How to present donations:

The moderating role of numeracy in cause-related marketing

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ABSTRACT

Purpose: Cause-related marketing (CRM) is a sales strategy that is used to improve the success of a product by including a donation to a charitable cause in its price. While marketers can present CRM donations to consumers as either absolute amounts or percentages, the predominant practice in marketing is to use the latter. As the influence of such presentation formats is not well understood, the purpose of the present experiments was to systematically examine their effects while taking into account the numerical ability (numeracy) of the consumers.

Design/methodology/approach: In two experiments, we manipulated the presentation format of the donation amounts (absolute vs. percentage) and measured individual differences in numeracy. We also varied the product type (hedonic vs. utilitarian) and sales price. We measured the effects on purchase intentions across a wide range of products.

Findings: The results of both experiments consistently supported our hypothesis that for people with lower numeracy, their purchase intentions were higher when absolute donation amounts were presented. We found this effect for high and low price levels and for hedonic and utilitarian products.

Originality/value: The present research shows that the current practice of presenting donations in percentages is inferior to presenting donations in absolute amounts because a large number of consumers have trouble interpreting percentages appropriately. The present research indicates that the default option for marketing managers should be to present donations in absolute amounts for hedonic and utilitarian products with low and high prices.

Keywords: cause-related marketing, numeracy, presentation format, donation amount, percentages, product type

Article Classification: Research paper

Donating money to a charitable cause is often perceived as a positive action that can improve a company's reputation. Companies often make efforts to display social responsibility in order to address consumer expectations (Ferguson and Goldman, 2010). Charitable activities allow companies to exhibit social responsibility and can lead to an increase in sales figures (Barone et al., 2000) and customer loyalty (Bronn and Vrioni, 2001; van den Brink et al., 2006). One way to signal a company's social responsibility is cause-related marketing (CRM; Strahilevitz and Myers, 1998), a promotion strategy that incorporates a donation to a charitable cause into the sales price of a product (Varadarajan and Menon, 1988). People often prefer products with CRM over products with comparable price reductions (Krishna and Rajan, 2009; Winterich and Barone, 2011). However, CRM is not always beneficial to the same extent. The effects of CRM campaigns on sales are moderated by several factors, including (among others) product attributes (e.g., product type, sales price; Chang, 2011; Strahilevitz and Myers, 1998; Strahilevitz, 1999) and promotional features (e.g., promotion framing; Grau and Garretson Folse, 2007).

One important factor that has not received sufficient attention in the growing literature on the effectiveness of CRM campaigns is related to how donation amounts are presented. In this paper, we sought to fill this gap by investigating the effect of presenting donations as absolute amounts versus percentages in order to indicate how much of the sales price would be donated by the company. In addition, we examined the moderating effects of product attributes (product type and sales price) as well as individual differences in numeric ability. Since many consumers have low numeric abilities, which might lead to a misunderstanding of percentages and thus an aversion to them, we hypothesized that purchase intentions would be higher for products with absolute donation amounts. The results of two experiments supported our prediction and indicated that donation amounts should be presented in absolute figures to

increase the purchase intentions of people with lower numeric ability. This effect appeared to be independent of product type and sales price.

Theoretical background

Some authors have argued that the success of CRM campaigns might depend on the product type and the related benefits (Strahilevitz and Myers, 1998). The consumption and choice of products can be based on the presence of predominantly hedonic or utilitarian benefits (Batra and Ahtola, 1991; Dhar and Wertenbroch, 2000; Strahilevitz and Myers, 1998). Consumers derive pleasure (e.g., eating a chocolate cake) from the consumption of hedonic products and perceive utilitarian products as functional, practical, and often necessary (e.g., toilet paper). Research suggests that CRM is more effective when connected to hedonic products than utilitarian ones (Strahilevitz and Myers, 1998; see also Krishna, 2011) and that this effect is more pronounced when donation amounts are high (Strahilevitz, 1999). Besides the type of product, researchers have studied the sales price as a factor that influences the effectiveness of CRM, but the available empirical findings do not paint a consistent picture. While some research has shown that CRM for high-priced products is less effective and even reduces consumers' willingness to purchase the product (Chang, 2008), other research has not identified effects of the price level (Holmes and Kilbane, 1993).

