 2010), they are deemed as being difficult to comprehend (Phillips, 2003). As Ang and Lim (2006) contended, "a metaphor asserts a similarity between two objects that one does not expect to be associated; in contrast, a non-metaphor describes the world literally." Clearly, metaphors are linguistically defined as two distinct concepts presented as similar (Lagerwerf & Meijers, 2008). Put another way, conceptual similarity refers to the extent of relatedness between the two metaphorical objects and is about the semantic proximity of these objects in the audience's mind. For example, a car and an aircraft are generally deemed as higher in conceptual proximity to each other than a car and a sun bed or a television and a razor (Gkiouzepas & Hogg, 2011).

As Burgers, Konijn, Steen, and Iepsma (2015) argued, metaphors can make an abstract concept more concrete and easier for consumers to understand the abstract benefits of the product that is emphasized, which may lead to favorable evaluations of the advocated product in the ads. In addition, previous research has indicated that the use of metaphors can lead to more extensive ad processing (Toncar & Munch, 2001), expand dimensional thinking (MacInnis, 2004), enhance ad responses (McQuarrie & Phillips, 2005), and lead to persuasion (Burgers et al., 2015; Huhmann & Albinsson, 2012). Metaphors usually lead consumers to perceive the brand as imaginative and provoke more imagination than straightforward expressions (Oliver, Robertson, & Mitchell, 1993).

A metaphor claim can be presented in either a verbal or visual form (Chang & Yen, 2013). Verbal and visual metaphors are increasingly common in print advertisements (Mohanty & Ratneshwar, 2015). Compared with verbal metaphors, visual metaphors are more open to interpretation (Eco, 1976) and may elicit more meanings as they express the ad claim implicitly (McQuarrie & Phillips, 2005). Specifically, visual metaphors leave more room for consumers to invest more cognitive effort in the ad messages than verbal metaphors (Lagerwerf & Meijers, 2008). In addition, metaphors are a general property of visual and verbal expressions and can define interference of both expressions: Images are less open when combined with captions than without captions (Ketelaar & Gisbergen, 2006; Phillips, 2000). When the advertisements are highly metaphorical, message recipients tend to have a higher elicitation of thoughts. In other words, highly metaphorical advertisements elicit consumers' elaborative thoughts (Lagerwerf & Meijers, 2008).

3 | HYPOTHESES

Raju et al. (2009) argue that highly committed consumers are more likely to generate emotional connections to the brand and are less willing to switch to competitor brands than low-committed consumers. Compared to low-committed consumers, highly committed consumers are more likely to emotionally adhere to the existing brands and generate attitudinal resistance to the competitor brands. Therefore, when highly committed consumers are exposed to a competitor brand's advertisement characterized by either high or low ad metaphors, they appear to spontaneously generate counterarguments in minds and attempt to reject the supporting arguments in the ad. Clearly, highly committed consumers may not be concerned with the potential benefits demonstrated in competitor brands' ads, regardless of how high the ad metaphors are. Alternatively, low-committed consumers are less likely to emotionally adhere to the existing brands and are more concerned with product benefits than highly committed consumers. In addition, high ad metaphors are usually regarded as more potential benefits or gains than low ad metaphors. Therefore, competitor brands' advertisements characterized by high metaphors are predicted to elicit favorable attitudes than those characterized by low metaphors for low-committed consumers.

> **H1** Highly committed consumers will not exhibit differentially favorable attitudes toward the competitor brands, regardless of ad metaphors. In contrast, low-committed consumers will engender more favorable attitudes toward competitor brands when the ad metaphors are high than when the ad metaphors are low.

Highly committed consumers are characterized as emotionally adhering to the existing brands and generate attitudinal resistance to competitor brands. As indicated above, prevention-focused consumers tend to adopt avoidance strategies to regulate the achievement of desirable ends and seek minimum losses to the current states. Prevention-focused consumers are especially active in the pursuit of things that one ought to do, that is, the fulfillment of responsibilities, obligations, and duties (Higgins, 1998). Therefore, prevention-focused consumers with high brand commitment are likely to have emotional connections and attitudinal insistence on the existing brands, and adopt conservative strategies to process the messages in competitor brands' advertisements. When these messages are metaphorically presented in the advertisements sponsored by competitor brands, prevention-focused consumers with high brand commitment tend to engender attitudinal resistance and reject the persuasive information, no matter how many potential benefits are implied in the metaphorical advertisements.

In contrast, prevention-focused consumers with low brand commitment have slight emotional connections to the existing brand and tend to seek safer alternatives to fulfill their unsatisfied needs. It is predicted that metaphorical advertisements are more effective to alter consumers' attitudes than straightforward advertisements. Furthermore, highly metaphorical ads are more likely to allow consumers to perceive implied potential benefits for their current states than low metaphorical ads. Therefore, it is predicted that prevention-focused consumers with low brand commitment are likely to engender more favorable attitudes toward competitor brands characterized by highly metaphorical ads than those by low metaphorical ads.

