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### The role of facial expression in resisting enjoyable advertisements

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# Chapter 4

## Consumer Resistance through Embodied Emotion Regulation<sup>1</sup>

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<sup>1</sup> This chapter is submitted for publication as:

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## Abstract

This research contributes to the literature on resistance to persuasion by identifying embodied emotion regulation as a promising strategy to resist advertising. We predict and show that instructing participants to use antecedent- or response-focused emotion regulation strategies changes the intensity of their bodily expression in response to amusing advertisements. In Experiments 1-5, emotion down-regulation influenced the facial expression of happiness, which in turn negatively affected attitude toward the ad, attitude toward the brand, and buying intentions. Furthermore, in Experiments 3-5, we demonstrated that participants willfully engage in and spend effort at reappraisal. The results of our studies advance theories on resistance to persuasion by highlighting the role of facial expression and emotion regulation. Many advertisements use amusement to evoke happiness and positive consumer reactions. Surprisingly, however, none of the known resistance strategies focuses on changing the expression or experience of emotion to resist persuasion. We demonstrate for the first time that concentrating on the regulation of facial expression, and hence the emotion, may benefit the consumer in the “fight” against persuasion.

## Introduction

Imagine a person watching a commercial on her home TV. When she notices that the commercial intends to amuse viewers to induce brand liking, she may become skeptical and consequently try to resist the persuasive attempt by, for example, counter arguing the message or source derogation (Fransen, Verlegh, Kirmani, & Smit, 2015; Zuwerink & Cameron, 2003). In the present research, we propose that consumers can also resist persuasion by using emotion regulation. For instance, when trying to resist a message, consumers may attempt to control the thoughts and emotions elicited by the ad (i.e., antecedent-focused emotion regulation), or, alternatively, to restrain their emotional expression (i.e., response-focused emotion regulation). We expect that both types of emotion regulation strategies may affect the facial expression of emotions, which subsequently affects consumer responses through the process of bodily feedback. Krishna and Schwarz (2014) recently reviewed evidence that consumers' attitudes, intentions, and behavior are often embodied – that is, visibly expressed by and through the human body.

We present a model proposing that embodied emotion regulation can be used to resist persuasion. We found that emotion regulation during ad exposure affects consumer responses through feedback from facial expression. Facial reactions were recorded in consumers' everyday environments and analyzed with automated facial coding software (FaceReader; Noldus 2013). Experiment 1 demonstrated that the response-focused emotion regulation strategy of expressive suppression during exposure to an amusing commercial resulted in fewer facial expressions of happiness, which in turn negatively affected appetitive attitudes. Experiment 2 showed that under exposure to an amusing commercial, antecedent-focused emotion regulation also negatively affects facial expressions of happiness and subsequently appetitive attitudes. Experiments 3-5 replicated this causal model with different antecedent-focused emotion regulation manipulations, product categories, and attitude measures. We propose that facial expression may be an embodied interface for resisting persuasion. Throughout our studies, we conceptualized (successful) resistance to persuasion as manifesting through lowered appetitive attitudes: attitude toward the ad, attitude toward the brand, and buying intentions; or AAD, AB, and BI, respectively. In the present research, we thus examine whether consumers can resist persuasive attempts like advertisements by regulating a) their emotions and b) the expression of these emotions.

Before presenting a theoretical model comprising the elements of resistance and its effectiveness in viewing ads, we introduce a theoretical framework featuring emotion, emotion regulation, facial expression, and the ways in which expressions may be part of emotion regulation.

### Theoretical Framework

#### Emotions

Several different definitions of emotion can be found in the literature (see for a review Gross & Barrett, 2011). An exhaustive discussion of them would carry us too far astray, so we have settled on a number of features that we deem essential for the concept as used in our work. Figure 1 presents an overview of these.

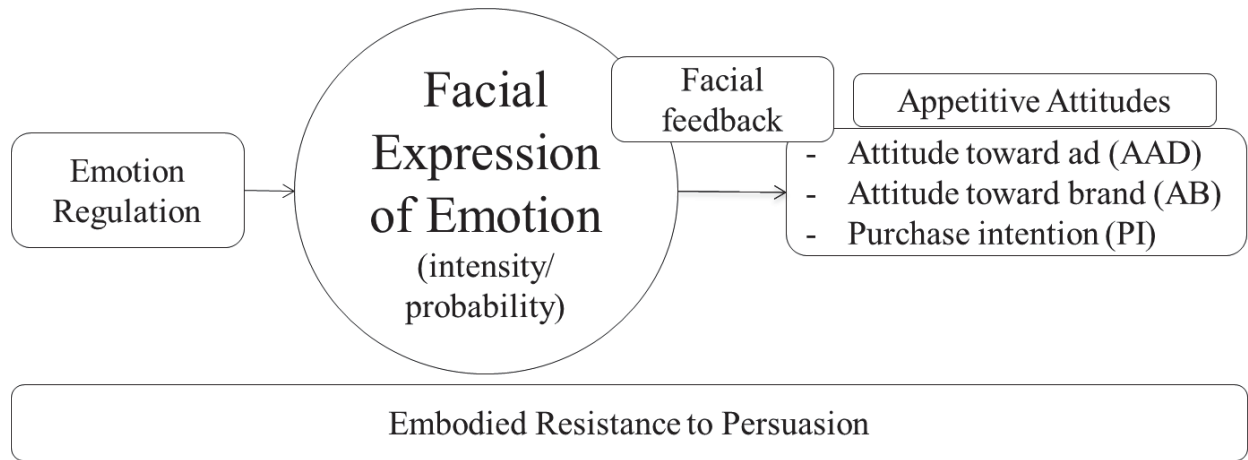


Figure 1. Model of emotion regulation in viewing ads.

First, emotions are psychological states involving various component processes that operate in synchrony and interdependency (Scherer, 2001; 2004; 2009). All emotions are characterized by components such as 1) appraisal of the stimulus’ evaluative meaning, 2) an experiential response, i.e., feeling, 3) motor expression – including facial expression, and 4) physiological responses. Although components can exhibit synchronies, researchers usually consider appraisal the one antecedent component of emotion, whereas feeling, motor expression, and physiological changes are considered the consequents, that is, emotional responses (Gross, 1998).

Second, we share the functional perspective on emotion (Frijda, 1986; 2010). This perspective considers emotions as being geared toward action. The feature distinguishing

emotion from non-affective, “cold” cognitive states is an orientation toward action. Action readiness is an antecedent component of emotion in the same sense as appraisal and feeling (Moors, Ellsworth, Scherer, & Frijda, 2013). In genuine emotion, appraisal of emotion-provoking events is immediately coupled with a readiness to act on these appraisals. It should be noted that action readiness, as an antecedent component, is a global motivation. By contrast, action orientations of emotional responses are more specific both in terms of action aims and manner, and can result in appetitive attitudes. For instance, any enjoyable stimulus prepares the individual to “simply approach,” but this global motivation may become more specific depending on ongoing appraisal and settle on one selected action schema in a final action readiness as an emotional response. Specific action tendencies may take the shape of appetitive attitudes (Frijda, 2010, p. 573), such as attitude toward the ad, brand, or engaging with (e.g., buying) the object.

Third, the generation of emotions can be distinguished from their regulation. Emotions can be subject to more or less conscious regulation by the subject both during and after their generation. Hence, regulated emotions can be distinguished from unregulated ones (Gross & Thompson, 2007), even though some scholars argue that this is an artificial separation (e.g., Kappas, 2011), that debate is not germane to the present research.

### **Emotion Regulation**

Theory and research on emotion regulation has identified two types of the phenomenon (Gross, 1998; 2002). Antecedent-focused strategies alter the *appraisal* of an emotional stimulus, thus decreasing or increasing the intensity of emotional responses, while response-focused strategies leave appraisals as they are and dampen or boost emotional *responses* in comparison to unregulated ones.

In the present paper, we examine the effectiveness of both types of emotion regulation. We focus primarily on the efficacy of one particular antecedent-focused strategy – cognitive reappraisal – testing the effects of perceiving emotional events objectively and analytically to decrease emotion (Lazarus & Alfert, 1964). This strategy affects both emotional appraisal and global action readiness. In our case, amusing ads are appraised less humorous, and positive action readiness toward the ad and brand is muted. Cognitive reappraisal has been found to increase resistance to temptation (Leroy, Grégoire, Magen, Gross, & Mikolajczak, 2012) and to decrease hedonic consumption (Kemp & Kopp, 2011).

The response-focused emotion regulation strategy investigated in this paper is expressive regulation, the suppression or amplification of outward signs of inner feelings (Gross & John, 2003). Here, this means that viewers would not express their amusement when exposed to an amusing ad. Findings on the effects of expressive suppression are mixed but, in general, the behavior results in diminished wellbeing and psychological functioning, e.g., a desire to overeat (Svaldi, Tuschen-Caffier, Lackner, Zimmermann, & Naumann, 2012) – albeit not in every instance (Soto, Perez, Kim, Lee, & Minnick, 2011; Alam, Barrett, Hodapp, & Arndt, 2008).

### **Facial Expression**

In our theoretical framework, we subscribe to the functional approach of emotion (Frijda, 2007; 2010), wherein facial expression is first and foremost indicative of the individual's readiness to undertake particular actions typically associated with an emotion. On this account, facial expression reflects dimensional and temporal dispositions to engage or disengage with the object of emotion (Frijda & Tcherkassof, 1997). A facial expression of happiness indicates appetitive motivations, while a disgusted expression indicates defensive motivations (Frijda, 2010). Researchers generally consider these two action motivations as basic and fundamental (Bradley, Codispoti, Cuthbert, & Lang, 2001). Most research on facial expression uses recognition studies (for reviews, see Russell, 1994; Nelson & Russell, 2013) in which participants are asked to judge an expression to assess recognition performance. Our studies are among the few that instead investigate the effects of production.

**Facial feedback.** Our theoretical framework assumes a two-way influence of emotion on expression and vice versa, as explained by the facial feedback theory (Buck, 1980). According to this theory, bodily feedback from the face shapes emotional experiences (see also McIntosh, 1996). People continuously monitor their own behavioral reactions to attention-grabbing events in their everyday environments and use these reactions as an information source for appraisal and action readiness on the one hand and their feelings on the other. Adding support to the facial feedback hypothesis, previous research has demonstrated that patterns of facial expression during ad exposure predicted consumers' attitudes toward the ad and brand (Lewinski, Fransen, & Tan, 2014a). In addition, facial expression has been well established as an important point of application for emotion regulation (Izard, 1990). Since the response systems in emotion are coupled (e.g., Scherer, 2001, 2004, 2009), it may be assumed that regulation effects on one subsystem such as facial expression are likely to affect responses of others.

