Hindering Facial Mimicry in Ad Viewing: Effects on Consumers' Emotions, Attitudes and Purchase Intentions

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1 Introduction

Recent findings in consumer psychology demonstrate that embodied cognition and bodily mimicry may influence consumers' attitudes, intentions, and behavior (e.g. Hung & Labroo, 2011; Howard & Gengler, 2001). For example, when two friends (Bill and John) watch a funny advertisement and they both smile this might facilitate each other's expressiveness and subjective emotional experience. However, when Bill unexpectedly sneers at the funny ad this can be perceived as an incoherent reaction and could therefore interfere with John's initial cheerful expression. This might reduce his concomitant subjective positive feelings subsequently affecting responses towards the advertisement and the advertised product.

In a consumer context, Martin and Gray (1996) found, for example, that adding audience laughter to radio recordings increases its funniness and enjoyability ratings. Hence, people are affected by the emotions that others express. This might be explained by the process of mimicry. Although many studies have demonstrated various enhancing effects of mimicry on consumer behavior (e.g. Tanner et al., 2008) no studies yet examined how co-viewers' facial expressions of emotions interfere with responses towards television commercials. In the present research, we therefore examine whether facial behavior of a co-viewer that facilitates or interferes with the target person's initial facial expressions and subjective feelings affects how the target person reacts towards an advertisement.

2 Facial Mimicry

Why do people mimic other people? Mimicking serves a social function - people like each other more when mimicking and mutual liking fosters relationship with others (see Lakin et al., 2003). In a consumer context, van Baaren et al. (2003) found that staff mimicking the customers received larger tips. Wang (2009) found that consumer' emotions, satisfaction with service personnel and brand attitude are influenced by personnel-displayed emotions in the retail service context. In the current paper, we focus specifically on *facial*

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mimicry because the face is a rich source of information with over 10,000 possible facial movement combinations (Ekman & Rosenberg, 1997)

Facial mimicry is an activity in specific muscles in response to conspecific facial expressions (Bush et al., 1989). The mere task of perceiving facial expressions of emotions of others activates observers' facial muscles (measured by facial electromyography) that correspond to the perceived emotion (Dimberg, 1982; Lundqvist, 1995). Facial mimicking occurs fast - within 300 ms after stimulus presentation (Dimberg et al., 2002). Hindering or facilitating facial mimicry modulates the accuracy of emotion perception (Oberman et al., 2007; Neal & Chartrand, 2011). In the example of the friends, Bill's diminished facial expression of amusement decreases his fun. This finding is consistent with the idea of facial feedback (Buck, 1980), which shapes emotional experiences (see also McIntosh, 1996) modifies 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).

In a consumer context, facial reactions while viewing an advertisement were shown to predict post-viewing attitudes toward the advertisement as well as the brand (Lewinski, Fransen, & Tan, 2014). When people smile during advertisement exposure, they like the ad and the brand more. It is, however, interesting to examine possible moderates of this relationship.

A previous study examined whether consumers are able to control their facial expression. Lewinski, Fransen, Tan, Snijdewind, Weeda and Czarna (June, 2014) found that instructing participants to exaggerate (i.e. facilitate) or to inhibit (i.e. hinder) their facial reactions through emotion regulation resulted in higher or lower reported attitudes toward the advertisement respectively. What has not yet been investigated is whether natural situational factors such as a *conspecific*'s expressions may also facilitate or hinder facial behavior and in turn influence consumers' attitudes and intentions as in the virtual example of the friend watching an ad..

We hypothesize that congruence of a co-presented facial expression stimulus with the expression elicited by a stimulus ad affects the ad's targeted emotional expression and concomitant attitudes. That is, given an amusing ad, a view of a sneering person inserted into the screen's edge decreases advertising effectiveness by hindering consumers' facial expressions of happiness. On the other hand, a laughing person would increase ad's effectiveness by increasing one's expressiveness.

3 Method

In this study we set to test a mediation model where boosting or inhibiting facial expressiveness leads to accordingly more or less facial expressions of

happiness of the viewer. In turn, expressed happiness should lead to higher or lower attitude scores of advertising effectiveness.

Design and procedure. Participants were recruited through MTurk. Participants who agreed to participate, were redirected to a platform where the experiment was conducted and were randomly assigned to one of the four conditions (facilitating/hindering/still/control). Importantly, there were no instructions as to how to behave while watching the ad. Participants were provided with information on how to set-up their camera. We used the objective measure of emotions by recording facial expressions of happiness analyzed by automatic facial coding software - Noldus FaceReader (Noldus, 2014). We will describe this procedure in more detail below.

