Building Castles in the Air:

The Impact of Imagined Behaviour on Perceived Appeals in Advertising

Master Thesis

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Date: 21-07-2017

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ABSTRACT

Embodied persuasion is the influence of bodily processes on attitudes. In this study, two experiments were used to investigate the impact of imagined behaviour in the context of embodiment by comparing physical manipulation with imagined manipulation.

In the first experiment, subjects were asked to hold a pen between their teeth (unconsciously smiling) or their lips (inhibiting smiling) to test the influence on funniness. To investigate the role of imagined behaviour, another group of participants had to imagine the described facial expressions. It was predicted that imagining the behaviour would result in higher ratings on funniness when smiling and lower ratings when not smiling, compared to physically conducting the behaviour. Data showed, that imagining the facial expression of smiling did not lead to more funniness, instead it led to more entertainment while watching a video.

In the second experiment, the (imagined) temperature of a therapeutic pad that was hold by participants was manipulated, to measure the influence on interpersonal warmth. It was predicted, that imagining the behaviour would result in higher ratings on the scale of interpersonal warmth when experiencing warmth and lower ratings when experiencing coldness, compared to physically conducting the behaviour. Results showed that imagining the temperature had no effect on interpersonal warmth, but led to extremer values for perceived funniness and coziness. This is only valid for the (imagined) experience of coldness.

Although the moderating role of imagination could not be supported for the hypothesized relations, this study could support the impact of imagination on other constructs.

Keywords: Persuasive messages, embodied persuasion, disembodied cognition, lack of physicality, imagination of behaviour

INTRODUCTION

The number of persuasive messages people get confronted with daily has increased drastically. Programs on television or radio as well as sales executives compete for the peoples' attention. With the possibilities of the internet, persuasive offers likely become impossible to oversee.

Sales executives have the possibility to use the physical presence of their products or advertising materials to convince (future) customers to buy. For instance, customers can be offered a hot cup of coffee with the aim to influence their attitudes towards the sales person in a positive way. Research has stated that physical warmth translates into interpersonal warmth (Williams & Bargh, 2008). This concept of the perception of processes within the human body having an influence on a person's attitudes is called embodied persuasion (Briñol & Petty, 2008). It covers the role of the body in the field of persuasion.

Persuasive content on a medium as the internet faces some difficulties when communicators want to use embodied persuasion, due to the lack of physicality. Relatively little attention in research is spent on the possible effect of imagining behaviour in this context (Briñol & Petty, 2008), although there is evidence that grounding in physical experiences is not necessarily needed for concepts to be built (Mahon & Caramazza, 2008).

The two opposing poles described above, the need of embodied grounding versus not needing it, build the basis of this research. It is aimed to contribute to the literature by investigating the role of the imagination of behaviour in the field of embodied persuasion. In doing so, this research proposes the possibility that a physical presence of body processes is not necessary to influence attitudes.

Within two experiments, the role of physical behaviour and imagination in embodied persuasion are tested. In the first experiment, participants had to perform or imagine a facial expression to prevent or elicit a smile and then had to indicate how funny they rate a commercial. In the second experiment, people experienced or imagined warmth or coldness and rated the video on a scale of interpersonal warmth.

In the following, the theoretical background is discussed first. Second, the used method for this study is described. Both experiments are reported separately and will be discussed afterwards. In an overall discussion, major findings of the whole study are presented and theoretical and practical implications are given. The paper closes with limitations and ideas for further research.

THEORETICAL FRAMEWORK

Mahon and Caramazza (2008) state that there are two anchor points in research: One claiming that (abstract) concepts are grounded in sensory and motoric information, known as 'embodied cognition hypothesis'. This includes, that people need physical input to build concepts in their minds. The other anchor point is, that there is no embodied grounding, claiming that concepts do not need sensory and motoric information to exist, known as 'disembodied cognition hypothesis' (Mahon & Caramazza, 2008). Therefore, no physical input is needed to build the concepts.

Embodied Cognition

Most research in the field of embodied persuasion focuses on physical behaviour (e.g. Petty, Wells, Heesacker, Brock, & Cacioppo, 1983; Briñol, Petty, & Wagner, 2009; Ito, Chiao, Devine, Lorig, & Cacioppo, 2006). The term embodied persuasion refers to the perception of processes within the human body, which can have an impact on a person's attitudes (Briñol & Petty, 2008). It covers the role of the body in the field of persuasion.