In addition to effects of product type and price level, it is also important to consider the effects of how the donation amount is actually presented. The donation can be framed in different formats such as absolute donation amounts (e.g., 10 cents of the sales price), percentages (e.g., 5% of the sales price or 5% of the profits), or specific goods (e.g., a vaccine or a pair of shoes). An analysis of US CRM campaigns in 2010 demonstrated that 35% of the campaigns presented absolute dollar amounts, 25% showed a percentage of the price, and 20% indicated a percentage of the profits (Hawkins, 2012).

Although the presentation of percentages is quite common, consumers have trouble understanding percentages and may even misinterpret the actual contribution (Olsen et al., 2003; Pracejus et al., 2003). An exploratory study by Grau et al. (2007) examined consumers' preferences and found that in an example with four different presentation formats (i.e., percentage of price, percentage of profit, abstract proportion of sales, exact absolute amount), 75% of the consumers preferred the presentation in absolute amounts. This study by Grau et al. (2007) is very important because it is the first study to show that presentation format effects are relevant to CRM. However, the finding that consumers perceive the presentation in absolute amounts to be fair and appropriate does not allow any conclusion about whether the presentation of percentages compared with absolute amounts has any effect on purchase intentions. First, even if consumers prefer a specific presentation format, the format might still be irrelevant to their purchase intentions. Second, it is very unlikely that consumers will be offered the chance to choose between different presentation formats for the same product in a shopping context. Third, giving consumers a choice between different presentation formats might produce demand effects. When given a choice, a consumer might be more likely to consider what companies should do in a normative manner rather than what the consumer perceives as relevant or appropriate in a shopping situation. Indeed, systematic experimental research on the effect of presentation formats on the success of CRM campaigns is rare. Only one study has yielded initial (but inconclusive) evidence that consumers are more willing to purchase products when donations are presented in absolute amounts compared with percentages (Chang, 2008).

While research on presentation formats in the CRM literature is scarce, the importance of presenting numerical information in terms of frequencies or percentages has already been demonstrated in other decision-making domains. For example, researchers found that a frequency format increases the perception of risk (e.g., "20 out of 100" triggers higher risk perceptions than "20%"; Slovic et al., 2002). Furthermore, it was shown that the presentation

of frequencies facilitates Bayesian reasoning (Chapman and Liu, 2009; Gigerenzer and Hoffrage, 1995) and that this effect is revealed in sequential confidence judgments (Biswas et al., 2011).

More pertinent to understanding the specific impact of CRM campaigns is research on the perception of discounts. Researchers found that the presentation of price reductions in absolute dollar amounts and percentages has positive effects on perceived savings (for an overview, see Krishna et al., 2002) but that the sales price of the product seems to moderate the influence of the presentation format (Chen et al., 1998; Gendall et al., 2006; Heath et al., 1995; McKechnie et al., 2012). Some studies found that percentages resulted in higher purchase intentions for low-priced products, whereas absolute amounts were more advantageous for high-priced products (Chen et al., 1998; Heath et al., 1995). Although these studies suggest several moderators and are only partly consistent, there is consensus that percentages lead to higher processing difficulty and reduced confidence, which may in turn decrease purchase intentions (Chen et al., 1998; DelVecchio et al., 2007; Krishna et al., 2002). Moreover, uncertainty about exact prices can have negative effects on consumer decisions (Mazumdar and Jun, 1992). Therefore, we expected that, as in the case of presentation format effects in pricing, absolute donation amounts in CRM would result in higher purchase intentions compared with relative donation amounts.

H1: Compared with donations given in percentages, presenting donations in absolute amounts will result in higher purchase intentions in CRM campaigns.