**Facial expression in emotion regulation.** Facial expression as a motor expression of emotional response can be a point of application for the regulation of other emotion responses because it is easy to control in comparison to other systems. It has been shown, for instance, that hindering or facilitating facial expressiveness modifies feeling intensity in both mirth (Strack, Martin, & Stepper, 1988) and sadness (Larsen, Kasimatis, & Frey, 1992). Conforming to such findings, we consider that facial expression is not only a point of application for regulation (Izard 1990), but possibly a privileged one, because people can control their expression to a considerable degree. Although far from complete, control over facial musculature is typically better and easier than control over other response systems. Controlling inward feelings would need extensive cognitive resources; physiological responses are less accessible to a conscious regulation because they are responses of the autonomic nervous system. For instance, we have access to our facial expressions using a mirror or attending to proprioceptive feedback. Neither of these possibilities applies to one's heartbeat or related body mechanisms. One can stop smiling but not stop one's heart from beating fast or slow. Those features are relevant, for example, in applications of biofeedback and yet, as an embodied response system, facial expression is the nexus between feelings on the one hand, and motor action upon the outside world on the other.

On the general grounds of emotion component system interconnectivity and, in particular, the primacy of emotion regulation through facial expression (Izard, 1990), one may argue that not only response but also antecedent-focused emotion regulation will affect emotional responses through facial expression in the first place. The present research will test that possibility.

### **Embodied Attitudes**

In the context of consumers' resistance, appetitive motivations are the ultimate target of emotion regulation. In our research, we operationalize appetitive motivations as attitudes toward the advertisement, attitudes toward the brand, and buying intentions. Attitudes are evaluative psychological tendencies (Eagly & Chaiken, 2007), and all attitudes targeted in our research are appetitive in the sense that they reflect positive consideration of and an enjoyable interaction with the commercial, the brand, or the product. In other words, the emotion of happiness when viewing an ad includes attitudes toward the ad, attitudes toward the brand, and buying intentions as action-oriented, embodied emotional responses. The attitudes involved are emotional



responses that are quite specific in comparison to the more global motivations that are part of the antecedent action readiness component. We will further refer to these as appetitive attitudes, usually operationalized in consumer research literature as AAD (attitudes toward the ad), AB (attitudes toward the brand), and BI (buying intention).

**Emotion regulation in the service of consumer resistance.** We are interested in the role of emotion regulation in the context of consumer resistance to persuasive advertising. The person in our example who notices a persuasive intent willfully decides to regulate her emotion, and to be more precise, suppress it. According to Gross and Thompson (2007), one foundational feature of emotion regulation is that it involves an intentional act. Even if emotion regulation occurs frequently throughout everyday life, the action is usually not an unconscious, automated response. The individual is aware that a particular emotion is not desirable. We subscribe to this conception of emotion regulation because it fits into a wider strategy of willfully opposing persuasive effects on the consumer's self. The consumer in our example does not simply regulate an emotion, but rather leverages emotion regulation to counter the ad's intended effect of entertaining and pleasing viewers as part of evoking positive appetitive attitudes.

#### **Hypothesized Model of Emotion Regulation in Viewing Ads**

The core of the model we suggest is that consumers who adopt any of the emotion regulation strategies when exposed to an amusing commercial will demonstrate less (or more) facial expression of happiness and, as a result, like the ad less (or more) as compared to consumers in a control condition. As we are especially interested in consumer resistance, we will predominantly focus on the suppression of happiness and liking attitudes. The theoretical proposition subjected to piecemeal testing in this paper will thus be referred to as *consumer resistance through embodied emotion regulation*.

To reiterate, we hypothesize that the complete process involved in embodied emotional regulation resistance is the following: when viewing a properly amusing ad, consumers will feel some degree of happiness, and they do not typically regulate their emotion. That is, the contents of the amusing advertisement are appraised as funny, which incites an appetitive action readiness. These antecedent components cause emotional responses of happiness consisting of feeling, facial expression, and appetitive attitudes. Those appetitive attitudes are a specified form of action readiness to positively engage with the ad, brand, or product.

Alternatively, should the consumer engage in resistance against persuasion by amusing ads, response- or antecedent-focused emotion regulation that aims to suppress appetitive attitudes would first apply to the facial expression response, because control of that response is relatively easy. The interconnection and synchronization of emotional response systems, especially the connection of facial expression with appetitive attitudes, means that suppression of facial expression propagates to reduced feelings of happiness and appetitive attitudes. Analogous predictions on amplifying regulation of happiness might be formulated, however, this logically complementary prediction will only be tested as a control exercise in the first experiment.

### **Overview of the Experiments**

This paper reports five embodied resistance to persuasion experiments that test the effects of different experimentally induced emotion regulation strategies on appetitive attitudes with facial expression as a mediator. Experiments 1-2 test the effects of response-focused and antecedent-focused emotion regulation strategies on facial expression of happiness and subsequently on attitude toward the ad in the context of amusing, persuasive video ads.

Experiments 3-5 narrow our focus to comparing the effects of two variations of antecedent-focused emotion regulation strategies, i.e., cognitive reappraisal, on appetitive attitudes toward the brand and buying intentions. Not only is facial expression tested for mediation but also self-reported effort spent in emotion regulation, is added as a second mediator. The presentation of all experiments below includes subsets of the hypotheses taken from the general process model. We start by presenting overall methods and design, followed by specifications common to Experiments 1-2 and then 3-5.

### **Design and Methods for Experiments 1-5**

#### **Participants**

Participants were U.S. residents and native English speakers recruited through a crowdsourcing platform, Amazon Mechanical Turk (MTurk). Access to the experiment was given only once. Participants received an average of 0.80\$ for the task. The research conducted in this paper has received ethical committee approval by the first author's home institute. Each person having access to one of the experiments was excluded from participation in the following one.

#### **Procedure**

Participants accepted the MTurk task and were redirected to an external platform for the complete experiment. FaceReader Online is a cloud-based platform for human emotion and behavior analysis provided by Human Insight Services Limited ([www.facereader-online.com](http://www.facereader-online.com)). The facial expression of large numbers of participants can be analyzed and interpreted using recordings from their own webcams. Recordings were coupled with online questionnaire inputs using Qualtrics. For further processing of data and export to SPSS, Noldus FaceReader (2013) facial expression analysis software was used. Having accessed the platform, participants agreed to participation and to being video-recorded. Automated checks of participants' computer, camera, and flash plug-in were performed. After responding to some demographic and control questions, participants were randomly assigned to either the experimental or control conditions. Next, a 30-second video commercial was presented while participants were videotaped. Finally, appetitive attitudes were measured. Participants were debriefed and provided access to MTurk's payment system. Two control questions checked as to whether participants cheated or answered randomly; incorrect answering terminated the experiment. Thus, missing scores resulted in unequal sample sizes for conditions.

## **Measurement**

**Facial expressions.** Recordings of poor quality due to bad lighting or inadequate positions of the participant could not be analyzed. For more details, see the FaceReader manual at [www.noldus.nl](http://www.noldus.nl). The Noldus FaceReader (2013) neural network system continuously tracks and analyzes input faces, classifying emotional expressions according to discrete basic emotion categories – happiness, surprise, disgust, sadness, fear, anger, and contempt (Ekman, Sorenson, & Friesen, 1969; Ekman & Cordaro, 2011). Because all the advertisements were amusing, we chose for the expression of happiness as the main mediator in all our experiments. The rationale for this decision is explained in our theoretical framework. However, in each experiment, we also tested every other basic emotion, but they were never predictive of the attitudes in response to our amusing advertisements.

FaceReader assigns combined scores of the intensity and probability of the expression on a continuous scale from 0 to 1. For details, see Appendix A and van Kuilenburg, Wiering, and den Uyl (2005). Validation research reported matching scores (Ekman et al., 1969; Russell, 1994), i.e., accuracies of 89 percent (den Uyl & van Kuilenburg, 2005; van Kuilenburg et al., 2005) and 100 percent for happiness (Lewinski, den Uyl, & Butler, 2014). The system has

proven useful in a variety of contexts, e.g., in emotion and advertising research (Lewinski et al., 2014a). See Valstar, Mehu, Jiang, Pantic, and Scherer (2012) for a meta-analysis on the validation of automated facial coding.

For measuring facial expression as a dependent variable, an already validated index was used that integrates parameters' average duration, probability, and intensity (Lewinski et al., 2014a). The system assigned to each frame of the video recording of facial reactions an estimation of the intensity and probability of facial expression of emotion from 0 to 1. We took the average score of the top 10% peak values of facial expression of emotion to perform all the calculations. To compute the value for the emotions for each participant, their facial expression scores for that emotion were ordered from low to high, resulting in a percentile distribution from which the top 10% scores were taken and averaged. The average represents each participant's most prominent facial expression while taking into account the frequency of its occurrence.

### **Experiments 1-2**

In Experiments 1-2, we test the proposition that when watching a commercial, the adoption of either response- or antecedent-focused emotion regulation strategies decreases facial expression and, subsequently, is expected to negatively affect appetitive attitudes toward the ad. In the first two experiments, we want to a) provide empirical evidence for the basic premises of our model and b) establish support for our causal model and rule out an alternative account that attitudes could predict facial expression.

#### **Stimuli – Advertisements**

For Experiments 1-2, an amusing video ad has been selected out of eighteen candidates proposed by ad experts and pretested by a panel. The selected amusing ad was *Doritos Goat for Sale Ad* ( $M$  amused = 5.91,  $SD$  = 1.30 on a 7-point Likert scale,  $n$  = 11). Pretest participants were excluded from all experiments.

#### **Experiment 1 – Response-Focused Emotion Regulation**

Experiment 1 was designed to test the hypothesis that consumers who regulate their emotions by expressive suppression when watching an amusing commercial show less facial expression of happiness, which in turn results in lower appetitive attitudes toward the commercial. Moreover, we tested whether expressive amplification increases facial expression of happiness, thus resulting in more positive attitudes toward the commercial than in the control condition.

## Participants

A sample of 95 participants was randomly assigned to either the suppression condition (17 Men, 16 Women, average age = 29.58 years,  $SD = 8.62$ ), the amplification condition (18 Men, 16 Women, average age = 33.71 years,  $SD = 13.03$ ), or the control condition (12 Men, 16 Women, average age = 34.79 years,  $SD = 10.56$ ). We used the procedure previously described.

**Expressive regulation.** Response-focused emotion regulation through expressive regulation was manipulated using the verbatim instructions of Gross and Levenson (1997). Expressive suppression was induced by: “(...) *While watching the clips, please **DO NOT show your emotions**. Behave in a way that a person watching you would **NOT KNOW** you feel anything.*” To induce expressive amplification, we adapted Gross and Levenson’s (1997) original instructions, following Demaree, Schmeichel, Robinson, and Everhart (2004), and directed participants with the following: “*We will now be showing you three film clips. It is important to us that you watch the film clip carefully. While watching the clips, please **show your emotions AS MUCH AS POSSIBLE**. Behave in a way that a person watching you would **KNOW EXACTLY** what you feel.*” In the control condition, we asked participants to watch the film clips carefully: “*We will now be showing you three film clips. It is important to us that you watch the film clips carefully.*”

## Measures

**Attitudes.** Following the Advertising Effectiveness Model (Mitchell & Olson, 1982), attitudes toward the advertisement (AAD) were measured by three 7-point semantic differential scale items ( $\alpha = .96$ , adapted from Phillips, 2000): “I think the commercial that I just watched is... [*very bad - very good; very unlikable - very likeable; not enjoyable at all - very enjoyable.*]”

**Emotion regulation – trait.** To control for individual differences in the habitual use of emotion regulation strategies, we adopted the Emotion Regulation Questionnaire (ERQ) developed by Gross and John (2003). This measure assesses cognitive reappraisal ( $\alpha = .82$ ) and expressive suppression ( $\alpha = .86$ ) as individual traits with items like, “When I want to feel more positive emotion (such as joy or amusement), I change what I’m thinking about” or “When I am feeling positive emotions, I am careful not to express them.”