Research in embodied persuasion was conducted for instance on the body posture of individuals. When subjects were standing upright, they showed less issue relevant thinking than when they were lying down (Petty, Wells, Heesacker, Brock, & Cacioppo, 1983). Briñol, Petty, and Wagner (2009) investigated the effect of embodiment on the certainty of thoughts, the authors found that depending on whether a participant stood upright or in a stooping pose, the individual relied more or less on their own thoughts respectively.

Briñol and Petty (2008) related the concept of embodied persuasion to the Elaboration Likelihood Model of Petty and Cacioppo (1986). That is, that people's reactions to a persuasive attempt can range from no elaboration to full elaboration (Petty & Cacioppo, 1986). How a person makes use of the perceived body process depends on the motivation and ability to process the respective message (Briñol & Petty, 2012). There are four ways the body can influence the processing of the message, which are putting a direction to the thoughts, influence the certainty and intensity and serving as peripheral cue (Briñol & Petty, 2008).

A study in which the body process is acting as peripheral cue is the one of Strack, Martin and Stepper (1988). In the context of embodied persuasion, the authors conducted the experiment testing whether bodily states can influence the perceived funniness of cartoons. Participants rated cartoons funnier when holding a pen between the teeth (simulating a smiling expression without activating concepts related to smiling) than when holding a pen between the lips (no smiling expression). When unintendedly smiling, cartoons were perceived to be funnier in their experiment. The authors stated, that this result was due to the fact that people thought raising the corners of their mouth would have

happened due to finding something funny (Strack, Martin, & Stepper, 1988), therefore peripherally cueing the funniness.

After data collection of the study at hand, Wagenmakers et al. (2016) published a meta-analysis of 17 replications of the original experiment by Strack, Martin, and Stepper (1988) and revealed, that the studies overall could not replicate the effect of unintendedly smiling on the funniness of cartoons. This is an important finding for the research at hand, because it might enhance the importance of imagination within the context of embodied persuasion.

Interestingly, there is research supporting the concept of smiling having an effect on other concepts than funniness. Recent research was conducted by Ito, Chiao, Devine, Lorig, and Cacioppo (2006), who found that participants who unintendedly smiled while being shown black people's faces before being surveyed, showed less racial bias against black people than those, who did not smile. It should be noted that the concept of racism is a negative one, in the study discussed the smiling therefore improved a negative concept. With the concept of funniness, an already positive concept needs to be enhanced, which might be more difficult.

As humor (funniness) is frequently used in advertising, it serves as dependent concept in this research, although there are mixed results in the literature. In their review, Weinberger and Gulas (1992) found that the use of humor can improve liking, attract the audience's attention and might even enhance understanding. According to Nabi, Moyer-Gusé and Byrne (2007), implementing humor leads to a deeper processing of the message and keeps people from disagreeing with the message. It should be noted, that not only the message itself, but also the audience has an influencing factor in what is and what is not perceived to be funny (Weinberger & Gulas, 1992).

It might therefore be interesting to have a closer look at the recipient and to create the best circumstances for a person to receive a funny message by cueing funniness. The study at hand aims to replicate the experiment of Strack, Martin and Stepper (1988) as described above, to be able to compare the results to a condition where people will imagine the behaviour. Although there were mixed results on the study, an influence of the position of the pen is assumed on perceived funniness, see ***Figure 1***.

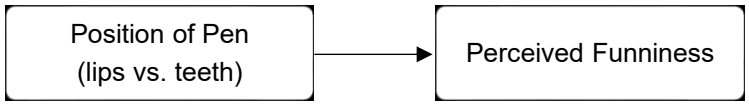

Figure 1: Model (Experiment 1, Hypothesis 1).

According to this assumption, the first hypothesis (H1) is derived: *In response to the facial expression of mimicking a smile, people will experience a commercial to be funnier.*

Another study working with the body process as peripheral cue is the one of Williams and Bargh (2008). The authors let participants shortly experience warmth by holding a hot cup of coffee and

afterwards tested how people reacted towards other persons. Subjects showed more positive behaviour towards others, when they were primed with warmth. The authors therefore concluded, that physical warmth triggers interpersonal warmth. They assumed, that the individual is cued peripherally that they feel positive about the other human due to the feeling of physical warmth – thus feeling interpersonal warmth (Williams & Bargh, 2008). In a follow up experiment, the authors gave participants a hot or cold therapeutic pad to let them experience physical warmth and coldness and found evidence that the hot priming cue leads to more altruistic behaviour towards others than the cold one. Subjects with an experience of warmth were more willing to take an incentive for others than for themselves (Williams & Bargh, 2008).