While researchers have already pointed out that individual differences (e.g., gender, attributions of company motives) can influence the success of CRM campaigns (Moosmayer and Fuljahn, 2010; Koschate-Fischer et al., 2012), to the best of our knowledge, the relevance of individual differences in presentation format effects has not yet been examined in CRM. However, some evidence from the literature on price discounts suggests that individual

differences can affect the effects of presentation formats. For example, in a recent study by Choi and Mattila (2014), the evaluation of price discounts in absolute dollar amounts resulted in higher purchase intentions only for people who indicated a lower sense of personal power. The postulated explanation for this effect is the reduced confidence in the price among individuals with a low sense of power. In the same vein, another study found that people with negative attitudes toward mathematics (i.e., math anxiety) preferred the presentation of discounts in absolute dollar amounts over percentages (Suri et al., 2013). On the basis of this research, we propose that a low ability to comprehend and transform numeric information is highly relevant for the occurrence of presentation format effects. We regard this variable as important a) because a considerable number of consumers are characterized by limited numeric abilities or an aversion to using numbers and b) because we assume that a lack of such abilities impedes a person's understanding of percentages and might lead to negative responses.

Research has demonstrated that individual differences in numeracy influence the comprehension of numerical information, including the conversion of frequencies, percentages, and probabilities (Peters, 2012; Peters et al., 2006; Reyna and Brainerd, 2008). The National Assessment of Adult Literacy Surveys in the US suggests that many people have problems understanding numerical information correctly (Kutner et al., 2007). Insufficient numeracy is often related to uninformed decision making and misunderstandings of numerical information (Greene and Peters, 2009; Soll et al., 2013). In addition, individuals with low and high numeracy differ in their perception and use of numbers (Cokely and Kelley, 2009; Dieckmann et al., 2009; Kleber et al., 2013). Enhancing the ease of information processing by presenting less information (Peters et al., 2007) or by using graphical illustrations (Galesic et al., 2009) can facilitate the comprehension of numbers among less numerate individuals.

People with lower numeric skills are also more susceptibile to framing effects (Peters et al., 2006; Peters, 2008, 2012). In particular, the presentation of numerical information in frequencies versus percentages changes the meaning of these numbers for less numerate individuals, but it does not influence the perceptions of more numerate people. For example, researchers found that individuals with weaker numeric skills evaluated frequencies as more risky than percentages (Peters et al., 2011) and were willing to donate more if the victim number was presented in a frequency format (i.e., "1 out of 100" instead of "1%"; Dickert et al., 2011). By contrast, highly numerate individuals appear to be able to convert frequencies and percentages readily and are therefore not influenced by the presentation format. Combining these findings with research on price discounts, which assumes that the advantage of absolute formats is a result of the difficulty of the calculation and uncertainty about the price (Chen et al., 1998; DelVecchio et al., 2007; Krishna et al., 2002), we expected that only less numerate individuals would show a presentation format effect.

> H2: The importance of the presentation format will depend on numeracy. Less numerate individuals will show higher purchase intentions for CRM campaigns presenting absolute donation amounts (in comparison with percentage amounts), whereas highly numerate individuals will not be influenced by a donation's presentation format.

Overview of Experiments and Contribution

Even if marketers often use percentages to illustrate donations in CRM, the literature reviewed above leads to the proposition that presenting a donation as an absolute amount might be advantageous. However, since experimental studies testing such effects are rare and have not accounted for consumers' numeracy, we investigated the effects of presenting donations in percentages or absolute amounts in CRM campaigns in two experiments while

taking into account individual differences in numeracy as a moderator. It is important to note that we studied the effects of hedonic and utilitarian products with low and high sales prices. To manipulate the type of product, we applied two methods. In Experiment 1, we varied the type of product by presenting different products with predominantly hedonic or utilitarian benefits, whereas in Experiment 2, we stressed either hedonic or utilitarian benefits in descriptions of the same products.

The present research contributes to our knowledge about CRM effects in several ways. First, the experiments we conducted provide insights into the effects of the different presentation formats across different product types and price levels. Since marketing managers have to decide which presentation format to apply, it is important for them to have reliable knowledge about effects of presentation formats across different price levels and products with hedonic and utilitarian benefits. Second, considering individual differences in numeracy as a moderator will help to improve our understanding of the mechanisms that underlie presentation format effects, and, most important, any insights that are provided by this research can also be used to tailor CRM campaigns for consumers. If presentation format effects increase with a decrease in numeracy, this will have important implications for the design of CRM campaigns. Indeed, it can be assumed that many consumers are characterized by a low ability to comprehend numeric information or an aversion to using numeric information. Not taking these consumers into account would mean missing the chance to increase the effects of CRM campaigns.