## Results

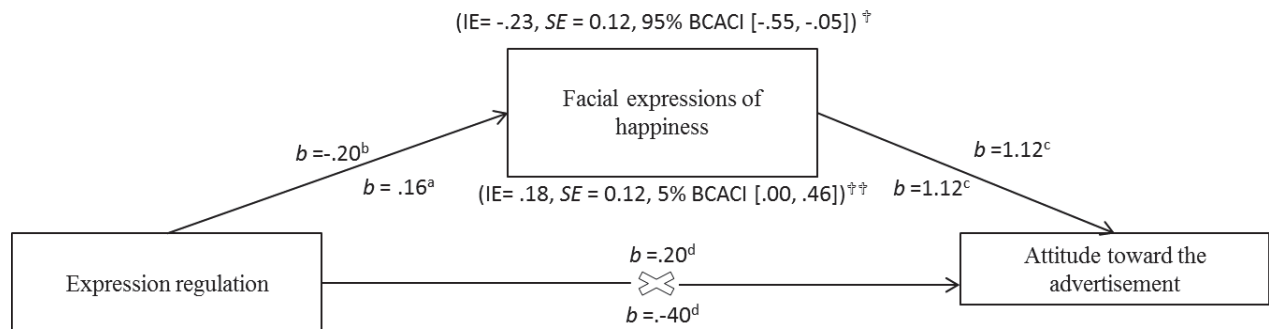
**Mediation model.** We applied Preacher and Hayes’ method (2008) to test our hypothesis that expressive regulation influences facial expression of happiness and subsequently attitudes

toward the ad. Their method estimates the path coefficients in a mediator model and generates 95% bootstrap confidence intervals for total and specific indirect effects of expressive regulation on attitude toward the ad through facial expression of happiness. The 10,000 bootstrapped samples are generated to estimate bias-corrected and accelerated confidence intervals (BCACI). We estimated 95% bias-corrected and accelerated confidence intervals (95% BCACI) of the standardized estimates based on 10,000 bootstrapping samples. When the 95% BCACI does not include zero, the effect differs from zero and therefore indicates a statistically significant relationship. To control for the effect of emotion regulation as a trait, ERQ scores for both subscales (i.e., cognitive reappraisal and expressive suppression) were included in the analyses as covariates. We initially dummy coded two variables, the first corresponding to a difference between expressive suppression versus the control and amplification condition, and the second corresponding to a difference between expressive amplification versus the control and suppression condition. The opposite dummy coding was used as a covariate for either of the differences.

Figure 2 presents the mediation model of suppression and amplification in expression regulation. The results showed that expressive suppression had a negative effect on the duration, probability, and intensity of the facial expression of happiness ( $b = -0.20, p = .025$ ). Hence, participants who used expressive suppression as a way to regulate their emotions showed less facial expression of happiness than participants in the control condition did. We did not find a direct effect of expressive suppression on attitude toward the commercial ( $b = 0.20, p = .560$ ). We did, however, observe that facial expression had a significant effect on attitudes toward the commercial ( $b = 1.12, p = .005$ ), which contributed to a significant negative indirect effect (IE=  $-.23, SE = 0.12, 95\% BCACI [-.55, -.05]$ ) with a medium effect size ( $K^2 = .11$ , Preacher & Kelley, 2011), supporting our hypothesis. See Preacher and Hayes (2008) and Rucker, Preacher, Tormala, and Petty (2011) for a discussion and approval of indirect effects without a significant total effect.

Expressive amplification had a marginally significant positive effect on facial expression of happiness ( $b = 0.16, p = .067$ ). Although the results showed no direct effect of amplification on attitudes toward the commercial ( $b = -0.40, p = .228$ ), facial expression had a positive effect on attitudes ( $b = 1.12, p = .005$ ). This resulted in a positive indirect effect (IE=  $.18, SE = 0.12, 95\% BCACI [.00, .46]$ ) with a medium effect size ( $K^2 = .11$ ).

**Competing mediation model.** To rule out the possibility that attitudes toward the advertisement predict facial expression of happiness, we tested a competing model whereby attitudes acted as mediator in both the suppression and amplification conditions. In such models, we found no significant indirect effect – neither in the suppression (IE= -.00,  $SE = 0.02$ , 95% BCACI [-.05, .05]) nor in the amplification (IE= -.02,  $SE = 0.05$ , 95% BCACI [-.07, .03]) conditions.



*Figure 2.* Total and specific indirect effects of expressive suppression and amplification on attitudes toward the amusing advertisement through facial expression of happiness. Values above the arrow indicate suppression and values below amplification effects; <sup>a</sup> –  $p = .067$ ; <sup>b</sup> –  $p < .05$ ; <sup>c</sup> –  $p < .01$  <sup>d</sup> –  $p > .20$ ; <sup>†</sup>- significant indirect negative effect; <sup>††</sup>- significant indirect positive effect.

A one-way ANOVA showed that facial expression of happiness was different for participants in each of the response-focused emotion regulation conditions ( $F(2, 92) = 9.84, p < .001, \omega^2 = .26$ ). All analyses across our experiments are two-tailed. Bonferroni post-hoc analysis revealed that the difference between the suppression condition ( $M = 0.20, SD = 0.32$ ) and the exaggeration condition ( $M = 0.57, SD = 0.35$ ), (0.36, 95% CL [.16, .56]) was statistically significant ( $p < .001$ ). The difference between the suppression ( $M = 0.20, SD = 0.32$ ) and the control condition ( $M = 0.41, SD = 0.35$ ), (0.20, 95% CL [.00, .41]) was marginally significant ( $p = .065$ ), but the difference between the control condition ( $M = 0.41, SD = 0.35$ ), and the exaggeration condition ( $M = 0.57, SD = 0.35$ ) was not significant ( $p = .19$ ).

### Experiment 2 – Antecedent-Focused Emotion Regulation

Experiment 2 was designed to test whether cognitive reappraisal (vs. a control condition) results in less favorable attitudes toward an amusing advertisement through a decrease in facial expression of happiness.

## Participants

Forty-four participants were randomly assigned to either the reappraisal condition (10 men, 12 women; age:  $M = 31.86$ ,  $SD = 11.15$ ) or the control condition (7 men, 14 women, one missing data; age:  $M = 33.77$ ,  $SD = 10.89$ ). One participant in the reappraisal and 3 in the control condition were excluded from the analyses as their scores on our dependent variable qualified as outliers, i.e., all four scored below  $Q1 - 1.5 IQR$ .

## Procedure

Design, procedure and measures mirrored those in Experiment 1, except that instructions manipulating emotion regulation strategies were different, as presented below. The attitude toward the ad scale was found reliable ( $\alpha = .95$ ), as were the trait measures of emotion regulation (cognitive reappraisal,  $\alpha = .83$ ) and expressive suppression ( $\alpha = .82$ ).

**Cognitive reappraisal.** To manipulate cognitive reappraisal, we adopted the following instruction from Richards and Gross (2000): *“We will show you the video advertisements in just a moment. Please view them carefully. In addition, we would like to see how well you can control the way you view things. Therefore, it is very important to us that you try your best to adopt a neutral attitude as you watch the videos. In other words, as you watch the videos, try to think about them objectively and analytically rather than as personally, or in any way, emotionally relevant to you. So, watch the advertisements carefully, but please try to think about what you are seeing in such a way that you don't feel anything at all.”*

Participants in the control condition were instructed as follows: *“We will show you the video advertisements in just a moment. Please view them carefully. Watch the advertisements as if you were in the cinema and you were waiting for the main film. So, watch the videos carefully, please.”* This manipulation has been used in a number of experiments and proven to influence cognitive reappraisal in the participants (e.g., van't Wout, Chang, & Sanfey, 2010; Ortner, Zelazo, & Anderson, 2013).

## Results

**Mediation model.** The mediation model was the same as in the previous experiment. Figure 3 shows the observed relations between emotion regulation (i.e., cognitive reappraisal), facial expression, and appetitive attitudes. Cognitive reappraisal had a marginally significant negative effect on facial expression of happiness ( $b = -0.20$ ,  $p = .066$ ). Participants in the cognitive reappraisal condition tended to show less facial expression of happiness than



participants in the control condition did. The cognitive reappraisal manipulation had no direct influence on appetitive attitudes toward the advertisement ( $b = 0.02, p = .92$ ). However, facial expression of happiness significantly influenced attitudes ( $b = 0.89, p = .01$ ), contributing to a significant indirect effect (IE =  $-.21, SE = .12, 95\% \text{ BCACI } [-.46, -.01]$ ), with a medium effect size ( $K^2 = .12$ ).

**Competing mediation model.** A model with attitudes as the mediator and facial expression as the criterion variable did not entail a significant indirect effect (IE =  $-.03, SE = 0.02, 95\% \text{ BCACI } [-.14, .06]$ ).

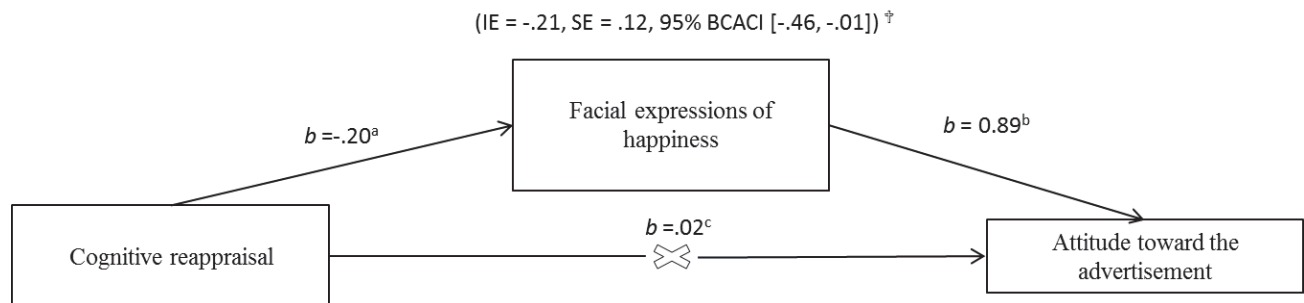


Figure 3. Total and specific indirect effects of cognitive reappraisal on attitudes toward the amusing advertisement through facial expression of happiness;  $a - p = .066$ ;  $b - p < .01$ ;  $c - p = .92$ ;  $†$  - significant indirect effect.