Lately, this research has been criticised in the article of Lynott et al. (2014). The research showed that there was no evidence that the experience of warmth translates more into interpersonal warmth than the experience of coldness. Nevertheless, the authors emphasize that although they found no evidence for the relation of warmth on the behaviour does not mean it does not exist or earlier results of other authors would be “false positives” (Lynott et al., 2014). Again, it seems to be complicated to enhance an already positive concept such as interpersonal warmth, as mentioned before with funniness.

Interpersonal warmth is quite often used in advertising; therefore, it will be used as dependent construct although literature shows some criticism about the experiment of Williams and Bargh (2008). It is believed that interpersonal warmth has a positive influence on affective responses (De Pelsmacker & Geuens, 1999). Early research showed evidence that maternal warmth is important in raising a child, resulting in a positive influence on the internal control a child expects to be able to assert (Carton & Nowicki, 1996). When used in an advert, warmth also influences the receiver’s attitudes regarding the advert itself and the represented brand (De Pelsmacker & Geuens, 1999).

In the study at hand, the experiment of Williams and Bargh (2008) as described above, is aimed to be replicated to compare the findings to a condition where people will imagine the conditions. The temperature of the therapeutic pad is assumed to have an influence on the perceived interpersonal warmth, see ***Figure 2***.

Figure 2: Model (Experiment 2, Hypothesis 2).

According to the assumption stated, the second hypothesis (H2) is derived: *In response to physical warmth, people will experience more interpersonal warmth when they watch a commercial.*

Disembodied Cognition

Next to the fact that there is a dispute about whether the bodily experience influences the perceived interpersonal warmth as well as funniness, described in the experiments above, embodied cognition faces another challenge. Some researchers suggest that there is no sensory and motoric input needed for mental representations (Caramazza, Anzellotti, Strnad, & Lingnau, 2014), thereby indicating that imagined behaviour can exert an influence on attitudes.

Other recent neuroscientific research revealed that representations of concepts are perceptually grounded, therefore providing sensory information during mental imagery (Schmidt, Ostwald, & Blankenburg, 2014).

Early literature by Lakoff and Johnson (1980) focuses on the theory, that concepts are based on metaphors. The authors state that through getting in contact with metaphors in our daily life, we are influenced in the way we think and act. They give the example of our western cultures seeing “arguments as war”, therefore implicating that there needs to be a winner and one party needs to be defeated. Would an argument be seen as a dance, we would act quite differently (Lakoff & Jonson, 1980). This includes, that no sensory input is needed to build the concept of arguments in the mind.

Most literature focuses on the physical performance of a certain behaviour in the context of embodied persuasion, but some authors suggest there might be an effect due to only imaging actions from the past or future (Briñol & Petty, 2008). This is in line with the second anchor point mentioned by Mahon and Caramazza (2008), which is that in opposition to embodied grounding, concepts are not based on physical input.

Decety (1996) found that the same neural mechanisms are used when physically performing and imagining a certain behaviour. The same areas of the brain were activated, therefore assuming that the same body reactions could technically be evoked. Wang and Morgan (1992) conducted research on the question, whether imagining body processes can result in the same body reactions as when performing the exercise. The authors found imagined exercise to result in lower physiologic reactions than actual exercise did, except for blood pressure which was similar. They could find participants’ breathing to be increasing during internal imagery of body exercises in contrast to the control group, in which no increased breathing could be detected (Wang & Morgan, 1992). The results of the described studies indicate, that there is an influence of imagined behaviour, although it seems to be less intense than actually performed behaviour.

Apart from the psychophysiological data, it can be assumed that imagination also influences other concepts. According to Koo, Algoe, Wilson, and Gilbert (2008), a person would experience a more positive affective state, when imagining that an important personal event of them would never have taken place. The authors found this effect to be even stronger than when people imagined how this positive event was like. Another example of the described disembodiment is the study of Cameron,

Rutland, Turner, Holman-Nicolas, and Powell (2011). The authors conducted research on the role of imagination in the context of children's attitudes towards other children who are handicapped. The kids were asked to imagine that they get in contact with the physically handicapped ones. Those children who imagined the interaction with the disabled kid could reduce their bias and increase positive actions towards children outside their group (Cameron, Rutland, Turner, Holman-Nicolas, & Powell, 2011).