> **H2** Prevention-focused consumers with high brand commitment will not exhibit differentially favorable attitudes toward the competitor brands, regardless of ad metaphors. In contrast, prevention-focused consumers with low brand commitment will exhibit more favorable attitudes toward the competitor brands when the ad is highly metaphorical than when the ad is low metaphorical.

Promotion-focused consumers, whose personality traits are characterized as active in the pursuit of ideals, rely on the use of approach strategies to regulate the achievement of a desirable end and attempt to seek maximum gains. The extent of brand commitment depends on how consumers are emotionally attached to a brand. By definition, low-committed consumers are more likely to deviate from their initial choices than highly committed consumers. As predicted in H_1, highly metaphorical ads usually imply potential product benefits and thus are more likely to allow consumers to expand dimensional thinking (MacInnis, 2004) and lead to more extensive ad processing (Toncar & Munch, 2001) than low metaphorical ads. Therefore, a highly metaphorical ad is more likely to fulfill promotion-focused consumers' unsatisfied needs and thus elicit more favorable attitudes

than a low metaphorical ad, regardless of the extent of brand commitment.

> **H3** Promotion-focused consumers will exhibit more favorable attitudes toward the competitor brands when the ad is highly metaphorical than when the ad is low metaphorical, regardless of brand commitment.

4 | METHODOLOGY

4.1 | Pretests of stimulus material

According to Martin, Lang, and Wong (2003), a pretest for identifying an appropriate product is based on two criteria: (a) the product offers a range of attributes for manipulation, and (b) the product is relevant to the research sample. Hence, a pretest has been conducted to assure the appropriateness of the stimulus material for the following experiments. Twenty undergraduates were asked to create a list of complex products. Next, 32 subjects rated the four most frequently mentioned products from Stage 1 on five 7-point scales (e.g., unimportant/important) for involvement, from which an average score was derived. The pretest revealed that digital cameras are among the highest involvement score (M = 5.96), as most of the subjects previously or currently own a digital camera (93.75%), and a large number use a digital camera more than twice a week (90.63%), suggesting a high frequency of use. Thus, digital cameras were selected as the stimulus material in this research.

4.2 | Research design and procedure

4.2.1 | Study 1

Study 1 aims to investigate how brand commitment affects consumers attitudes toward the competitor brands after they view a competitor advertisement that varies in the extent of metaphors. A total of 116 undergraduates were randomly assigned to a 2 (brand commitment: low vs. high) × 2 (ad metaphors: low vs. high) between-subjects factorial design, where brand commitment acted as the measured independent variable, ad metaphors fulfilled as the manipulated moderator, and attitudes toward the competitor brand acted as the dependent variable.

Measurement of brand commitment

The measurement of brand commitment was adapted from the study of Raju et al. (2009). The participants were told that they were invited to join a market research for a digital camera targeting the student segment. They were given one booklet containing brand information of the target brand and then were encouraged to list some positive attributes and suggest a slogan for this target brand.

Subsequently, the measurement of brand commitment for the target brand started. Subjects were asked to assume that this target brand nearly fulfilled the unsatisfied needs in all aspects, followed by asking if their slogan and testimonials could potentially be adopted by this target brand for its advertising.

The competitor brand was introduced at this point by handing out another folder containing the advertisement for the competitor brand. Participants were told that this brand was a competitor brand to the target brand. Following ad exposure, they were asked to rate their attitudes toward the competitor brand.

Participants' commitment to the target brand was measured using a three-item brand commitment scale used in previous research (Agrawal & Maheswaran, 2005; Ahluwalia, Unnava, & Burnkrant, 2001). The three items are (a) if (brand name) is not available at the store, it would make little difference to me if I have to choose another brand; (b) I can see myself as being loyal to (brand name); and (c) I will be more likely to purchase a brand that is on sale than (brand name). Participants expressed their agreement with each statement using a 7-point scale anchored by 1 = *agree* to 7 = *disagree* (α = .92). Participants with a mean commitment score above the midpoint (4 on the 7-point scale) were classified as highly committed, and those below the midpoint were classified as low committed. High- and low-commitment consumers exhibited significantly different scores ($M_{\text{high BC}}$ = 5.05, $M_{\text{low BC}}$ = 2.24, $t(114) = -26.48$, $p < .001$).

Manipulation of ad metaphors

Two versions of print advertisements were created for manipulating ad metaphors. Each advertisement consists of verbal copy and an image of advertised product. As Lagerwerf and Meijers (2008) implied, metaphors refer to the incongruity in the combination of verbal and visual expressions. Incongruity tends to attract audience attention (Kaplan, 1992) and prompt consumers to elicit thought elaboration (Meyers-Levy & Tybout, 1989) and deeper processing (Mohanty & Ratneshwar, 2015). Therefore, in the primed condition of low metaphorical ad, the verbal copy and the image were manipulated to convey consistent expressions to constrain the number of thoughts elicited by the metaphors (Lagerwerf & Meijers, 2008). In contrast, in the primed condition of the highly metaphorical ad, the verbal copy and the image were manipulated to convey inconsistent expressions to allow the number of thoughts elicited by the metaphors (Lagerwerf & Meijers, 2008). Subjects were asked to view the advertisement and read the ad copy about the ad appeals of a fictitious digital camera brand (*Leikon*). The following excerpt showed the main copy of the low metaphorical ad for Leikon:

> *As shown in the vivid image beside, Leikon always gives you the finest photo quality and enriches your photographic life.*

In contrast, the main copy of the highly metaphorical ad for Leikon reads:

> *Besides exploring the world (as illustrated), Leikon always gives you the finest photo quality and enriches your photographic life.*

Dependent variable

Attitudes toward the competitor brand were measured with three 7-point scales anchored by *bad/good*, *not nice/nice*, and *unlikable/*

likable (α = .75; Zhang & Zinkhan, 2006). The scales were summed to form a single attitude measure.