Experiment 1

Method

Participants. Fifty-six undergraduates at the University of XX (M_{age} = 25.9 yrs., SD_{age} = 6.4 yrs.; 77% women) took part in this experiment, which lasted approximately 20 minutes. They either volunteered to participate or received course credit for their participation.

Design. To investigate our hypotheses, we used a 2 (presentation format: absolute vs. percentage) x 2 (price level: low vs. high) x 2 (product type: hedonic vs. utilitarian) mixed-factorial design with numeracy as an additional continuous predictor. The presentation format of the donation was varied between subjects by showing the amount of the sales price that was being donated as either an absolute amount (absolute condition) or a percentage (percentage condition). We manipulated price level and product type within subjects. Each participant evaluated eight products: two for each cell of the 2 (price level) by 2 (product type) within-subjects design. We measured numeracy with the questionnaire developed by Peters et al. (2007). For the dependent variable, we assessed the willingness to purchase and attractiveness ratings of the products as measures of purchase intentions (derived from Chang, 2008).

Materials. In order to use appropriate hedonic and utilitarian products, we conducted a pretest using the approach proposed by Strahilevitz and Myers (1998, p. 436). Fifty-two volunteers (M_{age} = 23.5, SD_{age} = 2.7; 69% women) classified 40 different products as "hedonic," "utilitarian," "hedonic and utilitarian," or "neither hedonic nor utilitarian." To avoid misunderstandings of these concepts, we provided the participants with definitions of *hedonic* and *utilitarian* derived from previous research (Stahilevitz and Myers, 1998; Strahilevitz, 1999). For each product type, we used products that were rated by at least 60% of the participants as hedonic (low price: concert ticket, caviar; high price: designer wristwatch, game console) or utilitarian (low price: public transportation ticket, university textbook; high price: stove, refrigerator).

Furthermore, the pretest included ratings of several humanitarian aid organizations in order to identify well-known organizations. Participants evaluated the prominence of 13 aid organizations, and almost all of them (more than 98%) knew the following five organizations: Amnesty International, Doctors Without Borders, Red Noses Clowndoctors, SOS Children's

Villages, and Unicef. These organizations were randomly assigned to specific products, and each assignment was fixed across participants.

Procedure. The participants were tested individually and randomly assigned to one of the two presentation formats. Each of the eight products was presented separately, with its sales price and the corresponding donation amount expressed as either an absolute figure or a percentage. The amount of the donation was kept constant at 15% of the sales price. Participants evaluated each product in terms of attractiveness ("How attractive is this product?") and purchase likelihood ("How likely are you to buy the product?") using a six-point scale (1 = unattractive/unlikely, 6 = attractive/likely). After the evaluation, we assessed numeric ability (Peters et al., 2007). Fifteen items tested the participants' comprehension of frequencies, probabilities, and percentages (e.g., "Imagine that we rolled a fair, six-sided die 1,000 times. Out of 1,000 rolls, how many times do you think the die would come up as an even number?"). The numeracy score reflected the sum of all correct answers. Finally, the participants were thanked and debriefed.

Results

To test our hypotheses, we computed a repeated-measures regression with product type and price level as within-subject factors and presentation format and numeracy as between-subject factors by indicating that the observations were independent for the different participants (i.e., by clustering the standard error). We simplified the analyses by averaging the two products within each category. The price level (low price = -1, high price = +1), product type (utilitarian = -1, hedonic = +1), and presentation format (percentage = -1, absolute = +1) were contrast-coded, and numeracy was mean-centered. For the dependent variable, we combined the willingness to purchase and attractiveness ratings into one purchase intention scale ($r = .85$, $p < .001$).