In the field of marketing, research on disembodiment was conducted by Elder and Krishna (2012). The authors found higher intentions to purchase a product in their subjects only by manipulating the orientation of an object. Their explanation is, that mental simulation of touching the object is easier when the product is directed towards the dominant hand.

In the context of object evaluation, van Rompay, Veltkamp and Pruyn (2014) stated that it is sometimes necessary to take another person's perspective to evaluate distant objects, they concluded that taking a different perspective, as being inside a bottle, can result in changing the experience concerned with this object only by imagination.

These claims challenge the concept of embodied cognition. Therefore, it could be possible that imagined behaviour takes the role of a moderator in the relationship between the priming cues of facial expression and temperature on the perceived motivational appeals in advertising. This is done by adding the form of behaviour (imagined/physical) to the model of perceived body processes having an influence on attitudes (Briñol & Petty, 2008).

Inspired by the disembodied cognition hypothesis (Mahon & Caramazza, 2008) and due to the mixed results in present research, imagination of behaviour is assumed to have a stronger influence on the appeals than physical behaviour does, see ***Figure 3*** and ***Figure 4***.

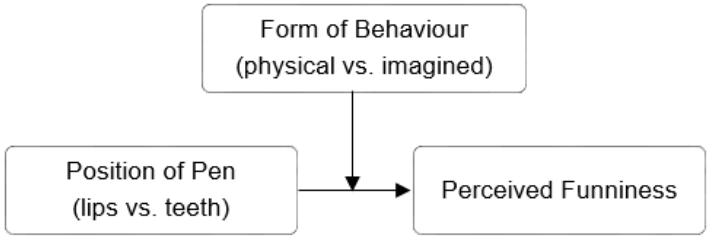

Figure 3: Model (Experiment 1, Hypothesis 3).

Following this assumption, the third hypothesis (H3) is derived: *In response to the imagination of mimicking the facial expression of a smile, people rate a commercial to be funnier than when physically mimicking the facial expression.*

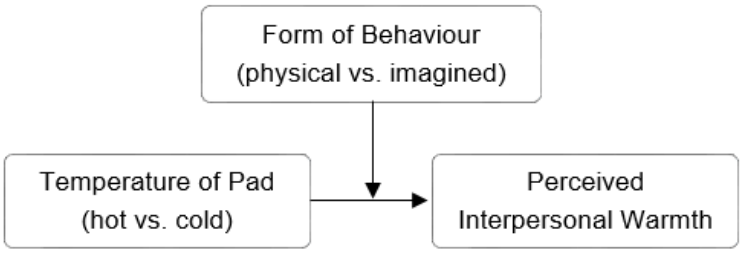

Figure 4: Model (Experiment 2, Hypothesis 4).

According to the assumption, the fourth hypothesis (H4) is derived: *In response to the imagination of physical warmth, people rate a commercial to convey more interpersonal warmth than when physically experiencing warmth.*

Main Study

The main study consisted of two experiments with a between-subjects design. The first one aiming to investigate the impact of the facial expression on the perceived funniness. The second one focusing on the impact of warmth or coldness on the conveyed interpersonal warmth of a commercial. The two experiments are reported separately.

Experiment 1

The first experiment of the study at hand builds on the research of Strack, Martin, and Stepper (1988), as described above. This research aims to investigate the impact of an (imagined) facial expression on the perceived funniness.

Method

This research was conducted with students of the University of Twente, who had to hold a pen between the lips or teeth, or to imagine this behaviour. They were shown a commercial of the British company “Sainsbury’s” (Sainsbury’s, 2015) and had to rate it afterwards.

Participants

For each condition, 20 subjects were sampled using convenient sampling at the University of Twente. This results in a total sample size of 100 participants for the first experiment. A few people knew either the commercial or the experiment before doing the experiment, which is why 19 participants had to be resampled. It is assumed that being aware of the experimental purpose or having seen the video before could have an influence on the answers of the participants. In ***Table 1***, an overview of the demographic data of the sample is given.

Table 1 Demographic Data Experiment 1 per Condition (N=100).