Results

Manipulation check for ad metaphors. The manipulation check for ad metaphors was adapted from the study of Lagerwerf and Meijers (2008) to assess the valence of metaphors, as well as the study of McQuarrie and Mick (1999) to measure thought elaboration. Respondents were asked to rate the ad by three 7-point scales anchored by "I had few/many thoughts," "the ad has one/multiple meaning(s)," and "the ad has simple/complex meaning(s)" (Gkiouzepas & Hogg, 2011). As expected, the valences for low and highly metaphorical ads were regarded as being different ($M_{low\ M}$ = 2.91, $M_{high\ M}$ = 5.14, $t(114) = -22.03$, $p < .001$). Therefore, the manipulation of ad metaphors was effective.

Hypothesis testing and results. The results from the analysis of variance indicated that a two-way interaction effect and two main effects were all significant. In more detail, the interaction effect of Brand commitment × Ad metaphors ($F(1, 112) = 84.62$, $p = .000$, $\eta_p^2 = .430$; see Table 1) on attitudes toward the competitor brand was significant. These interactions provide initial evidence of differentiations across the experimental conditions. The main effects of brand commitment ($F(1, 112) = 65.41$, $p = .000$, $\eta_p^2 = .369$) and ad metaphors ($F(1, 112) = 111.46$, $p = .000$, $\eta_p^2 = .499$) on attitudes toward the competitor brand were also significant (see Table 1).

> **H1** Effects of brand commitment and ad metaphors on attitudes toward the competitor brand

An independent-samples *t* test revealed that for highly committed consumers, ad metaphors did not differentially affect their attitudes toward the competitor brand ($M_{low\ M}$ = 3.15, $M_{high\ M}$ = 3.28, $t(56) = -1.21$, $p = .23$; see Table 2 and Figure 1). Alternatively, low-committed consumers exhibited more favorable attitudes toward the competitor brand when the ad was highly metaphorical than when the ad was low metaphorical ($M_{low\ M}$ = 3.05, $M_{high\ M}$ = 4.89, $t(56) = -11.92$, $p = .000$; see Table 2 and Figure 1). Hence, H_1 was supported.

4.2.2 | Study 2

Study 2 aims to investigate how consumers varying in goal orientations and brand commitment evaluate the competitor brand on viewing a competitor advertisement that varies in the extent of metaphors. A total of 232 undergraduates were randomly assigned to a 2 (brand commitment: low vs. high) × 2 (ad metaphors: low vs. high) × 2 (goal orientation: prevention focus vs. promotion focus) between-subjects factorial design, where brand commitment acted as the measured independent variable, goal orientation and ad metaphors fulfilled as the manipulated moderators, and attitudes toward the competitor brand acted as the dependent variable.

TABLE 1 Univariate analysis of the effects of Brand commitment and Ad metaphors on attitudes toward the competitor brand

Source of variance	*F*	*p*	η_p^2
Brand commitment × Ad metaphors	84.62	.000***	0.430
Brand commitment	65.41	.000***	0.369
Ad metaphors	111.46	.000***	0.499

*$p<0.05$;
**$p<0.01$;
***$p<0.001$.

TABLE 2 Dependent measure across Brand commitment × Ad metaphors

	Attitudes toward the competitor brand			
	Low committed		Highly committed	
	Low ad metaphors	High ad metaphors	Low ad metaphors	High ad metaphor
Mean	3.05	4.89	3.15	3.28
SD	0.68	0.47	0.32	0.46
t	−11.92		−1.21	
p	.000***		.23	

*$p<0.05$;
**$p<0.01$;
***$p<0.001$.

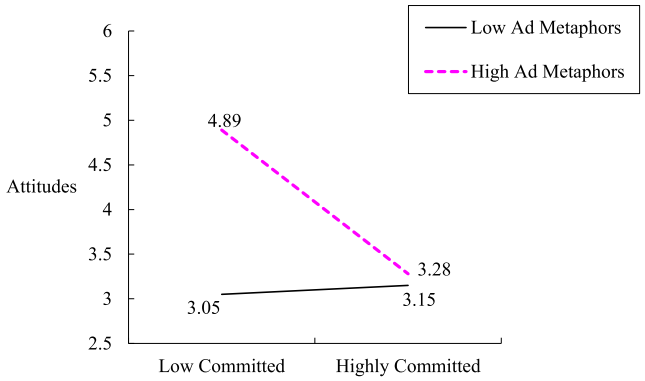


FIGURE 1 Interactions of Brand commitment × Ad metaphors on attitudes toward the competitor brand. [Colour figure can be viewed at wileyonlinelibrary.com]

Manipulation of goal orientation

The manipulation of goal orientation was adapted from the study of Liberman et al. (1999). Whereas promotion-focused participants were asked to write down and explain how their "hopes and aspirations" differed from those they had in their childhood, prevention-focused participants were asked to write down and explain how their "duties and obligations" differed from those they had in their childhood.