The model with all variables and their interactions significantly predicted purchase intentions, $F(14, 55) = 14.34$, $p < .001$, $R^2 = .39$. Our first hypothesis (H1), which predicted

higher purchase intentions for absolute donations than for percentages, was not supported by the data, β = .07, p = .400. However, the expected interaction between presentation format and numeracy (H2) was significant, β = -.22, p = .003 (see Figure 1). In particular, spotlight analyses showed that less numerate individuals (1 SD below the mean) indicated higher purchase intentions when the donations were presented in absolute amounts than in percentages, β = .28, p = .01. By contrast, the ratings assigned by more numerate individuals (1 SD above the mean) did not differ according to the presentation format, β = -.15, p = .19. A marginal three-way interaction between numeracy, presentation format, and price, β = -.10, p = .09, revealed that the two-way interaction between numeracy and presentation format was stronger for products with higher prices, β = -.32, p = .002, than for those with lower prices, β = -.12, p = .19. However, the pattern of results (i.e., higher purchase intentions among less numerate individuals when donations were given in absolute amounts) was similar for products with high and low prices. In addition, we found higher purchase intentions for products with lower prices (M = 3.52, SD = 1.12) than for those with higher prices (M = 2.63, SD = 1.17), β = -.45, p < .001. A main effect of product type further demonstrated that purchase intentions were higher for utilitarian products (M = 3.62, SD = 1.21) than for hedonic products (M = 2.53, SD = 0.97), β = -.54, p < .001. The other effects were not significant, βs < .07, ps > .25.

- Insert Figure 1 about here –

Discussion

In this experiment, we found support for our hypothesis of an interaction between presentation format and numeracy (H2). Specifically, the presentation format had an effect on the purchase intentions of less numerate individuals but not for more numerate individuals. Hence, the experiment shows that the positive effect of presenting donations in absolute

amounts (compared with percentages) is particularly apparent in less numerate individuals. Moreover, we found an indication that this interaction is more pronounced for high-priced products, a finding that is in line with research showing that absolute price discounts lead to higher purchase intentions for high-priced products in particular (Chen et al., 1998; Heath et al., 1995).

The difference between utilitarian and hedonic products did not influence the advantage of absolute donation amounts for less numerate individuals. Hence, the results of the present study imply that presentation format effects can arise for both utilitarian and hedonic products. However, one limitation of Experiment 1 is that the hedonic and utilitarian products were from different product categories and differed in several respects. For instance, consumers might be far more likely to buy a utilitarian product such as a ticket for public transportation than a hedonic product such as a concert ticket. Accordingly, we found that participants indicated higher purchase intentions for the utilitarian than for the hedonic products. In order to rule out the possibility that the difference between the product categories obscured a possible moderation of the framing effects induced by the hedonic vs. utilitarian products, we conducted Experiment 2, in which we used products from the same category and described each product as hedonic or utilitarian.

Experiment 2

The second experiment was designed to replicate and strengthen our findings regarding the interaction between numeracy and the format in which the donation was presented. In contrast to Experiment 1, we presented the same products as hedonic or utilitarian by describing their purposes in different ways. Moreover, we applied smaller donation amounts (7%) than in Experiment 1 (15%) to demonstrate that the hypothesized interaction could be found for smaller donation amounts as well. Also, we assessed whether participants recommended the products to family and friends as an additional measure of

purchase intentions (Chang, 2008) and included a scale to measure participants' general attitude toward helping others (Koschate-Fischer et al., 2012).

Method

Participants. A total of 118 undergraduates at the University of XX (M_{age} = 23.4 yrs., SD_{age} = 13.9 yrs.; 66% women) took part in this experiment. As compensation for participating, they each received 4 Euro.

Design. To replicate and reinforce our findings from Experiment 1, we examined our hypotheses in a slightly modified 2 (presentation format: absolute vs. percentage) x 2 (product type: hedonic vs. utilitarian) x 2 (price level: low vs. high) mixed-factorial design with numeracy as an additional continuous predictor. As in Experiment 1, the donation amounts were presented as either absolute figures or percentages, price level (low vs. high) was varied within subjects with two products on each level, and numeracy was measured with the questionnaire proposed by Peters et al. (2007). However, we manipulated product type between subjects in Experiment 2 by using two different (i.e., utilitarian and hedonic) descriptions of the same products.