An independent-samples t-test was run to identify differences in intensity and probability of facial expression of happiness between cognitive reappraisal and the control condition. Marginally less facial expression of happiness was observed in the cognitive reappraisal condition ( $M = 0.44, SD = 0.34$ ) relative to the control condition ( $M = 0.63, SD = 0.37$ ), ( $t(42) = 1.82, p = .076$ ).

### Experiments 1-2 – General Discussion

Experiments 1 and 2 provided empirical evidence supporting our hypothesized model. Both experiments consistently showed that emotion regulation in viewing an ad influences facial expression. Consistent support was also found for a mediated effect of emotion regulation on appetitive attitudes (defined here as AAD). That facial expressions as emotional responses (rather than an antecedent condition for them) are targets for response-focused regulation is not surprising. In contrast, regulation of facial expression as part of an antecedent strategy is much less obvious, yet the results of Experiment 2 suggested that happiness is affected by an

antecedent emotion regulation strategy. The findings of Experiment 2 confirmed our hypothesis that emotion regulation strategies can reduce attitudes toward commercials by decreasing facial expression of happiness. Likewise, these results expanded on the findings of Experiment 1 that not only response-focused but also antecedent-focused regulation helps to reduce appetitive attitudes through facial expression. The findings of Experiment 2 are consistent with previous research demonstrating that reappraisal a) decreases self-reported pleasantness and zygomaticus activity (smiling) (Wu, Winkler, Andreatta, Hajcka, & Pauli, 2012), b) reduces facial behavior in response to the negative emotional stimuli (Goldin, McRae, Ramel, & Gross, 2008), and c) decreases corrugator activity to unpleasant visual stimuli (Jackson, Malmstadt, Larson, & Davidson, 2000).

It should be noted that the antecedent-focused regulation instructions (for cognitive reappraisal) clearly emphasized appraisal (“...control the way you view things...”, Experiment 2), whereas the response-focused ones stressed expressive responses (“do not show your emotions”, Experiment 1). Furthermore, in the case of facial expression of happiness caused by an amusing ad, the regulation effect was shown to be strong enough to spill over to the next element of the regulation chain and to decrease appetite for the ad.

Our finding that the indirect manipulation of facial expression affected people’s attitudes is consistent with other research showing that suppressing or amplifying facial expressiveness modifies the intensity of humor responses (Strack et al., 1988), increases feelings of sadness (Larsen et al., 1992), and modulates emotion perception accuracy of others (Neal & Chartrand, 2011). These results back up the assumption that facial expression, as one emotion response system, are accessible to conscious control. Response-focused behavioral regulation can be applied to “hot-linked,” ongoing facial behavior. Suppression or amplification of happiness expressions was in turn found to increase or decrease an appetitive attitude toward the ad, potentially contributing to successful resistance to the ad’s persuasive power. Finally, and in contrast to the literature, our findings showed that expressive suppression, usually associated with negative consequences (Gross 1998; Richards & Gross, 1999; Richards & Gross, 2000), could be helpful in resisting persuasive messages.

**Underlying mechanism.** An important methodological limitation to Experiments 1-2 was the design of the studies, which was insufficient to account for the *precise mechanism* behind the effects of emotion regulation on facial behavior and hence the attitudes or intentions.

Regarding mechanisms, various causal factors cannot be entirely disentangled in the experiments; in particular, antecedent-focused emotion regulation instruction may have worked differently than hypothesized. For instance, participants may have adopted a downright unemotional attitude or a neutral one, both toward their own emotions and their attitudes afterwards. Alternatively, they may have taken on a detached and unemotional attitude only to their own emotions, as our outcome measures of the consumer attitudes do not consist of emotion items. We accounted for those factors in the next experiments.

***Role of intentional emotion regulation.*** A related limitation of Experiments 1-2 is conceptual rather than methodological. The studies did not shed light on the intentional aspect of emotion regulation (Campos, Walle, Dahl, & Main, 2011), which is necessary for understanding the role of emotion regulation in resistance to persuasion, as in the process model. Experimental design necessitated an initial focus on a central element, namely, consumers' regulation of emotions that are provoked by the ad. However, an original link with resistance as an intentional act was in the nature of the manipulations: instructions (rather than e.g., unconscious priming) might have resulted in conscious – i.e., willful – regulation, but this was not tested. To the degree that instructions did raise consciousness of the intended persuasive effect of the ad, the experiments contributed to insights in resistance aspects of emotion regulation and consumers' intentional and active countering of persuasive intents. In the case of amusing ads, consumers who resist may not only regulate emotion but also additionally use emotion regulation to counter the intended effect, which they identify as entertaining and pleasing viewers to evoke positive appetitive attitudes. Our assumption is that more effort in regulation indirectly indicates more resisting.

A rather simple extension of the paradigm of Experiments 1-2 is to add a measurement of consumers' conscious awareness of their emotion regulation as an intentional and effortful act, while another is to replace the objective measure of facial expression with a subjective one such as self-reported facial expression. The next studies aimed to assess the degree to which the intentional effort factor contributes to diminishing appetitive attitudes in favor of an amusing ad.

Experiments 3-5 continued the study of antecedent-focused emotion regulation effects, probing a variety of instructions. The goal was to rule out the alternative explanation of attitude effects in Experiment 2, namely that the instructions caused participants to first modify their facial expression and then to simply adjust their appetitive attitudes, as two separate process.

Because we estimated findings on response-focused emotion regulation in Experiment 1 to be theoretically sufficient and easily replicable, we did not study any response-focused emotion regulation in the next experiments.

### **Experiments 3-5 – Cognitive Emotion Regulation**

Experiments 3-5 tested the effectiveness of a variety of antecedent-focused emotion regulation strategies, thus expanding on Experiments 1-2. To test the *mechanism* behind this strategy, we introduced a second mediator – awareness of intentional emotion regulation (Gruber, Hay & Gross, 2014) – operationalized as perceived effort in cognitive reappraising. As pointed out, we expected that this mediator represents the subjective and conscious element in emotion regulation and is effective jointly with facial expression in modifying appetitive attitudes. We expect all variants of antecedent-focused emotion regulation will increase self-reported regulation effort and this will decrease intensity of facial expression of happiness, which is expected to negatively affect appetitive attitudes. In addition, Experiment 5 used self-reported facial expression of happiness as a substitute for objectively coded facial expression, i.e., FaceReader analysis.

Tests of appetitive attitudes are extended beyond attitude toward the ad to include attitude toward the brand and buying intentions, thus covering the entire Advertising Effectiveness Model proposed by Mitchel and Olson (1981). The model predicts that attitude toward the ad predicts attitude toward the brand, which in turn predicts buying intentions.

#### **Overview of Experiments 3 -5**

Experiments 3-5 attempted to demonstrate facial expression suppression through two variations of an antecedent-focused emotion regulation instructions resulting in decreased attitudes, thus intending to replicate findings from Experiment 2. Experiment 3 tested suppression effects on brand attitudes toward an ad that advertises services. Experiment 4 aimed to demonstrate the same suppression effects for buying intentions in response to an advertisement of an expensive consumer good. Experiment 5 was a replication of Experiment 3, with the addition of a measure for self-reported facial expression to further test the awareness element of emotion regulation.

**Stimuli – advertisements.** For Experiments 3-5, we pretested a different set of 16 amusing advertisements, previously selected by two advertising research experts, featuring different product categories and target groups. We chose two that scored as the most amusing

commercials advertising services or an expensive and durable product (non-FMCG). The selected advertisement of the service – *E-Trade Baby Girlfriend* – scored high on an amusement score ( $M = 3.76$ ,  $SD = 1.05$ ,  $n = 70$ , 50% women), as determined on three 5-point semantic differential items ( $\alpha = .90$ ). An independent-samples t-test indicated that there were no gender differences ( $p > .50$ ). The selected advertisement of an expensive consumer product – *BMW-3 The Close Call* – featured car brand BMW and scored high on an amusement score ( $M = 3.49$ ,  $SD = 1.02$ ,  $n = 67$ , 54% women), based on three 5-point semantic differential items ( $\alpha = .85$ ). An independent-samples t-test indicated that there were no gender differences ( $p > .10$ ).

### Experiment 3

Experiment 3 was designed to test the hypothesis that consumers who regulate their emotions via cognitive reappraisal when watching an amusing commercial show less facial expression of happiness, which subsequently results in lower attitudes toward the brand. The hypothesized relationship is further explained by how effortful consumers' are in their cognitive reappraisal.

#### Participants

A fresh sample of 73 participants was randomly assigned to either the cognitive reappraisal (26 men, 16 women, average age = 29.80 years,  $SD = 9.92$ ) or the control condition (16 men, 15 women, average age = 30.48 years,  $SD = 9.57$ ).

#### Procedure

The procedure was similar to that of Experiment 2; however, we used slightly different instructions than in Experiment 2 to demonstrate that the phenomenon works with variations of cognitive reappraisal instructions. We also measured how much effort participants expended in reappraising. Our dependent variable was attitude toward the brand (AB), and the advertisement shown was *E-Trade Baby Girlfriend*.

**Cognitive reappraisal.** To manipulate antecedent-focused emotion regulation by cognitive reappraisal, we slightly adapted the procedure of Richards and Gross (2000). We changed the part of “adopt a neutral attitude” from Experiment 2 to “adopt a detached and unemotional attitude.” Therefore, we provided participants with the following instruction: “*We will show you the video advertisement in just a moment. Please view it carefully. We would like to see how well you can control the way you watch things. Therefore, it is very important to us that you try your best to adopt a detached and unemotional attitude as you watch the*

*advertisement. In other words, as you watch the advertisement, try to think about it objectively and analytically rather than as personally, or in any way, emotionally relevant to you. So, watch the advertisements carefully, but please try to think about what you are seeing in such a way that you don't feel anything at all.*"

We also slightly changed the control condition in comparison to Experiment 2 to demonstrate that cognitive reappraisal might be contrasted against differing but still relatively non-invasive control instructions. We provided participants with the following instructions: "We will show you the video advertisement in just a moment. Please view it carefully. Watch the advertisement as if you were in the cinema and you were waiting for the main film." We omitted the text, "So, watch the videos carefully, please."

## **Measures**

**Attitudes toward the brand.** We measured attitudes toward the brand using Mitchell and Olson's (1981) model, with seven 7-point semantic differential scale items ( $\alpha = .97$ ), e.g., "I think brand – E-Trade was: [*bad* (=1) – *good* (=7)]." See Appendix A for all items.

**Awareness of intentional emotion regulation.** Following Gruber et al. (2014), we used a question to assess the extent to which participants expended effort reappraising ("I tried not to feel anything at all") on a 1 (strongly disagree) to 7 (strongly agree) scale. This question has been proven to efficiently measure the effort in reappraising; therefore, we employed it as Gruber et al. (2014) originally formulated it. We used it as a predictor variable in Preacher and Hayes' (2008) mediation model.