Measurement of brand commitment and manipulation of ad metaphors

The measurement of brand commitment and the manipulation of ad metaphors were identical to those in Study 1. For the measurement of brand commitment, participants were asked to express their agreement with each statement using a 7-point scale anchored by 1 = *agree*

to 7 = *disagree* (α = .82). Participants with a mean commitment score above the midpoint (4 on the 7-point scale) were classified as highly committed, and those below the midpoint were classified as low committed. High- and low-committed individuals exhibited significantly different scores ($M_{high\ BC}$ = 5.01, $M_{low\ BC}$ = 2.69, $t(230)$ = −32.62, p < .001). Subjects who are either high or low in brand commitment were asked to view the advertisement and read either the low metaphorical or highly metaphorical ad copy for *Leikon*. The main copies of the low and highly metaphorical ads are identical to those in Study 1.

Dependent variable

As in Study 1, the attitudes toward the competitor brand were measured with three 7-point scales anchored by *bad/good*, *not nice/nice*, and *unlikable/likable* (α = .78; Zhang & Zinkhan, 2006). The scales were summed to form a single attitude measure.

Results

Manipulation check for ad metaphors. As in Study 1, the manipulation check for ad metaphors was adapted from the study of Lagerwerf and Meijers (2008) to assess the valence of metaphors, as well as the study of McQuarrie and Mick (1999) to measure thought elaboration. Respondents were asked to rate the ad by three 7-point scales anchored by "I had few/many thoughts," "the ad has one/multiple meaning(s)," and "the ad has simple/complex meaning (s)" (Gkiouzepas & Hogg, 2011). As expected, the valences for low and highly metaphorical ads were regarded as being different ($M_{low\text{-}M}$ = 2.42, $M_{high\ M}$ = 5.15, $t(230)$ = −36.48, p < .001). Therefore, the manipulation of ad metaphors was effective.

Manipulation check for goal orientation. The manipulation check of goal orientation was conducted by asking participants to rate the extent to which they focused on their hopes, aspirations, responsibilities, and obligations on separate 7-point scale items for each of these goals, with the scales items anchored by 1 = *not at all* and 7 = *a lot* (Liberman, Molden, Idson, & Higgins, 2001). Hopes and aspirations were averaged to form a promotion index (Cronbach's α = .80), and responsibilities and obligations were averaged to form a prevention index (Cronbach's α = .79). A paired-samples t test was administered for the manipulation check for orientation goal. The promotion index was significantly higher than the prevention index for promotion-focused individuals ($M_{promotion}$ = 5.28, $M_{prevention}$ = 3.02, $t(115)$ = 31.64, p = .000); in contrast, the prevention index was significantly higher than the promotion index for prevention-focused individuals ($M_{promotion}$ = 2.78, $M_{prevention}$ = 4.88, $t(115)$ = −29.09, p = .000). Therefore, the manipulation of goal orientation was satisfactory.

Hypothesis testing and results. The results from the analysis of variance indicated that, except for the interaction effect of Brand commitment × Goal orientation, all interaction effects and main effects were significant. In more detail, the interaction effects of Brand commitment × Ad metaphors × Goal orientation ($F(1, 224)$ = 18.47, p = .000, η_p^2 = .076), Brand commitment × Ad metaphors ($F(1, 224)$ = 21.61, p = .000, η_p^2 = .088), and Ad metaphors × Goal orientation ($F(1, 224)$ = 51.73, p = .000, η_p^2 = .188; see Table 3) on attitudes toward the competitor brand were significant; in contrast, the interaction effect of Brand commitment × Goal orientation ($F(1, 224)$ = 1.73, p = .19, η_p^2 = .008) was insignificant (see Table 3). These interactions provide initial evidence of differentiations across the experimental conditions.

TABLE 3 Univariate analysis of the interaction effects of Brand commitment, Ad metaphors, and Goal orientation on attitudes toward the competitor brand

Source of variance	F	p	η_p^2
Brand commitment × Ad metaphors × Goal orientation	18.47	.000***	0.076
Brand commitment × Ad metaphors	21.61	.000***	0.088
Brand commitment × Goal orientation	1.73	.190	0.008
Ad metaphors × Goal orientation	51.73	.000***	0.188

*p<0.05;

**p<0.01;

***p<0.001.

> **H2** Effects of brand commitment, ad metaphors, and prevention focus on attitudes toward the competitor brand

For prevention-focused consumers, the simple interaction effects of Brand commitment × Ad metaphors on attitudes toward the competitor brands ($F(1, 112)$ = 48.28, p = .000, η_p^2 = .301) was significant. The further t test revealed that highly committed consumers did not exhibit differentially favorable attitudes toward the competitor brand, regardless of ad metaphors ($M_{low\ M}$ = 2.85, $M_{high\ M}$ = 2.82, $F(1, 57)$ = .04, p = .835; see Table 4 and Figure 2). Alternatively, low-committed consumers exhibited more favorable attitudes toward the competitor brand when the ad was highly metaphorical than when the ad was low metaphorical ($M_{low\ M}$ = 2.94, $M_{high\ M}$ = 4.10, $F(1, 57)$ = 80.69, p = .000; see Table 4 and Figure 2). Therefore, H_2 was supported.