Materials. In order to manipulate the product type, we presented hedonic vs. utilitarian descriptions of the same products with equal prices. As products, we used a thermos (14 Euro) and a lamp (42 Euro) for the low-price level and a refrigerator (480 Euro) and a washing machine (370 Euro) for the high-price level. For example, the thermos was described in the hedonic condition as "aesthetically designed with a unique hand-made drawing," whereas in the utilitarian condition, it was described as "necessary for drinking hot coffee and tea on the go." The hedonic and utilitarian classifications were verified by a manipulation check in which participants had to evaluate each product on the basis of two items per product type using a scale adapted from Dahr and Wertenbroch (2000). In particular, we measured the hedonic dimension on a seven-point scale with the endpoints "dull vs. exciting" and "not delightful vs. delightful," whereas we assessed the utilitarian dimension using two items with

the endpoints "impractical vs. practical" and "not functional vs. functional." We also randomly assigned one of four humanitarian aid organizations – Amnesty International, SOS Children's Villages, Doctors Without Borders, and Red Noses Clowndoctors – to each product.

In addition, we measured the participants' attitudes toward helping others with four items derived from previous research (Koschate-Fischer et al., 2012; Webb et al., 2000). Participants rated the extent to which they agreed with the following statements on a nine-point scale: "People should be willing to help others who are less fortunate"; "Helping troubled people with their problems is very important to me"; "People should be more charitable toward others in society"; and "People in need should receive support from others."

Procedure. Participants were randomly assigned to one of the four between-subject conditions and tested in separate cubicles. First, the four products were randomly presented with the corresponding donation amount expressed as either a percentage (7% for all products) or an absolute amount (equivalent to 7% of the sales price in Euro), and participants rated their willingness to purchase each product, its favorableness, and their probability of recommending it to family and friends. Afterwards, participants evaluated the hedonic and utilitarian dimensions of each product. Finally, we assessed their attitudes toward helping others and their numeracy.

Results

Preliminary data analysis. We combined the four items measuring attitudes toward helping others into one scale (Cronbach's $\alpha = .83$). As in Experiment 1, numeracy was mean-centered, and the dichotomous predictors were contrast-coded (presentation format: percentage = -1, absolute = 1; product type: utilitarian = -1, hedonic = 1; price: low price = -1, high price = 1). For the dependent variable, we combined the two products from the same category (e.g., refrigerator and washing machine) and averaged the three measures of

willingness to purchase, favorableness, and recommendation probability into a purchase intentions scale (derived from Chang, 2008; Cronbach's $\alpha = .86$).

Manipulation check. The evaluation of the products as hedonic or utilitarian matched our manipulation intentions. We combined the two items measuring the hedonic or utilitarian dimensions and calculated a difference score (hedonic – utilitarian) for each product, with negative values indicating a more utilitarian evaluation and positive values a more hedonic evaluation. On average, all products with a utilitarian description were rated as more utilitarian ($M = -3.01$, $SD = 1.15$) than those with a hedonic description ($M = -1.22$, $SD = 1.62$), $t(116) = 6.95$, $p < .001$, $d = 1.29$.

Hypothesis testing. In order to predict purchase intentions, we computed a repeated-measures regression with price level as the within-subject factor; presentation format, product type, and numeracy as between-subject factors; and attitude toward helping others as a covariate, $F(15, 117) = 2.42$, $p = .004$, $R^2 = .09$. We found marginal support for the prediction that absolute donation amounts would result in higher purchase intentions than percentages (H1), $\beta = .16$, $p = .072$. However, the predicted interaction between numeracy and presentation format (H2) was also significant, $\beta = -.23$, $p = .02$. As shown in Figure 2, less numerate individuals indicated higher purchase intentions for products with absolute donation amounts than for products with percentage donation amounts, $\beta = .38$, $p = .005$. By contrast, among more numerate individuals, the format in which the donation amount was presented did not predict purchase intentions, $\beta = -.07$, $p = .56$. Moreover, purchase intentions were higher for products with lower prices ($M = 4.52$, $SD = 1.19$) than for products with higher prices ($M = 4.17$, $SD = 1.30$), $\beta = -.20$, $p = .007$, and attitude toward helping others marginally predicted purchase intentions, $\beta = .20$, $p = .066$. The other effects were not significant, βs < .11, ps > .12.

- Insert Figure 2 about here -

Discussion

The results of Experiment 2 again showed that consumers are more likely to respond positively to CRM when donations are expressed in absolute amounts compared with percentages. It is important to note that the results demonstrate that this effect is more pronounced for less numerate individuals. It is striking that neither the price level nor the type of product (hedonic vs. utilitarian) moderated this effect or showed interactions with numeracy. Because we used the same products in both conditions and only framed the products differently, differences between product categories cannot explain the lack of effect of hedonic and utilitarian products on the effect of the presentation format.