## **Results**

**Two mediators' model.** To test our hypothesis that cognitive reappraisal decreases facial expression of happiness and subsequently attitudes toward the ad more if participants put more effort in not feeling anything, we again applied Preacher and Hayes' (2008) method. This method estimates the path coefficients in a mediator model and generates 95% bootstrap confidence intervals for total and specific indirect effects of cognitive reappraisal on attitude toward the brand through effort in reappraisal and then facial expression of happiness.

The results demonstrated that cognitive reappraisal instructions had a positive effect on effort expended in reappraising ( $b = 2.64, p < .001$ ). Participants in the cognitive reappraisal condition were more effortful at not feeling anything than participants in the control condition. This effort in reappraisal then had a negative effect on facial expression of happiness ( $b = - 0.62,$

$p < .005$ ). Manipulation of the independent variable – cognitive reappraisal – had no direct influence on the dependent variable – attitudes toward the brand ( $b = -0.12, p = .75$ ). However, facial expression of happiness predicted attitudes at best marginally ( $b = 0.81, p = .10$ ) but did contribute to a significant negative indirect effect (IE =  $-.13, SE = .10, 95\% BCACI [-.44, -.01]$ ). In such sequential mediator model, effect sizes are not possible to compute. See Figure 4 for the mediation model of cognitive reappraisal through effort expended reappraising.

**Competing mediation model.** We tested an alternative model wherein facial expression was removed as a predictor variable; however, as expected, there was neither a significant direct effect ( $b = -0.21, p = .57$ ) nor an indirect effect (IE =  $-.09, SE = .20, 95\% BCACI [-.50, .32]$ ). Trying not to feel anything simply did not predict attitudes toward the brand ( $b = -0.04, p = .66$ ).

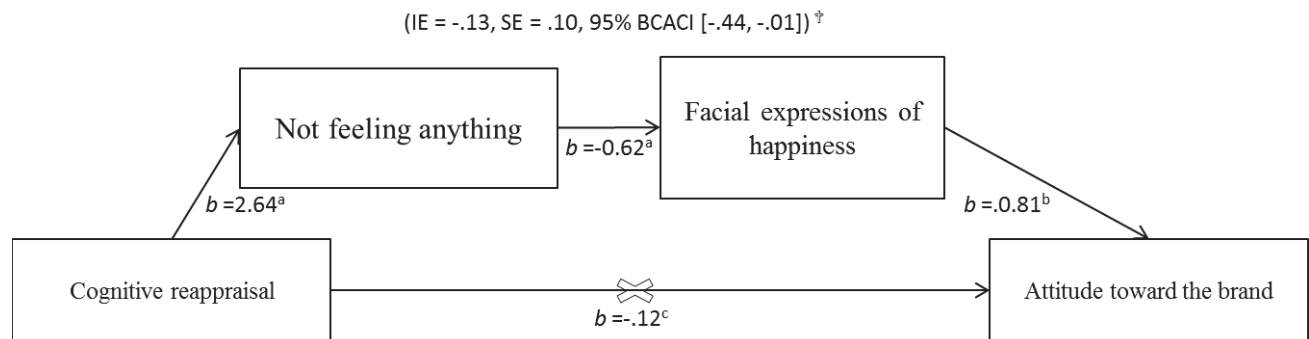


Figure 4. Total and specific indirect effects of cognitive reappraisal on attitudes toward the amusing advertisement through not feeling anything and facial expression of happiness; a –  $p < .005$ ; b –  $p = .10$ ; c –  $p = .80$ ; †- significant indirect negative effect.

## Discussion

In Experiment 3, we confirmed both hypotheses, showing that antecedent-focused emotion regulation could be manipulated with an adapted version of cognitive reappraisal. We further demonstrated that our original model is explained by how effortful consumers estimate they are in reappraising the stimuli by suppressing their feelings. This confirmation is especially important in view of criticisms concerning uniformity of responses, as in cognitive reappraisal (Campos et al., 2011). If Experiment 2 showed the effects of cognitive reappraisal, Experiment 3 demonstrated that the process is explained by willful effort on the part of the consumer. Importantly, the effort spent not to feeling anything at all did not directly predict attitudinal change – only if facial expression was included was there a significant predictive power. The

failure of the competing mediation model again highlights the embodiment factor in resistance to persuasion, as well as the importance of effortful reappraisal by decreasing facial expression only and not directly decreasing attitudes. In short, the more effort people put into reappraising, the less expression of happiness they show.

Furthermore, facial expression not only explained attitude toward the ad, as in Experiments 1 and 2, but also attitude toward the brand. We also extended our results to another ad with another product type in Experiment 3. The question remains, however, whether effort spent not to feel happiness (a specific emotion) would also lead to a decrease in facial expression, as effort in not feeling anything did in Experiment 3. We test this in Experiment 4.

#### **Experiment 4**

Experiment 4 was designed to test the hypothesis that consumers who regulate their emotions by cognitive reappraisal (modified version, see below) when watching an amusing commercial show less facial expression of happiness, which subsequently results in lower buying intentions. We expected that this relationship would be additionally explained by the amount of effort consumers estimated they invested in reappraisal and not feeling happiness.

#### **Participants**

A fresh sample of 140 participants was randomly assigned to either the cognitive reappraisal (40 Men, 25 Women, average age = 31.62 years,  $SD = 9.94$ ) or the control condition (41 Men, 34 Women, average age = 30.41 years,  $SD = 9.85$ ).

#### **Procedure**

Once again, we modified our instructions to demonstrate that the phenomenon works with variations of cognitive reappraisal instructions. We also measured the extent to which participants spent effort in reappraising. We used a commercial ad for an expensive product (BMW car) instead of a fast-moving consumer good (as in Experiments 1 and 2) or a service (as in Experiment 3). Finally, our dependent variable was buying intentions.

**Cognitive reappraisal.** To manipulate antecedent-focused emotion regulation by cognitive reappraisal, we slightly adapted the procedure of Richards and Gross (2000) and our previous instructions from Experiment 3. We directed participants' attention that the advertisement was "funny and amusing" and that they should "mentally" control the way they think. We also changed the "adopt a detached and unemotional attitude" from Experiment 2 to "adopt a serious and cognitive attitude." We made these changes to demonstrate that the



cognitive reappraisal might be achieved through various means. That being the case, we provided participants with the following instruction: “*We will show you a funny and amusing advertisement in just a moment. Please view it carefully. We would like to see how well you can mentally control the way you watch things. Therefore, it is very important to us that you try your best to adopt a serious and cognitive attitude as you watch the advertisement. In other words, as you watch the advertisement, try to think about it objectively and analytically.*”

We used the same instructions for the control condition as in Experiment 3: “*We will show you the video advertisement in just a moment. Please view it carefully. Watch the advertisement as if you were in the cinema and you were waiting for the main film.*”

## Measures

**Buying intentions.** We measured buying intentions, following Mitchell and Olson (1981), with four 7-point semantic differential scales ( $\alpha = .94$ ), e.g., “Thinking back to the ad, the chance that I would buy a BMW is [*unlikely* (=1) – *likely* (=7)].” See Appendix A for all items.

**Awareness of intentional emotion regulation.** Following up on Gruber et al. (2014) and Experiment 3, we used a question to assess the extent to which participants expended effort reappraising and not feeling happiness (“I tried not to feel happiness”) on a 1 (strongly disagree) to 7 (strongly agree) scale. We used this variable as a predictor in the mediation model devised by Preacher and Hayes’ (2008).

## Results

**Two mediators’ model.** The mediation modeling was the same as in Experiment 3. The results demonstrated that cognitive reappraisal instructions had a positive effect on expending effort in reappraisal ( $b = 1.04, p < .005$ ). Participants in the cognitive reappraisal condition spent more effort trying not to feel happiness than did participants in the control condition. The reappraisal effort had a negative effect on facial expression of happiness ( $b = -0.30, p = .05$ ). The cognitive reappraisal manipulation had no direct influence on the dependent variable – buying intentions ( $b = 0.05, p = .87$ ). However, facial expression of happiness predicted the buying intentions ( $b = 0.96, p < .05$ ) and contributed to a significant negative indirect effect (IE =  $-.03, SE = .02, 95\% \text{ BCACI } [-.10, -.01]$ ). See Figure 5 for the mediation model of cognitive reappraisal through effort expended reappraising.

**Competing mediation model.** We tested an alternative model in which facial expression was removed as a predictor variable; however, as expected, there was neither a significant direct

( $b = 0.25, p = .44$ ) nor an indirect effect ( $IE = .04, SE = .10, 95\% BCACI [-.14, .27]$ ). Succinctly put, trying not to feel happiness did *not* predict buying intentions ( $b = 0.04, p = .61$ ).

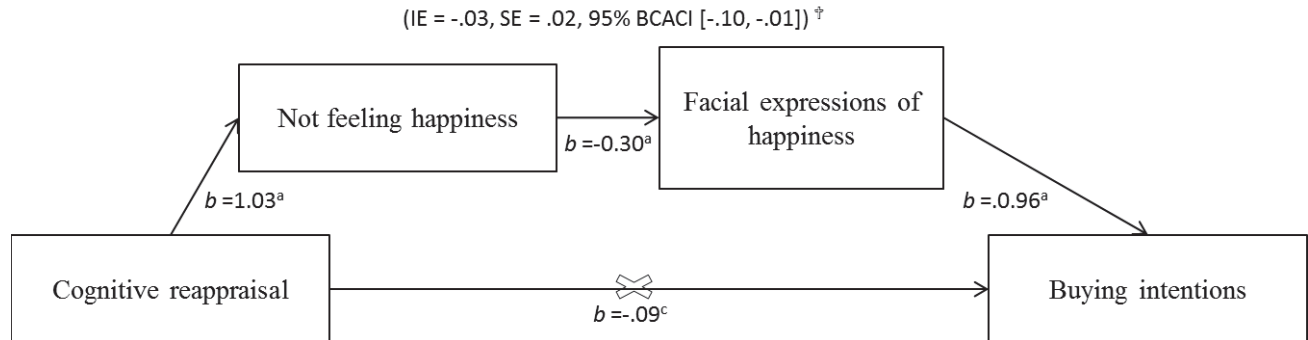


Figure 5. Total and specific indirect effects of cognitive reappraisal on buying intentions through not feeling happiness and facial expression of happiness; <sup>a</sup> –  $p < .05$ ; <sup>b</sup> –  $p = .87$ ; <sup>‡</sup> - significant indirect negative effect.

## Discussion

In Experiment 4, we confirmed our hypotheses, demonstrating that antecedent-focused emotion regulation could be manipulated with yet another version of cognitive reappraisal. The results corroborate the findings from Experiments 2 and 3 that cognitive reappraisal instructions are effective. We further showed that our original model is explained by how much effort consumers estimate they spent in reappraising the stimuli and not feeling happiness. Importantly, as tested in the competing mediation model, the effort spent in trying not to feel the specific emotion of happiness did not predict the appetitive attitudes (buying intentions), but was mediated through the intensity of the facial expression as shown in the original analysis. This replicates findings from Experiment 3 and shows that the effort in reappraising can be either geared toward any emotion (as in Experiment 3) or, as in the current Experiment, toward a specific emotion. These results underscore that what matters is the generic effort expended in cognitive reappraisal rather than the specificity or valence of the emotion reappraised.