> **H3** Effects of brand commitment, ad metaphors, and promotion focus on attitudes toward the competitor brand

Similarly, for promotion-focused consumers, the simple interaction effect of Brand commitment × Ad metaphors on the attitudes toward the competitor brand ($F(1, 112)$ = .053, p = .819) was not significant. The further t test revealed that highly committed consumers engendered more favorable attitudes toward the competitor brand when the ad was highly metaphorical than when the ad was low metaphorical ($M_{low\ M}$ = 3.21, $M_{high\ M}$ = 4.69, $F(1, 57)$ = 135.37, p = .000; see Table 4 and Figure 3). In a similar vein, low-committed consumers exhibited more favorable attitudes toward the competitor brand when the ad was highly metaphorical than when the ad was low metaphorical ($M_{low\ M}$ = 4.05, $M_{high\ M}$ = 5.57, $F(1, 57)$ = 97.46, p = .000; see Table 4 and Figure 3). Therefore, H_3 was supported.

TABLE 4 Dependent measure across Goal orientation × Brand commitment × Ad metaphors

	Attitudes toward the competitor brand							
	Prevention focused				Promotion focused			
	Low committed		Highly committed		Low committed		Highly committed	
	Low M	High M	Low M	High M	Low M	High M	Low M	High M
Mean	2.94	4.10	2.85	2.82	4.05	5.57	3.21	4.69
SD	0.44	0.53	0.46	0.37	0.58	0.60	0.42	0.54
F	80.69		.04		97.46		135.37	
p	.000***		.835		.000***		.000***	

*$p<0.05$;

**$p<0.01$;

***$p<0.001$.

Note. M = ad metaphors.

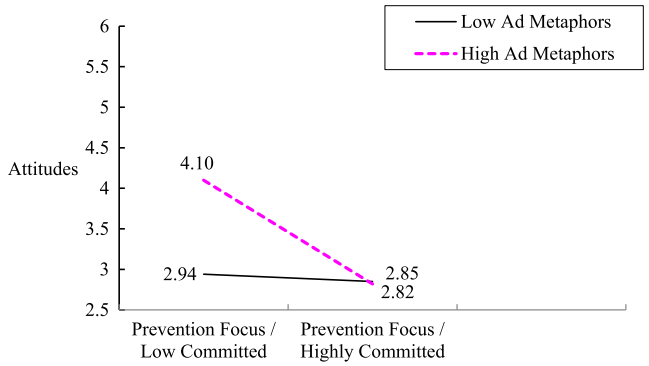


FIGURE 2 Interactions of Brand commitment × Prevention focus × Ad metaphors on attitudes toward the competitor brand. [Colour figure can be viewed at wileyonlinelibrary.com]

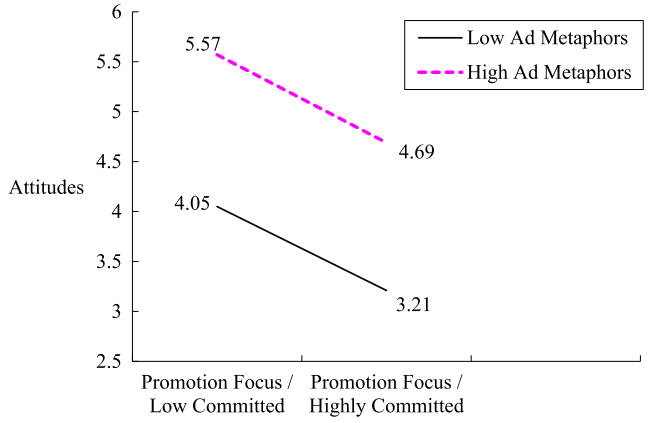


FIGURE 3 Interactions of Brand commitment × Promotion focus × Ad metaphors on attitudes toward the competitor brand. [Colour figure can be viewed at wileyonlinelibrary.com]

5 | DISCUSSION

5.1 | Theoretical contributions

This research differs from the prior research in three main respects, which contribute to the consumer behavior literature. First, from an academic perspective, theoretical understanding of the effects of ad metaphors is promising but underexplored. Whereas advertising literature focuses on the evaluations of metaphorical and straightforward ads (i.e., Lagerwerf & Meijers, 2008), this research further explores the extent of metaphor and examines its impact on consumer attitudes toward the competitor brands. Comprehensive understanding of the effect of ad metaphors on consumer attitudes helps broaden the horizon of consumer research literature.