General Discussion

While marketers can present donations in CRM as either absolute amounts or percentages, a common practice in marketing is to present the donations in CRM activities to consumers in percentages. In two lab experiments, we tested how the framing of the donation in absolute amounts or percentages would influence purchase intentions. Our findings consistently showed the superiority of presenting the donations in absolute amounts compared with percentages across different price levels and products with hedonic and utilitarian benefits but also demonstrated that the observed presentation format effect is more pronounced for individuals with lower numeric abilities.

There are different possible explanations for why only less numerate individuals are influenced by the format in which the donation amount is presented. In line with research on perceptions of discounts (Chen et al., 1998; DelVecchio et al., 2007; Krishna et al., 2002; Mazumdar and Jun, 1992), it is possible that less numerate individuals have trouble calculating percentages and subsequently show uncertainty about the prices and reduced confidence, which would explain the negative effect of percentages. An alternative

explanation could be based on obtaining different results when calculating the absolute amount of the donation (if the percentage is presented) depending on numeracy. Being given a relative donation amount (i.e., a percentage) requires the consumer to multiply the percentage by the price of the product to calculate the absolute donation amount. According to prospect theory (Kahneman and Tversky, 1979), people's subjective evaluations of values (i.e., the price of the product) and probabilities (i.e., the relative donation) are biased and follow specific curves. Specifically, the curve of the value function is concave (for gains), resulting in lower subjective values (than objective values) and would lead to a smaller subjective price. The curve of a probability function would also result in a lower subjective probability because probabilities are usually underestimated (except for really small probabilities). Hence, if consumers rely on their biased subjective estimation of the price and the donated percentage, the result of the multiplication (i.e., the subjective donation amount according to prospect theory) would be lower than the actual donation amount in absolute terms. This difference in donation amounts should be more pronounced for less numerate individuals as they show a stronger bias in their value function than highly numerate individuals (Schley and Peters, 2014). Additional research will be necessary to further elucidate the reasons for this interaction effect.

The price of a product has emerged as an important moderator of presentation format effects in previous research on price discounts, but our findings suggest that the effect in CRM is rather small. Previous research on the framing of price reductions shows that an absolute format is beneficial for high-priced products, whereas percentages should be used for low-priced products (Chen et al., 1998, Heath et al., 1995). The results of Experiment 1 (i.e., that absolute donations compared with percentages lead to higher intentions to buy high-priced products for people with low numeric skills) are partially congruent with this previous research on price reductions. However, the results of Experiment 2 indicate that this effect is not as strong as previous research has suggested. It is possible that the perception of high

price discounts (i.e., high perceived savings) is more important for the purchase decision than the perception of high donation amounts. The ease of information processing may be more important in CRM campaigns, meaning that absolute donation amounts are better for all price categories. However, we should mention that in Experiment 2, we did not systematically study the CRM effects at a very low price level (e.g., on the level of 1 EUR). Hence, we cannot rule out that different presentation format effects can be observed at these very low price levels.

Furthermore, we found that the interaction between numeracy and presentation format was independent of the hedonic vs. utilitarian product type. The results indicate that numeracy moderates the effect of presentation format for both hedonic and utilitarian products. A prior study in which product type was manipulated by offering two specific products for each type suggested that presentation formats could be more important for hedonic products (Chang, 2008). However, with our experiments, we were able to extend the methodological approach applied in previous research by using different manipulations of the product type. In Experiment 1, we followed the previous approach and manipulated product type by offering different products. More important, however, we replicated our results in Experiment 2 by manipulating the product type by providing different descriptions of the same product.

Furthermore, it is important to note that the results of the current experiments imply that effects of presentation formats might be underestimated when samples with above-average levels of numeracy are assessed. In the current studies, we used university undergraduates, who usually have a higher numeracy level than common consumers. Nonetheless, we found strong presentation format effects among the less numerate individuals. The effect of presentation format might therefore be even more pronounced in samples with lower numeric skills.