Furthermore, facial expression not only explained attitude toward the ad and attitude toward the brand, but also buying intentions. Moreover, the results held true for yet another advertisement for an expensive product. In addition, the instruction in Experiment 4 was even more geared toward cognitive reappraisal than in previous experiments; regardless, the effort spent on not feeling happiness still significantly muted facial expression.

## Experiment 5 – Self-Report

Experiment 5 was designed to replicate findings of Experiment 3 by using a self-reported measure of facial expression of happiness instead of objective facial coding software, as in previous experiments. Once more, we tested the hypothesis that consumers who regulate their emotions by cognitive reappraisal (using instructions from Experiment 3) when watching an amusing commercial show less facial expression of happiness, which subsequently results in lower buying intentions. Further explanation of this relationship involves how much effort consumers spent in reappraisal – in other words, how hard they worked not to feel anything at all.

### Participants

A fresh sample of 68 participants was randomly assigned to either the cognitive reappraisal (23 Men, 10 Women, average age = 28.40 years,  $SD = 6.65$ ) or the control condition (26 Men, 9 Women, average age = 29.83 years,  $SD = 8.39$ ).

### Procedure

Experiment 5 was similar to Experiment 3, except for two measures. First, we used the self-reported facial expression measure and, second, the dependent variable was buying intentions ( $\alpha = .95$ ). Therefore, in this last experiment, we did *not* record participants with a webcam.

### Measures

**Facial expression.** To assess facial expression, we used two items to assess the extent to which participants reported how much “the advertisement made me smile/laugh” on a 1 (*not at all*) to 7 (*to a great extent*) scale ( $\alpha = .92$ ). For the sake of clarity in reporting the results, we defined this variable as self-reported facial expression of happiness

### Results

**Two mediators’ model.** The mediation modeling was the same as in Experiments 3 and 4. The results demonstrated that cognitive reappraisal instructions had a positive effect on effort expended in reappraisal ( $b = 1.87, p < .001$ ). Participants in the cognitive reappraisal condition estimated they expended more effort trying not to feel anything than participants in the control condition did. Estimated effort in reappraisal had a negative effect on self-reported facial expression of happiness ( $b = -0.41, p < .005$ ). The cognitive reappraisal manipulation had no direct influence on buying intentions ( $b = 0.09, p = .78$ ). However, self-reported expressions of

happiness predicted buying intentions ( $b = 0.51, p < .001$ ), contributing to a significant negative indirect effect ( $IE = -.39, SE = .16, 95\% \text{ BCACI } [-.81, -.16]$ ). See Figure 6 for the mediation model of cognitive reappraisal through effort expended reappraising.

**Competing mediation model.** We tested an alternative model in which the self-reported facial expression (S-FEH) was removed as a predictor variable; however, as expected, there was neither a significant direct effect of X on Y ( $b = 0.06, p = .89$ ) nor an indirect effect on Y ( $IE = -.37, SE = .23, 95\% \text{ BCACI } [-1.00, .03]$ ). Trying not to feel anything did *not* predict buying intentions ( $b = -0.20, p = .07$ ).

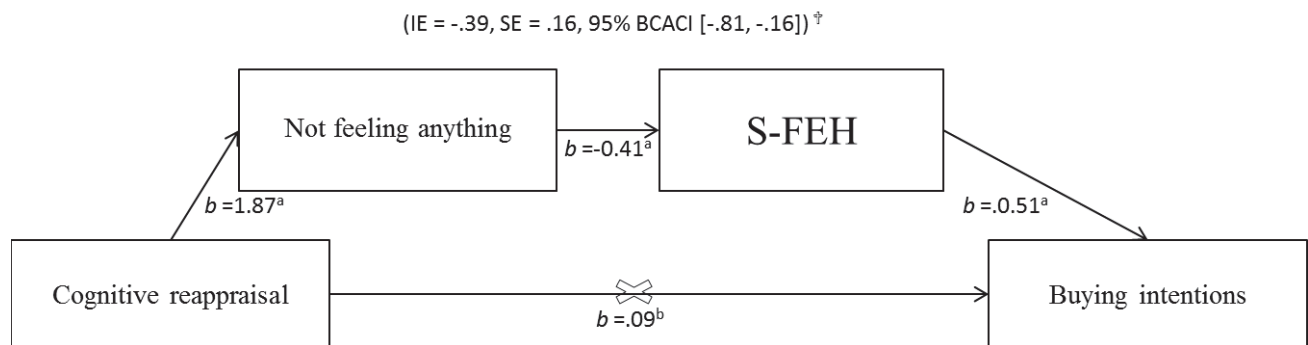


Figure 6. Total and specific indirect effects of cognitive reappraisal on buying intentions through not feeling anything and the self-reported facial expression of happiness (S-FEH); <sup>a</sup> –  $p < .005$ .; <sup>b</sup> –  $p = .73$ ; <sup>†</sup> - significant indirect negative effect.

## Discussion

In Experiment 5, we again showed that the effects of cognitive reappraisal instructions through facial expression on attitudes are mediated by way of how effortful consumers judge they are in reappraising the stimuli and not feeling. Furthermore, the effects were found not only in the objectively coded facial expression, but also through self-reported ones by the participants themselves. The experiment demonstrated that the participants could gauge the strength of their own smiles and laughs, which together with subjective estimation of effort further testifies to the intentionality of emotion regulation.

In addition, we can now rule out the possibility that facial expression effects in Experiments 1-4 would be due to self-consciousness or self-focus. The presence of a camera in the previous experiments could have intensified participants' amusement or in general affective

responses (as found in Porterfield et al., 1988). We found the same overall pattern in Experiment 5, without video recordings.

### **Experiments 3-5 – General Discussion**

Across Experiments 3-5, we replicated our basic model from Experiments 1 and 2. Once again, we showed that two different forms of cognitive reappraisal – which is an antecedent-focused emotion regulation strategy – led to less facial expression of happiness and hence lowered appetitive attitudes. Notably, the instructions for regulating emotion through cognitive reappraisal stressed on the one hand appraisal (as defined by Scherer, 2001), described to participants with phrases like “the way you watch things,” “objectively and analytically,” (Experiment 3) or “funny and amusing” (Experiment 4). On the other hand, the instructions instigated control of the other antecedent component of emotion, initial global action readiness (Moors et al., 2013). “Think objectively” and “don’t feel anything” (Experiment 3), along with “serious cognitive attitude” (Experiment 4) were meant to suppress the initial global readiness to approach the stimulus. Thus, with Gross and Thompson’s (2007) model of emotion regulation in mind, all instructions of cognitive reappraisal were as different as possible from response-focused control of expression, as it was operationalized in the instructions for Experiment 1 (“Show your emotions [as if to make them clear to another person]”). The latter may be said to be a more direct means to incite control of facial expression.

We demonstrated that cognitive reappraisal worked because participants were *aware* of their emotion regulation efforts and achievements, in that appetitive attitudes were a function of both facial expression of happiness and self-reported effort in the emotion regulation strategy adopted in response to the instructions.

Importantly, the findings are pertinent to advertisements featuring a variety of consumer products and services. In comparison to previous experiments, we did not have to remove outliers, as the samples were sufficiently large. As in the previous studies, no direct effects of emotion regulation instructions were found on appetitive attitude. This finding adds to our confidence that the formation of attitudes is at least partially an embodied process. If we had not included measures of facial expression (either objectively coded or self-reported), we would not have found the effect and might have missed an important explanatory variable, namely, facial expression, or according to our theoretical model – its properties of controllability, feedback, and fanning out to other emotional responses.

## General Discussion and Conclusion

Our process model for embodied emotional regulation as a strategy for resistance to persuasion by amusing ads received substantial support in the experiments presented above. The results demonstrate that consumers felt happiness when viewing an amusing ad under natural circumstances as represented in the control conditions of Experiments 1 and 2. Experimental conditions in all experiments showed that consumers can successfully be invited to deviate from their baseline, natural orientation and regulate their happiness emotions, either suppressing or amplifying them, and that when they do regulate expression of happiness, this will affect appetitive attitudes to ads, brands, or products. This effect occurs regardless of the particular induced regulation strategy, that is, antecedent- or response-focused, or of variations of antecedent emotion regulation inductions.

Important for the model is that emotion regulation instructions affected positive appetitive attitudes not directly but invariably through facial expression of happiness only. We believe that the robustness of this result across experiments legitimizes the notion of embodied emotion regulation inherent to the model: When instructed to regulate in whichever way, participants adapted facial expression of happiness to the effect of diminishing appetites for the object of persuasion. This remarkable observation can be explained, we believe, by the privileged status enjoyed by facial expression as an emotional response system (Izard, 1990). Facial expression pairs action orientation with accessibility to voluntary modulation more completely than any other emotional response system.

Finally, Experiments 3-5 repeatedly demonstrate that effortful and thus presumably conscious and willful emotion regulation on the part of the subject contributes to lowering appetitive attitudes. Taken together, Experiments 3-5 support the notion of emotion regulation as a form of resistance to persuasion. In the tested case of viewing amusing ads, emotion regulation would seem to be a consciously controlled and willful act rather than an involuntary or implicit reaction.

We see room for future explorations of the limits of effective instructions and possible refinements that we did not test. On the other end of the process model, a variety of appetitive attitudes were observed to be liable to modification through embodied emotion regulation. We take this finding as an indication that resistance may be more than warding off some isolated anticipated effect such as ad, brand, or product liking, but rather a mobilization of generalized

defensive responses aiming at the persuasive attempt as a whole or even the persuader. Remarkably, control of facial expression was observed to influence all factors, whatever their position in the extended and inclusive chain of effects proposed by Mitchell and Olson (1981). Nonetheless, further research is needed to explore the range of appetitive attitudes affected by embodied emotion regulation.

We believe that effects on attitude measured in the joint experiments covered a considerable range. In fact, we tested the entire chain of causally subsequent consumers' liking indicators established in the Advertising Effectiveness Model (Mitchell & Olson, 1981). We tested not only attitude toward the advertisement (Experiments 1 and 2), but also attitude toward the brand (Experiment 3) and buying intentions (Experiments 4 and 5).

In sum, we showed that, across five controlled experiments, facial expression could be used to explain the strength of the attitudes toward amusing stimuli. Our results are in line with research dating back to Izard (1990), who showed, as we did, that facial expression is a reliable indicator of the presence of emotion and emotion regulation processes. Consumer attitudes and intentions are a readiness of the appetitive motivational system to engage in positive interaction with the stimulus ad, e.g., watch it attentively and with enjoyment. For this reason, behavioral or "thinking" instructions affect ad and brand liking or buying intentions in an indirect fashion. More specifically, the instructions to regulate one's reactions by either not feeling or not showing the emotions were found to be equally effective.