Second, recent empirical studies in the literature of consumer research have examined how brand commitment is moderated by other factors. Specifically, brand commitment is usually regarded as a moderator (e.g., Iglesias, Singh, & Batista-Foguet, 2011; Raju et al., 2009) or a dependent variable (e.g., Burmann & König, 2011; Srivastava & Owens, 2010) in these studies. In contrast, this research treats brand commitment as an independent variable and examines its effects interacted with ad metaphors (in Study 1) and goal orientation (in Study 2).

At last, whereas the brand commitment literature has mostly confined itself to studying the effect of brand commitment to the existing brands (e.g., Iglesias et al., 2011) and rarely investigated how the competitor brands overcome the brand commitment effect (Raju et al., 2009), this research examines the consumer attitudes toward the competitor brands by manipulating consumers' brand commitment to the existing brand and metaphors in the competitor brand's advertisement. Accordingly, the roles of brand commitment and ad metaphors in the consumer research can be further clarified.

5.2 | Practical implications

Findings in this research have extremely important practical implications as they imply that, if the sponsors of competitor brands seek to "grasp" consumers from the existing brands, they need to work on understanding those consumers' goal orientation and thereby devising their advertising strategies (i.e., a highly metaphorical ad) in order to reduce those consumers' counterarguments. For example, even though highly committed consumers tend to stick to their existing brands, competitor brands can get into the market by applying a highly metaphorical ad strategy to target those low-committed consumers, who have lower attitudinal resistance to the competitor brands.

As mentioned earlier, low-committed consumers can be categorized into prevention- and promotion-focused groups. Competitor brands are advised to apply a highly metaphorical ad strategy to pinpoint the prevention-focused consumers with low brand commitment as their entry to step into larger market segments in the future. In addition, the research findings indicate that promotion-focused consumers with either high or low brand commitment are the market segments suitable for a highly metaphorical ad strategy.

6 | LIMITATIONS AND FUTURE RESEARCH

This research contributes to the consumer behavior literature and the marketing practices. However, some limitations need to be mentioned for future research. First, even though this research indicates that low-committed consumers are subject to the highly metaphorical ad, it is

difficult for competitor brands to predict consumers' brand commitment to the existing brands before their advertising strategy is devised. Second, the consumers' goal orientations seem unpredictable, and future research is expected to fill in this research gap. At last, goal orientation was manipulated instead of being measured in this research. Future research is expected to apply the scale developed by Lockwood, Jordan, and Kunda (2002) to measure consumers' orientation goal and examine its effect on consumer attitudes toward the competitor brands. By comparing the results that have emerged from the measured goal orientation with those from the manipulated goal orientation, researchers are expected to gain new insight into goal orientation.

REFERENCES

Agrawal, N., & Maheswaran, D. (2005). The effects of self-construal and commitment on persuasion. *Journal of Consumer Research*, *31*, 841–849.

Ahluwalia, R., Unnava, R. H., & Burnkrant, R. E. (2001). The moderating role of commitment on the spillover effect of marketing communications. *Journal of Marketing Research*, *38*, 458–470.

Ang, S. H., & Lim, E. A. C. (2006). The influence of metaphors and product type on brand personality perceptions and attitudes. *Journal of Advertising*, *35*, 39–53.

Anne, N. P., Daan, V. K., & Dirk, V. D. (2013). Cultural diversity and team performance: The role of team member goal orientation. *Academy of Management Journal*, *56*, 782–804.

Burgers, C., Konijn, E. A., Steen, G. J., & Iepsma, M. A. R. (2015). Making ads less complex, yet more creative and persuasive: The effects of conventional metaphors and irony in print advertising. *International Journal of Advertising*, *34*, 515–532.

Burmann, C., & König, V. (2011). Does internal brand management really drive brand commitment in shared-service call centers? *Journal of Brand Management*, *18*, 374–393.

Carver, C. S., & Scheier, M. F. (1998). *Attention and self-regulation: A control-theory approach to human behavior*. New York: Springer-Verlag.

Chang, C. T., & Yen, C. T. (2013). Missing ingredients in metaphor advertising: The right formula of metaphor type, product type and need for cognition. *Journal of Advertising*, *42*, 82–94.

Chaplin, L. N., & John, D. R. (2005). The development of self-brand connections in children and adolescents. *Journal of Consumer Research*, *32*, 119–129.

Chernev, A. (2004). Goal orientation and consumer preference for the status quo. *Journal of Consumer Research*, *31*, 557–565.

Crowe, E., & Higgins, T. E. (1997). Regulatory focus and strategic inclinations: Promotion and prevention in decision making. *Organizational Behavior and Human Decision Processes*, *69*, 117–132.

Eco, U. (1976). *A theory of semiotics*. Bloomington: Indiana University Press.

Gkiouzepas, L., & Hogg, M. K. (2011). Articulating a new framework for visual metaphors in advertising. *Journal of Advertising*, *40*, 103–120.

Higgins, T. E. (1997). Beyond pleasure and pain. *American Psychologist*, *52*, 1280–1300.

Higgins, T. E. (1998). Promotion and prevention: Regulatory focus as a motivational principle. In P. Z. Mark (Ed.), *Advances in experimental psychology* (Vol. 30) (pp. 1–46). San Diego, CA: Academic Press.