The present research could be extended by examining the fit between the products and the humanitarian aid organizations (Chéron et al., 2012; Gupta and Pirsch, 2006; Pracejus and

Olsen, 2004). In our experiments, the aid organizations were randomly assigned to one product and were not varied systematically. Accordingly, our pattern of results does not seem to be limited to a fit between the product/company and the cause. Nonetheless, the fit might be more important for less numerate individuals because they focus more on non-numeric cues (Dieckmann et al., 2009). Additional non-numeric information could include the vividness of the description of the cause (Baghi et al., 2009), which might also predominantly influence less numerate individuals. By contrast, more numerate individuals base their evaluations mainly on numbers. Previous research has found that CRM effectiveness is higher when (numerical) donation amounts are higher (Folse et al., 2010). Hence, it is possible that the donation amount is more important for highly numerate individuals.

Implications and conclusion

This paper shows that the intention to purchase products involving CRM depends on the format in which the donation is presented. Previous research by Grau et al. (2007) already showed that consumers prefer donations to be presented in absolute amounts compared with percentages when they can choose between different presentation formats. While this prior research stresses which kind of presentation format consumers regard as fair and preferable behavior by companies, it did not answer the question of whether the presentation format affects purchase intentions in a shopping context (in which consumers are not able to choose between different presentation formats). The results of the present experiments illustrate that presenting donations in absolute amounts leads to an increase in purchase intentions compared with presenting donations in percentages.

The observed effect was robust across different price levels and hedonic and utilitarian products, but it was moderated by the consumers' numeracy. This finding extends a recent line of research that showed that individual differences (e.g., gender, attributed motives) are important moderators of the effects of situational cues (e.g., donation magnitude, message

framing) on evaluations of CRM campaigns (Moosmayer and Fuljahn, 2010; Koschate-Fischer et al., 2012). Most previous research has focused only on situational cues without considering individual differences (e.g., Batra and Ahtola, 1991; Strahilevitz and Myers, 1998), whereas our experiments emphasized the importance of investigating situational and personal factors simultaneously.

In addition, the present research has important implications for marketing practice. The present research shows that the current practice of presenting donations in percentages is inferior to presenting donations in absolute amounts because a large number of consumers have trouble comprehending numeric information or do not rely on numeric information that does not allow an immediate interpretation. The present research indicates that the default option for marketing managers should be to present donations in absolute amounts in CRM campaigns. The absolute donation amounts should be preferred over percentages across all hedonic and utilitarian products with low and high prices.

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Figures

Figure 1

Purchase intentions by presentation format and numeracy in Experiment 1

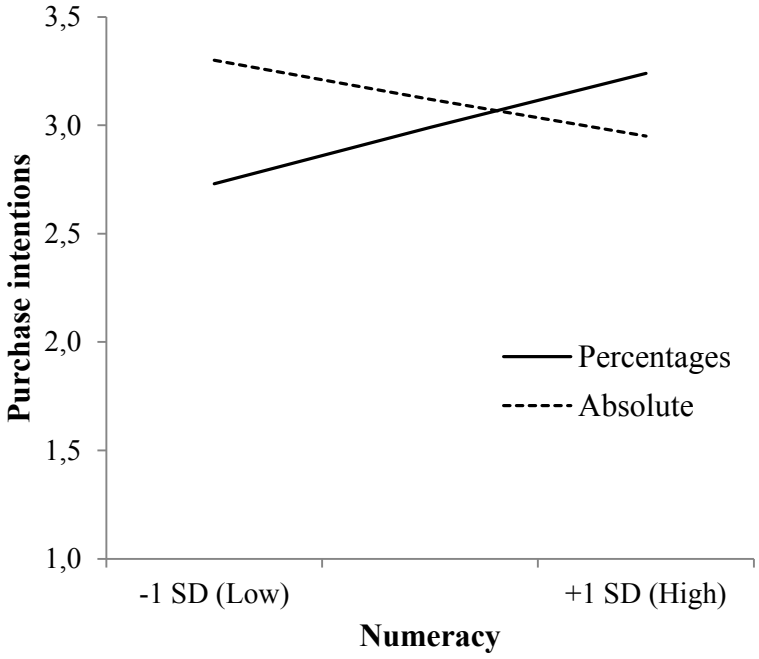

Figure 2

Purchase intentions by presentation format and numeracy in Experiment 2