It is not hard to imagine that inhibiting one's mental or physical reactivity blocks input to the internal feedback system and so decreases liking, which is manifested in a lowering of self-reported attitudes scores. A consumer lacking positive internal bodily feedback logically would exhibit lower attitudes and intentions. We propose that an influence in the other direction might also exist: Amplified bodily expressions provide stronger internal positive feedback, leading consumers to report higher attitudes, as found in Experiment 1.

### **Other Types of Self-Control**

Of course, reappraisal and suppression are not the only way to resist or regulate persuasive stimuli. Other types of self-control exist (e.g., channeling attention) and have been shown effective, resulting in lower or even complete lack of affirmative attitudes (Wadlinger & Isaacowitz, 2011). Moreover, consumers can choose to pay little or no attention (e.g., by simply closing their eyes or turning away from the screen) so that even the most persuasive message will

have only limited effects. However, a growing number of advertising strategies try to prevent ad avoidance by integrating the persuasive message with the content of the program (e.g., brand placement and entertainment education). Therefore, strategies that help consumers in actually resisting persuasion may be beneficial.

### **External Validity**

We believe that the results of our studies are valid for the conditions of exposure to ads in daily life. Both studies were conducted in the everyday environment of consumers' homes, study, and work places, on their own computers. An often-used method to assess how consumers react upon amusing advertising is to explicitly ask them what they think and how they feel about an advertisement. However, explicitly asking people how they feel is not only a cognitively demanding and difficult task, but it also entails undesired effects, such as increased self-awareness (Pryor, Gibbons, Wicklund, Fazio, & Hood, 1977) and social-desirability (Arnold & Feldman, 1981). Moreover, these measures are incapable of capturing specific biological emotional expressions inaccessible to introspection and self-report. To overcome those limitations, we used an objective measure of emotional experience – automated facial coding. Previous studies examining effects of facial feedback on consumers' attitudes have attempted to control for the fact that facial measurement was obtrusive (facial EMG) (e.g., Hazlett & Hazlett, 1999) and inconsistent (human coding) (e.g., Zeinstra, Koelen, Colindres, Kok, & De Graaf, 2009) or have directly manipulated expressions without controlling for individual differences in emotion regulation (Förster, 2004). Our design, therefore, emulates everyday advertising consumption by avoiding the creation of the typical artificial lab situation involving a convenience sample of university students. To test our hypotheses, we used well-established emotion regulation manipulations in which participants were asked to reappraise their cognitions (Richards & Gross, 2000) or regulate their expressiveness (Gross & Levenson, 1997).

**Indirect versus direct manipulation of facial expressions.** The consumer resistance through embodied emotion regulation framework presupposes that consumers are aware of their emotion regulation as a strategy. Therefore, overall, we used explicit emotion regulation instructions to manipulate these strategies. An alternative approach would have been to directly manipulate facial expression, e.g., by a pen-in-mouth experiment. Strack et al. (1988) showed that simply putting a pen in people's mouths in a position that forces contraction of the facial muscles to either facilitate or hinder smiling led to the participants reporting more or less intense



humor responses, according to each of the conditions. Topolinski, Lindner, and Freudenberg (2014) extended the idea to demonstrate that oral motor-interference undermines advertising effects of video commercials. Furthermore, a direct manipulation of one's expressiveness – an injection with botulinum toxin (Botox) in the upper face – enhanced positive emotions in the affected individuals by decreasing corrugator activity (frowning brows) (Alam, Barrett, Hodapp, & Arndt, 2008). We used emotion regulation strategies instead, as it is not practical to ask consumers to hold pens in their mouths, eat popcorn, or chew gum during commercial exposure or undergo a Botox treatment just to be less persuaded (that is, report lower advertising effects).

### **Limitations**

We note that in some cases, the particular links of the model were only marginally significant; however, the indirect model, as a whole, always upheld. We acknowledge the possibility that there is no direct effect of emotion regulation on the appetitive attitudes, due to either lack of power to detect it or some other variables that work in opposite direction to the facial expression, hence cancelling out the direct effect (see Preacher & Hayes, 2008 and Rucker, Preacher, Tormala, & Petty, 2011).

Another factor that might limit generalization of our findings relates to the role of intentionality of resisting is people's persuasion knowledge (Friestad & Wright, 1994) and their skepticism toward advertising (Obermiller & Spangenberg, 1998). Perhaps only consumers who know and are skeptical about persuasive communication can be motivated to use emotion regulation. Nevertheless, in this paper we did not test any such moderating variables. In addition, we did not ask people directly how much they were intentional, conscious, or aware of their emotion regulation to resist the advertisement. We judged such item as too obvious and direct, thus rather easily influenced by people's desire to provide socially desirable answers, please the experimenter, or guess the hypothesis. Our assumption was that it is virtually impossible to report a subjective sense of effort in doing something without being aware of one's intentions to do that particular thing. However, in future studies this assumption could be directly tested.

Finally, we tested and found support for one type of advertisements only – emotional, prominent Super Bowl ads that were highly amusing. We did not test informative or less emotional advertisements. We are also aware that the valence of the advertisement may restrict predictions of the tested model. To mitigate this limitation of our studies, tests with a disgusting advertisement were carried out. Appendix B presents Experiments 1a and 2a, exact replications

of Experiments 1 and 2, but using a disgusting instead of an amusing ad. We did not find support for our model in the case of disgusting ads. We discuss possible reasons for this in Appendix B, the main conclusion being that disgusting ads are an anomalous case for resistance to persuasion.

## **Practical Relevance**

### **Marketing Communication**

As they point at the consumer's capacity to control appetitive attitudes through embodied regulation of their emotional responses, the results of Experiment 1 have implications for marketers, advertisers, and policymakers who want to sell a product, service, or idea. These results suggest that asking consumers to overreact to the ad (even without explicitly mentioning the specific behavioral expression – e.g., laughing) may break resistance and thus increase the advertisement's effectiveness. Obviously, directly requesting consumers to overreact is not practical, but it can be argued that particular situations may automatically invoke increased levels of facial expression. For example, it is known that adding “fake” audience laughter tends to boost enjoyability ratings of radio recordings (Martin & Gray, 1996).

The model of emotional resistance to persuasion may be extended from the individual consumer's case, as tested in the present studies, to the quite common situation where consumers view ads in company. Based on our findings, individual members of an audience that are visible and react through their facial emotions can be expected to affect not only their own attitudes toward the ad but also that of other audience members. Facial mimicry, the phenomenon of a conspecific emotional display influencing one's reactions and feelings, largely explains this scenario (Bush, Barr, McHugo, & Lanzetta, 1989). For example, Lewinski, Tan, Franssen, Czarna, and Butler (in press) showed that the overall facial expressiveness of the actors in an ad or a view of a sneering co-viewer inserted into the screen's periphery decreases advertising effectiveness by interfering with viewers' facial feedback process via a decrease in facial expression of happiness.

### **Consumer Education**

Our findings have immediate practical relevance for consumer education. They add to the tools and knowledge that empowers target consumers who need assistance in resisting persuasion. First, consumers could be taught to use self-instructed emotion regulation and associated facial expression to resist persuasion. A “live demo” appears feasible for conducting our experiments in schools to demonstrate to children differences in attractiveness of advertised

products or services when properly appraised (through antecedent-focused emotion regulation) or reacted to (through response-focused regulation). An example can be found in a study by Sorce, Emde, Campos, and Klinnert (1985), who showed that a mother posing joy made infant children cross a deep gap – as in a visual cliff experiment. However, if the mother posed fear or anger, few infants crossed the gap. Would the instructions to cognitively reappraise or expressively suppress tempting advertisements be equally effective in children as it was in our adult consumers?

In fact, the finding that consumers can suppress the motor response associated with an emotion persuasive advertising seeks to produce seems valuable for policymakers and advocacy groups who are striving to empower consumers to resist persuasive messages considered unwanted. Cases in point include ads for greasy foods, alcohol, tobacco, but also risky financial investments or covert persuasion attempts. It could be argued that, for example, a forewarning strategy or the uses of a product placement logo, which are mandatory in many countries nowadays, automatically induce emotion regulation strategies. One can imagine that once aware of the persuasive intent of a sender (by means of forewarning of a product placement logo), consumers are motivated to resist persuasion, which can be accomplished by (spontaneously) inhibiting or reappraising one's emotions (i.e., "I am not going to smile at a message that tries to influence me").

In addition, we used ads that contained very amusing and entertaining content. Emotion regulation instructions might be especially relevant for ads with such highly emotive content because they "might facilitate communication not by increasing attention but by lowering attention, promoting open-mindedness and effectively encouraging the consumer to let their guard down" (Heath, Nairn, & Bottomley 2009, p. 460). We recommend testing those assumptions in further research.

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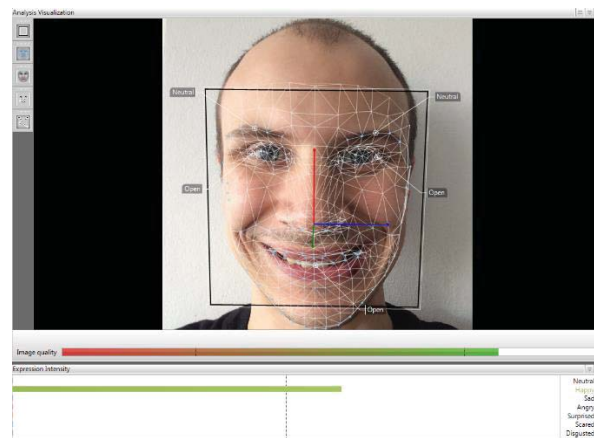
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## Appendix A

### FaceReader

Noldus software uses a three-layer neural network, which was trained using 10,000 manually annotated images to constantly track and analyze the face with 500 key-points superimposed on an artificial visualization of a real face. FaceReader classifies people's emotions into discrete categories of the basic emotions (Ekman, Sorenson, & Friesen, 1969; Ekman & Cordano, 2011). In the first stage, the software locates a person's face; in the second stage, it creates a 3D Active Appearance Model (AAM) (Cootes & Taylor, 2004) of that face. In the third and final stage, the AAM is used to compute scores of intensity and probability of facial expressions, quantified into a continuous scale from 0 to 1. Figure 7 provides a simplified graphic representation of the facial coding steps in FaceReader. For a more detailed description of the method, see van Kuilenburg, Wiering, and den Uyl (2005).



*Figure 7.* Visualization of quantified facial expressions in FaceReader. The black square marks detection of a face. The landmarks and the triangulated texture of the superimposed mesh are an Active Appearance Model (Cootes & Taylor, 2004) of a face. The expression intensity of, in this case, happiness, is a graphical representation of the quantified facial expression. The expression is classified by training an artificial neural network using 10,000 manually annotated images as training material.