Higgins, T. E. (2002). How self-regulation creates distinct values: The case of promotion and prevention decision making. *Journal of Consumer Psychology*, *12*, 177–191.

Hoeken, H., Swanepoel, P., Saal, E., & Jansen, C. (2009). Using message form to stimulate conversations: The case of tropes. *Communication Theory*, *19*, 49–65.

Huang, L., & Luthans, F. (2015). Toward better understanding of the learning goal orientation–creativity relationship: The role of positive psychological capital. *Applied Psychology: An International Review*, *64*, 444–472.

Huhmann, B. A., & Albinsson, P. A. (2012). Does rhetoric impact advertising effectiveness with liking controlled? *European Journal of Marketing*, *46*, 1476–1500.

Iglesias, O., Singh, J. J., & Batista-Foguet, J. M. (2011). The role of brand experience and affective commitment in determining brand loyalty. *Journal of Brand Management*, *18*, 570–582.

Jain, S. P., Lindsey, C., Agrawal, N., & Maheswaran, D. (2007). For better or for worse? Valenced comparative frames and regulatry focus. *Journal of Consumer Research*, *34*, 57–65.

Kao, D. T. (2012). Exploring the effect of regulatory focus on ad attitudes: The moderating roles of message sidedness and argument quality. *International Journal of Psychology*, *47*, 142–153.

Kaplan, S. J. (1992). A conceptual analysis of form and content in visual metaphors. *Communication*, *13*, 197–209.

Ketelaar PE, Gisbergen MSV. (2006). Openness in advertising: Occurrence and effects of open advertisements in magazines. PhD Dissertation, Radboud University, Nijmegen, Netherland.

Kiesler, C. A. (1971). *The psychology of commitment: Experiments linking behavior to belief*. San Diego: Academic Press.

Lagerwerf, L., & Meijers, A. (2008). Openness in metaphorical and straightforward advertisements: Appreciation effects. *Journal of Advertising*, *37*, 19–30.

Lameez, A., & Daan, V. K. (2014). Teams in pursuit of radical innovation: A goal orientation perspective. *Academy of Management Review*, *39*, 423–438.

Liberman, N., Idson, L. C., Camacho, C. J., & Higgins, T. E. (1999). Promotion and prevention choices between stability and change. *Journal of Personality and Social Psychology*, *77*, 1135–1145.

Liberman, N., Molden, D. C., Idson, L. C., & Higgins, T. E. (2001). Promotion and prevention focus on alternative hypotheses: Implications for attributional functions. *Journal of Personality and Social Psychology*, *80*, 5–18.

Lin, C. H., Wu, P. H., Chuang, S. C., & Kao, D. T. (2007). Price as a quality or sacrifice cue: Role of goal orientation. *Asian Journal of Social Psychology*, *10*, 179–197.

Lockwood, P., Jordan, C. H., & Kunda, Z. (2002). Motivation by positive or negative role models: Regulatory focus determines who will best inspire us. *Journal of Personality and Social Psychology*, *83*, 854–864.

MacInnis, D. J. (2004). Crystal clear concepts: Using metaphors to expand dimensional thinking. *ACR News*, *Winter* 1–4.

Malaviya, P., & Sternthal, B. (2009). Parity product features can enhance or dilute brand evaluation: The influence of goal orientation and presentation format. *Journal of Consumer Research*, *36*, 112–121.

Martin, B., Lang, B., & Wong, S. (2003). Conclusion explicitness in advertising: The moderating role of need for cognition (NFC) and argument quality (AQ) on persuasion. *Journal of Advertising*, *32*, 57–65.

McQuarrie, E. F., & Mick, D. G. (1999). Visual rhetoric in advertising: Text-interpretive, experimental, and reader-response analyses. *Journal of Consumer Research*, *26*, 37–54.

McQuarrie, E. F., & Mick, D. G. (2009). A laboratory study of the effect of verbal rhetoric versus repetition when consumers are not directed to process advertising. *International Journal of Advertising*, *28*, 287–312.

McQuarrie, E. F., & Phillips, B. J. (2005). Indirect persuasion in advertising: How consumers process metaphors presented in pictures and words. *Journal of Advertising*, *34*, 7–20.

Meyers-Levy, J., & Tybout, A. M. (1989). Schema congruity as a basis for product evaluation. *Journal of Consumer Research*, *16*, 39–54.

Mick, D. G., & Buhl, C. (1992). A meaning-based model of advertising experiences. *Journal of Consumer Research*, *9*, 317–338.

Mohanty, P., & Ratneshwar, S. (2015). Did you get it? Factors influencing subjective comprehension of visual metaphors in advertising. *Journal of Advertising*, *44*, 232–242.

Moorman, C., Zaltman, G., & Deshpande, R. (1992). Relationships between providers and users of market research: The dynamics of trust within and between organizations. *Journal of Marketing Research*, *29*, 314–328.

Mourali, M., Bckenholt, U., & Laroche, M. (2007). Compromise and attraction effects under prevention and promotion motivations. *Journal of Consumer Research*, *34*, 234–247.

van Mulken, M., le Pair, R., & Forceville, C. (2010). The impact of perceived complexity, deviation and comprehension on the appreciation of visual metaphor in advertising across three European countries. *Journal of Pragmatics*, *42*, 3418–3430.