Variable		Count (% within Condition)				
		Teeth/Physical *(N = 20)*	Teeth/Imagined *(N = 20)*	Lips/Physical *(N = 20)*	Lips/Imagined *(N = 20)*	Control *(N = 20)*
Gender	Female	10 (50.0%)	8 (40.0%)	7 (35.0%)	7 (35.0%)	14 (70.0%)
	Male	10 (50.0%)	12 (60.0%)	13 (65.0%)	13 (65.0%)	6 (30.0%)
Age		24.4 (3.6)[a,b]	24.3 (4.8)[a]	25.0 (3.9)[a]	23.9 (3.2)[a]	23.4 (3.2)[a,b]
Nationality	German	10 (50.0%)	3 (15.0%)	13 (65.0%)	4 (20.0%)	10 (50.0%)
	Dutch	6 (30.0%)	11 (55.0%)	4 (20.0%)	12 (60.0%)	6 (30.0%)
	Other	3 (15.0%)	6 (30.0%)	3 (15.0%)	4 (20.0%)	4 (20.0%)
	No answer	1 (5.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

Notes. a: Mean (SD), b: N = 18

Stimuli

As a priming cue, participants had to hold a pen between the lips or teeth (see ***Figure 5***), or to imagine this behaviour. That way, subjects would smile without connecting the facial expression to the positivity of the concept of smiling. The position of a pen (lips vs. teeth) is assumed to have an influence on the perceived funniness of a commercial.

Figure 5: Position of the Pen in Experiment 1.

The proposed experimental design thus means that there are four experimental conditions plus the control condition (depicted in ***Table 2***). To control that the assumed effects do only occur due to the manipulations and would not show under normal conditions, a control group was added and used for both experiments. In this condition, participants did neither hold a pen between their lips or teeth nor did they imagine this behaviour while watching the commercial.

Table 2: Experimental Design (Experiment 1).

Position of Pen	*Form of Behaviour*		
	Imagined	Physical	Control
Lips	Lips + imagined	Lips + physical	No manipulation
Teeth	Teeth + imagined	Teeth + physical	

Measures

The measurement instrument was developed together for both experiments. As there is no standard scale to measure funniness and interpersonal warmth suitable for this study, a pre-study was conducted to construct the scales. This was achieved through an online survey, where participants were

asked to watch the commercial of Sainsbury's and rate it on 31 items related to funniness and interpersonal warmth. These items were rated on a five-point Likert scale, ranging from "I do not agree at all" to "I totally agree". The questionnaire of the pre-study can be found in Appendix 1. In the online survey, 73 subjects participated.

A factor analysis (Appendix 2) was conducted to investigate whether the 31 items resulted in the two scales they were supposed to measure. The results of this analysis showed, that the items depict four different constructs instead of two, namely "Funniness", "Empathy", "Warmth" and "Enjoyment". The scale measuring funniness consists of ten items concerning for instance whether the participants had to laugh, giggle or grin while or after watching the video. This scale shows a very high Cronbach's Alpha of .910, see reliability analysis in Appendix 2. The scale measuring empathy consists of six items measuring for instance whether the participants felt sad for the cat or whether they wanted to help the family in the video. This scale shows a relatively high score for Cronbach's Alpha of .789. The scale on warmth consists of five items covering for instance whether subjects felt touched or got a cozy feeling while or after watching the video. The warmth scale shows a relatively high Alpha of .780. The enjoyment scale consists of three items regarding how comical the subjects found the video as well as whether they felt good after watching it. This scale showed a relatively low Alpha of .589. Scale means and standard deviations can be found in ***Table 3***.

Table 3: Means, Standard Deviations and Cronbach's Alpha for Pre-Study.

Scale	N_{Items}	Mean	Std. Deviation	Cronbach's Alpha
Funniness	11	2.68	.96	.910
Empathy	6	3.68	.81	.789
Warmth	5	3.34	.89	.780
Enjoyment	3	3.09	.88	.589

To test whether the questionnaire for the actual study as well as the procedure of the experiments required any adaptions, a functional pre-test with nine participants (one person for each condition) was conducted. The subjects who took part in the experimental condition, were handed out the questionnaire. Afterwards, they were encouraged to make any suggestion that came to their mind for the improvement of the procedure or questions. The functional pre-test led to minor changes in wording. Besides, the expression "affection/affectionate" was replaced by "interpersonal warmth" for clarification. The experiments in general did not need any adaptions. The final questionnaire can be found in Appendix 3.