*Participants***.** A sample of 156 participants recruited through MTurk was included in the study (Men = 76, Women = 80, average age = 31.54; *SD* = 11.44): 40 in the facilitating, 37 in the hindering, 40 in the still and 39 in the no avatar condition. The target population from which the sample was selected consisted of U.S. residents with a minimum age of 18. Participation was voluntary and required signing an informed consent.

Stimulus. We used an amusing video advertisement (30-seconds) - a commercial of Doritos chips (*Doritos Goat for Sale Ad*) which was pre-tested: *M* amused = 5.91, *SD* = 1.30 at a 7-point Likert scale, n =11. For our avatar manipulations, we created an elaborative set of virtual faces based on real people generalized reactions towards the commercial. These virtual faces were added in the right-bottom corner of the screen of the Doritos commercial and differed in terms of expressed emotions. Dependent on the condition, a smiling (*facilitating*), sneering (*hindering*) or neutral (*still*) face was used. In the fourth, control condition there was no face.

The three stages of the face development were a) generation of a 3-dimensional digital representation of an actor capable of producing facial movements based on the Facial Action Coding System (FACS) (Ekman et al., 2002); b) determination of an optimal set of expressions temporally mapped to previously gathered facial reaction data for the stimuli advertisement; c) and animation of the face for addition to the video frame of the ad. See Figure 1 for the final stimuli visualization.

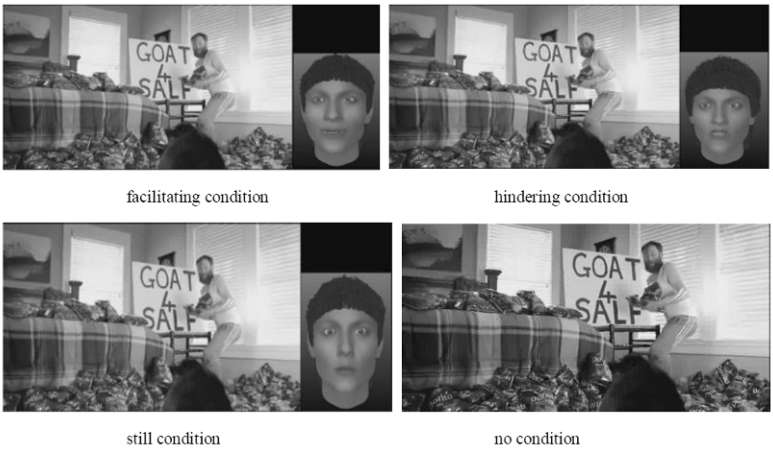


Figure 1: Commercial with a Pre-recorded Virtual Avatar Used in the Studies to Create Four Conditions: Facilitating Condition; Hindering Condition; Still Condition; No Avatar (Control) Condition

*FaceReader***.** FaceReader (Noldus, 2014), an artificial neural network software that automatically analyzes facial expressions of emotions once they are recorded by a computer camera, was used in order to measure emotions expressed by participants. FaceReader proved to be a reliable and objective tool (Lewinski, den Uyl & Butler, in press). It shows to what extent facial expressions of emotions (Ekman, 1972) are displayed by recorded participants in every frame of the recording. As a measure of happiness expression intensity we used average scores of the top 10% peak values (Lewinski et. al, 2014) provided by FaceReader for every participant.

Consumer attitudes and intentions. We measured attitudes toward the advertisement, attitude towards the brand and purchase intention following the Advertising Effectiveness Model (Mitchell & Olson, 1982). Participants answered how much they agreed with the statements concerning the advertisement (α = .96), brand (α= *.97)* and purchase intentions (α = .96). Both attitude measures consisted of seven items and purchase intention was measured with three items. The mean scores served as the dependent variables.