Oliver, R. L., Robertson, T. S., & Mitchell, D. J. (1993). Imaging and analyzing in response to new product advertising. *Journal of Advertising*, *22*, 35–50.

Pham, M. T., & Avnet, T. (2004). Ideals and thoughts and the reliance on affect versus substance in persuasion. *Journal of Consumer Research*, *30*, 503–518.

Phillips, B. J. (2000). The impact of verbal anchoring on consumer response to image ads. *Journal of Advertising*, *29*, 15–25.

Phillips, B. J. (2003). Understanding visual metaphor in advertising. In L. M. Scott, & B. Rajeev (Eds.), *Persuasive imagery: A consumer response perspective* (pp. 297–310). Mahwah, NJ: Erlbaum.

Raju, S., Unnava, R. H., & Montgomery, N. V. (2009). The moderating effect of brand commitment on the evaluation of competitive brands. *Journal of Advertising*, *38*, 21–35.

Rusbult, C. E. (1983). A longitudinal test of the investment model: The development (and deterioration) of satisfaction and commitment in heterosexual involvement. *Journal of Personality and Social Psychology*, *45*, 101–117.

Rusbult, C. E., & Buunk, B. P. (1993). Commitment processes in close relationships: An interdependence analysis. *Journal of Social and Personal Relationships*, *10*, 175–204.

Sargeant, A., & Lee, S. (2004). Trust and relationship commitment in the United Kingdom voluntary sector: Determinants of donor behavior. *Psychology and Marketing*, *21*, 613–635.

Schau, H. J., Muñiz, A. M. Jr., & Arnould, E. J. (2009). How brand community practices create value. *Journal of Marketing*, *73*, 30–51.

Sett, R. K. (2014). A product and a price bundle in an efficient choice set: How do choice framing and goal orientation influence preferences? *Journal of Marketing Theory & Practice*, *22*, 285–298.

Srivastava, P., & Owens, D. L. (2010). Personality traits and their effect on brand commitment: An empirical investigation. *Marketing Management Journal*, *20*, 15–27.

Stathakopoulos, V., Theodorakis, I. G., & Mastoridou, E. (2008). Visual and verbal rhetoric in advertising: The case of 'resonance'. *International Journal of Advertising*, *27*, 629–658.

Sung, Y., Choi, S. M., & Tinkham, S. F. (2012). Brand-situation congruity: The roles of self-construal and brand commitment. *Psychology & Marketing*, *29*, 941–955.

Toncar, M., & Munch, J. (2001). Consumer responses to tropes in print advertising. *Journal of Advertising*, *30*, 55–65.

Ubilava, D., Foster, K. A., Lusk, J. L., & Nilsson, T. (2011). Differences in consumer preferences when facing branded versus non-branded choices. *Journal of Consumer Behaviour*, *10*, 61–70.

Wu, P. H., & Kao, D. T. (2011). Goal orientation and variety seeking behavior: The role of decision task. *Journal of Economic Psychology*, *32*, 65–72.

Yeo, J., & Park, J. (2006). Effects of parent-extension similarity and self-regulatory focus on evaluations of brand extensions. *Journal of Consumer Psychology*, *16*, 272–282.

Zhang, Y., & Zinkhan, G. M. (2006). Responses to humorous ads: Does audience involvement matter? *Journal of Advertising*, *35*, 113–127.

Zhou, R., & Pham, M. T. (2004). Promotion and prevention across mental accounts: When financial products dictate consumers' investment goals. *Journal of Consumer Research*, *31*, 125–135.

Dr Danny Tengti Kao is Professor of Consumer Psychology in the Department of Educational Psychology and Counseling at National Tsing Hua University, Taiwan. His research interests cover branding strategy and consumer psychology. Professor Kao has published over 15 articles on leading SSCI journals, such as *Journal of Consumer Behaviour*, *Journal of Economic Psychology*, *Judgment and Decision Making*, *International Journal of Psychology*, and *Journal of Applied Social Psychology*.

Dr Lei Zhang is Associate Professor at School of Economics and Finance, Xi'an Jiaotong University, Xi'an, China. Her research topics focus on behavioral economics and bank marketing.

Dr Annie Pei-I Yu is Assistant Professor of Marketing in the Department of Business Administration at National Chung Cheng University, Taiwan. She received her PhD degree in Marketing from the University of Edinburgh, UK. Her research focuses on consumer–brand relationships, the interaction of brand community members, and their influence on branding.

Dr Pei-Hsun Wu is Associate Professor in the Department of International Business at National Taichung University of Science and Technology. His research interests include consumer behavior and behavioral decision making. Dr Wu has published many papers on SSCI journals, such as *Journal of Economic Psychology* and *Asian Journal of Social Psychology*.

How to cite this article: Kao D-T, Zhang L, Yu AP-I, Wu P-H. Do ad metaphors enhance or dilute the consumers' brand preferences? Exploring the moderating role of goal orientation. *J Consumer Behav*. 2017;16:474–482. https://doi.org/10.1002/cb.1657