**Attitudes toward the brand.** Participants indicated how much they agreed with the statements concerning the brand respectively on a 7-point semantic differential scale. AB ( $\alpha = .97$ ) consisted of seven items each: “I think brand – E-Trade was...”: *bad* (=1) – *good* (=7);

*unappealing* (=1) – *appealing* (=7); *unpleasant* (=1) – *pleasant* (=7); *unattractive* (=1) – *attractive* (=7); *unwise* (=1) – *wise* (=7); *useless* (=1) – *useful* (=7); *worthless* (=1) – *valuable* (=7).

**Buying intentions.** Participants indicated how much they agreed with the statements concerning the buying intentions respectively on a 7-point semantic differential scale. BI ( $\alpha = .94$ ) consisted of four items each: “Thinking back to the ad, the chance that I would buy BMW is...”: *unlikely* (=1) – *likely* (=7); *improbable* (=1) – *probable* (=7); *uncertain* (=1) – *certain* (=7); *absent* (=1) – *present* (=7).

## Appendix B

### Note on Experiments 1a-2a: Disgusting Ads

Even if the resistance framework does not focus on regulation of disgust in response to disgusting ads, it was interesting to test whether facial expression, as instigated by disgusting ads and controlled through emotion regulation, would influence appetitive attitudes in an analogous way.

#### Method

In Experiments 1 and 2, participants also watched a disgusting ad in addition to the amusing ad. We did not use the data from the disgusting ad in Experiments 1a and 2a in the main body of the text, as they did not yield theoretically interesting results. To be clearer, in Experiments 1 and 2, participants first saw an amusing or a disgusting video commercial, always followed by a neutral one, and then an amusing or disgusting commercial in counter-balanced order. The neutral advertisement was shown in the middle to prevent carry-on effect and neutralize the effects of the targets, i.e., the amusing or disgusting ad, on each other. Therefore, the exposure to the disgusting ads became Experiments 1a and 2a, reported and analyzed below.

In addition, to prevent confounds, while being video recorded on the FaceReader Online platform, the attitude measures were taken separately after presentation of each ad, and the participants were instructed to treat each advertisement as a separate event. A check on effect of order of presentation of the advertisements and participants' gender did not yield significant effects on attitudes and facial expressions. We did not take these measures for Experiments 3-5 because in those studies, the participants saw only one amusing ad.

The one neutral and one disgusting video ad had been selected out of eighteen candidates proposed by ad experts and pretested by a panel. They were respectively *Quitting is Hard Not Quitting is Harder (Anti-smoking Ad)* ( $M$  disgusted = 5.83,  $SD$  = 1.33,  $n$  = 12) and *Wonderstruck Taylor Swift Ad* that received middle-low scores on amusement ( $M$  amused = 2.03,  $SD$  = 1.05 at a three 5-point Likert items,  $n$  = 60).

#### Hypothesis

Analogous predictions on amplifying regulation of happiness or on suppressive regulation of the emotion opposite to happiness, that is disgust, might be formulated. Suppressive emotion regulation for disgusting ads would involve down-regulating the facial expression of disgust, feeding back on feelings reducing disgust and dampening negative

appetitive attitudes. However, it may be argued that suppressive regulation of disgust would involve looking away from the stimulus or an earlier avoidance of it all together. Moreover, disgusting ads are rare. For both reasons, we consider conscious embodied regulation of disgust atypical in a resistance paradigm, but we report two experiments on it below.

### **Experiment 1a**

Experiment 1a was designed to test the hypothesis that consumers who regulate their emotions by expressive inhibition when watching a disgusting commercial show less facial expression of disgust, which subsequently results in higher attitudes toward the commercial. In particular, we tested whether expressive amplification increases facial expression of disgust, thus resulting in less positive attitudes toward the commercial.

#### **Participants**

A sample of 93 participants was randomly assigned to either the suppression condition (16 Men, 15 Women, average age = 29.65 years,  $SD = 8.79$ ), the amplification condition (18 Men, 16 Women, average age = 33.71 years,  $SD = 13.03$ ), or the control condition (12 Men, 16 Women, average age = 34.79 years,  $SD = 10.56$ ). Two participants in the suppression condition were excluded from the analyses, as their scores on facial expression of disgust qualified as outliers, i.e., all scored above  $Q3 + 1.5 IQR$ .

#### **Procedure & Measures**

The procedure was similar to that of Experiment 1, and we used the same experimental and control instructions. All measures were likewise same as those in Experiment 1. Appetitive attitude and emotion regulation as a trait measures were again found reliable:  $\alpha = .83$  for attitude toward the ad;  $.82$  for cognitive reappraisal; and  $.86$  for expressive suppression as traits.

#### **Results**

The mediation model was the same as in Experiment 1. The results showed that neither expressive suppression nor expressive exaggeration had any effect on the facial expression of disgust (all  $p$ 's  $>.10$ ). Facial expressions of disgust did not have any effect on attitudes (all  $p$ 's  $>.10$ ). There was neither a direct nor an indirect effect; hence, our hypothesis was not supported in this study.

However, a one-way ANOVA showed that facial expression of disgust scores were different for participants in the different expression regulation conditions ( $F(2, 90) = 3.50, p < .05, \omega^2 = .11$ ). Facial expression of disgust scores increased from the suppression ( $M = 0.03, SD$

= 0.04) to the control ( $M = 0.15$ ,  $SD = 0.30$ ) and exaggeration ( $M = 0.21$ ,  $SD = 0.35$ ) conditions. Bonferroni post-hoc analysis revealed that the difference between suppression and exaggeration (0.17, 95% CL [.01, .34]) was statistically significant ( $p < .05$ ), but no other group differences were significant.

## **Discussion**

Experiment 1a did not find the predicted relationship between response-focused regulation, facial expression, and appetitive attitudes; hence, the embodied disgust regulation effects did not mirror those obtained for happiness in Experiment 1. Support was found for the prediction that response-focused emotion regulation changed the number and intensity of facial expressions – in this case, of disgust.

Experiments 1 and 1a found that facial expression of happiness and disgust is affected by instructions to regulate one's emotional response to happiness- and disgust-eliciting ads, in comparison with a non-regulation control condition. However, facial expression proved to mediate appetitive attitudes toward the ads for the amusing ad only.

## **Experiment 2a**

Experiment 2a was designed to test whether cognitive reappraisal (vs. a control condition) results in stronger appetitive attitudes toward a disgusting commercial by a decrease in facial expression of disgust.

## **Participants**

Forty-five participants were randomly assigned to either the cognitive reappraisal condition (10 men, 10 women; age:  $M = 33.60$ ,  $SD = 11.82$ ) or the control condition (7 men, 17 women, one missing data; age:  $M = 33.64$ ,  $SD = 11.28$ ). Three participants in the cognitive reappraisal condition were excluded from the analyses, as their scores on facial expression of disgust qualified as outliers, i.e., all scored above  $Q3 + 1.5 IQR$ .

## **Procedure & Measures**

Design, procedure, and measures were similar to those in Experiment 2, except that the facial expression of happiness was replaced by that of disgust and the disgusting instead of the amusing video advertisement was presented as the stimulus. Instructions manipulating cognitive reappraisal were also identical to those of Experiment 2. The measure of appetitive attitudes (AAD) was reliable ( $\alpha = .76$ ). The same was true for the control traits – cognitive reappraisal ER ( $\alpha = .83$ ) and expressive suppression ( $\alpha = .82$ ).

## Results

Cognitive reappraisal had a negative effect on the degree of facial expression of disgust ( $b = -0.18, p = .050$ ); hence, participants who used cognitive reappraisal as a way to regulate their emotions showed less disgust expression than participants in the control condition showed. We found neither a direct effect of cognitive reappraisal on attitude toward the commercial ( $b = 0.50, p = .228$ ) nor a significant indirect effect (IE =  $-.04, SE = 0.11, 95\% \text{ BCACI } [-.31, .13]$ ). Our hypothesis for the disgusting ad was therefore not fully supported.

The disgusting advertisement elicited significantly less facial expression of disgust in the cognitive reappraisal condition ( $M = 0.08, SD = 0.18$ ) than in the control condition ( $M = 0.26, SD = 0.36$ ),  $t(36.28) = 2.17, p = 0.05$ .

## Discussion

In Experiment 2a, we only confirmed one of our hypotheses, i.e., that an antecedent-focused ER strategy – cognitive reappraisal – leads to less facial expression of disgust. However, facial expression-mediating attitude effects of instructions were not observed.

### General Discussion

Experiments 1a and 2a tested the total and specific indirect effects of expression regulation and cognitive reappraisal (separately) on attitudes toward the advertisement through facial expression of disgust in the disgusting advertisements. Both studies failed to demonstrate any direct or indirect effect of emotion regulation on attitudes.

We believe it is possible that the participants may have judged the disgusting ad as an atypical example of persuasive stimuli, as around 40% of advertisements use amusement in their plot (Markiewicz, 1974; Weinberger, Spotts, Campbell, & Parsons, 1995), and did not react within general predictable patterns. In hindsight, we argue that disgusting ads have different properties than similar emotional stimuli, to the effect that hypotheses from the emotion literature do not translate directly into negative and neutral persuasive stimuli, as demonstrated by our non-findings in the two studies.

The failure to find facial expression-mediated effects of emotion regulation on appetitive attitudes can be attributed to several factors. First, the reliability of attitude measures in Experiments 1a and 2a was found to be lower than in Experiments 1 and 2. Second, and more importantly, the resistance model proposed in the introduction does not seem to apply as well in the case of disgusting ads. In practice, disgusting ads are part of health communication messages



(e.g., stop smoking, drinking, or using drugs). Many factors other than those in consumer product ads determine consumers' response to that kind of persuasion. Therefore, in the next experiments (3-5), in which we tested the antecedent-focused emotion regulation, we only used amusing advertisements. That is, we focused only on amusing advertisements as the results from Experiments 1a and 2a showed a lack of clarity in how the disgusting advertisements are supposed to work.

The case of resistance against amusing ads also has some limitations. To begin with, we consider the conspicuous failure to find predicted effects in Experiments 1a and 2a mirroring the impact of emotion regulation through happy facial expression on appetitive attitudes. We have presented some possible explanations in the discussions above, while also pointing out that disgusting ads are not typical for commercial persuasion. To this, we add from a more general consumer resistance perspective that disgusting ads provoke strong emotional avoidance responses in the unregulated case. It may be part of consumer competence to recognize instantly that "resistance is futile," that is, resistance through one of the emotion regulation strategies induced in the present experiments.

As widely accepted consumer wisdom may have it, the proper strategy is to avoid being confronted with such an ad, looking away, or thinking intensely about mental-emotional content far removed from the stimulus (tactics known respectively as situation selection and situation modification; Gross & Thompson, 2007). The theoretical assumption that facial expression, because of its inherent link with emotional action tendencies, easily influences appetitive attitudes as another emotional response component may not be valid for expressions of disgust. Of course, disgust is not used to create negative attitudes toward the ad or brand. When using disgust in an anti-smoking commercial, the disgust should be high and attitude toward the behavior low. Further research is needed to determine why the expression of disgust does not affect appetitive attitudes; possibly, appraisal of disgusting ads is different, or there may be differential threshold values for disgust and happiness to affect attitudes.