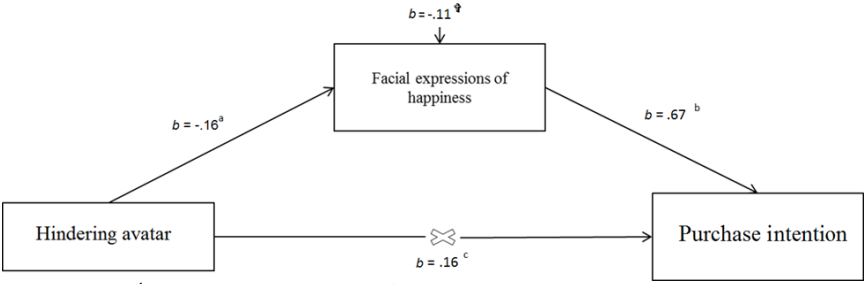
4 Results

In order to test the influence of the expressive faces on purchase intentions and attitudes, we used Preaches and Hayes' method (2008) that estimates path coefficients in a mediator model. The 10'000 bootstrapped samples were generated to estimate bias corrected and accelerated confidence intervals

(BCACI). We tested the total and specific indirect effects of the experimental conditions on attitude toward the advertisement, toward the brand and on purchase intentions through facial expression of happiness. The variable differentiating participants in terms of experimental condition was dummy coded, which resulted in three independent coding schemes - (a) facilitating; (b) hindering and ;(c) still condition - each coded versus all the other conditions. The results showed that only the hindering avatar decreased facial expressions of happiness, which lead to lower attitudes and lower purchase intentions. No such results were found for all other conditions. In all analyses, we controlled for the influence of emotion regulation strategies.

*Attitude toward the advertisement***.** The hindering avatar condition had a negative effect on facial expressions of happiness (b = -.16; p = .07) and they were positively related to attitude toward the advertisement (b = 1.02; p = .0003), which resulted in a significant indirect effect (IE) (IE = -.16, SE = .10, 5% BCACI [-.42, .00]). No direct effect was found, so the hindering avatar had no direct influence on attitude towards the ad (b = -.14; p = .64).

*Attitude toward the brand***.** Analogical results were found when testing attitude toward the brand as an outcome variable. The hindering avatar condition predicted less facial expressions of happiness (b = -.16; p = .07) and facial expressions of happiness predicted attitude toward the brand (b = .64; p = .012; IE = -.10, SE = .07, 5% BCACI [-.31, .00]) with no direct effect found (b = -.11; p = .70).



[a] – p = .0674; [b] – p = .0739; [c] – p = .70; ♆- significant indirect effect (5% BCACI [-.37, .01]), controlling for gender and emotion regulation strategy.

Figure 2: Total and Specific Indirect Effects of the Hindering Avatar Condition on Purchase Intention Through Facial Expressions of Happiness

*Purchase Intention***.** The hindering avatar condition did not have a direct effect on purchase intention (b = .16; p = .70). It influenced, however, facial expressions of happiness (b = -.16; p = .07), which were positively related to purchase intention (b = .67; p = .07). There was also an indirect effect (IE = -

.11, SE = .09, 5% BCACI [-.37, .01]). See Figure 1 for an example of the model with effects of the hindering avatar condition on facial expression and purchase intention.

5 Conclusions

We demonstrated that the stimuli we created - the expressive faces of a conspecific – indeed has profound effects on consumers. We measured and automatically coded consumers' facial expressions of emotions. We tested if the manipulation of the expressive avatars influenced the emotions consumers express while watching an amusing commercial.

We demonstrated that the hindering condition leads to less expression of happiness, which in turn resulted in lower attitudes and purchase intentions. As adding "fake" audience laughter tends to boost enjoyability ratings of radio recordings (Martin et al., 1996), adding "disgusted" audience dampens expressions of happiness and hence effectiveness of the advertisement. We could rule out mere presence of a still face as an alternative explanation because dynamic qualities of the hindering condition outperformed the still condition.

When watching commercials consumers seem to be affected by the facial expression of others who watch together with them. Since people have a natural inclination to mimic others, the emotional expression of others impacts their own feelings and expression. Through an internal feedback process, these expressed emotions affect attitudes and intentions. Our findings have important implications for both advertisers and consumers. First, advertisers often use amusing advertisements to persuade consumers to like and buy their products. The present findings reveal that the positive effects of these advertisements might diminish or even disappear when watched together with someone who dislikes the ad, or at least demonstrates expressions that are incongruent with the intended emotions. It would therefore be beneficial for advertisers to be aware when consumers watch advertisements together with others, and with who they watch them.

Second, consumers may benefit from our findings since they propose that not smiling at an amusing commercial might help them resist (unwanted) persuasion by ads. When motivated to resist persuasion, a consumer may profit from the presence of another person who shows skepticism or disapproval through facial expression of disgust.

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