As in the pre-study, a factor analysis was conducted to test the validity and reliability of the research instrument. This was done for both experiments together (see Appendix 4).

According to problems reported by participants, the items related to Facebook were excluded from the analysis. Some subjects were not using Facebook at all, others never use it in the way suggested in the questionnaire.

The initial factor analysis resulted in five factors which are “Warmth”, “Funniness”, “Worthiness to share”, “Entertainment” and “Coziness”. The items “I would share the video on a platform for funny content” as well as “The video is comical” did not load high on any of those factors and were excluded from further analysis.

Reliability analysis with Cronbach’s Alpha revealed that the scale of funniness can be improved by leaving out the item “While watching the video, I had to laugh out loud”. The scale entertainment gets a higher Alpha by excluding “I feel good after watching the video”. Values can be found in ***Table 4***.

Table 4: Cronbach’s Alpha of Scales.

Scale	N_{Items}	Cronbach’s Alpha
Warmth	5	.824
Funniness	4	.822
Worthiness to Share	5	.797
Entertainment	2	.764
Coziness	2	.635

Procedure

The experiments took place under laboratory conditions to reduce effects of external variables to a minimum. Subjects were invited to a designated room at the University of Twente, where they took part in the experiment individually. Arriving at the destination, the participants were informed that they would perform a certain task while watching a commercial. Subsequently, they were told, as a cover story, that they had to rate this commercial to help investigate the relative importance of being distracted while processing advertising messages. Participants were informed that they could quit the experiment at any time without giving a reason for it. Subjects were then introduced to their task to which they were assigned randomly.

Participants in the first experiment were asked to hold a pen between their lips or teeth, or to imagine it, depending on the experimental condition. During the performed task, subjects were shown a commercial about Christmas.

The video published by the company “Sainsbury’s” is about a cat almost destroying Christmas but through the help of neighbours, the feast can be celebrated in the end (Sainsbury’s, 2015). This commercial has been chosen because the two appeals measured within the study at hand are also used within this advert. The cat goes through several funny situations and interpersonal warmth is conveyed when the neighbours come over to help. The commercial has a duration of 3:30 minutes and all subjects performed their specific task for the same amount of time. After having seen the film,

participants were asked to indicate their agreement or disagreement with several statements on a five-point Likert scale (see Appendix 3).

Participants were asked to indicate their age, gender and nationality. They were also asked whether they knew the commercial and Sainsbury's beforehand. In the end, a funnel debriefing was conducted, testing for participants' awareness of the purpose of the study (Van Tongeren & Green, 2010). Subjects were asked what they thought in which research field the study was conducted and what the purpose of the study was.

Results

A multivariate analysis of variance (MANOVA) was conducted to test the effect of form of behaviour (imagined, physical) and position of the pen (lips, teeth) on the scales. F-values of main and interaction effects can be seen in ***Table 5.***

Table 5: MANOVA Results Study 1.

		MANOVA Results			
Source	Dependent Scale	df	F	Sig.	partial η²
Position	Funniness	1	1.61	.208	.017
	Warmth	1	0.66	.419	.007
	Worthiness to Share	1	0.14	.709	.002
	Entertainment	1	4.55	.036*	.047
	Coziness	1	0.28	.601	.003
Behaviour	Funniness	1	2.00	.160	.021
	Warmth	1	1.12	.293	.012
	Worthiness to Share	1	0.62	.433	.007
	Entertainment	1	7.87	.006*	.078
	Coziness	1	0.76	.387	.008
Position*Behaviour	Funniness	1	1.60	.208	.017
	Warmth	1	0.04	.840	.000
	Worthiness to Share	1	0.22	.640	.002
	Entertainment	1	0.12	.729	.001
	Coziness	1	1.19	.278	.013

Notes. * = significant at the .05 level.

For the position of the pen, a main effect (see ***Figure 6)*** could be found only for the entertainment scale [F (1, 93) = 4.55, p = .036, partial η² = .047]. Using Tukey's HSD post hoc test, the mean of the lips condition was identified to be statistically significant different from the control group on a 0.05 significance level (α = .036). People in the lips conditions judged the video 0.6 scale points less entertaining on average (3.77) than the control group (4.35). Means and standard deviations can be found in ***Table 6***.

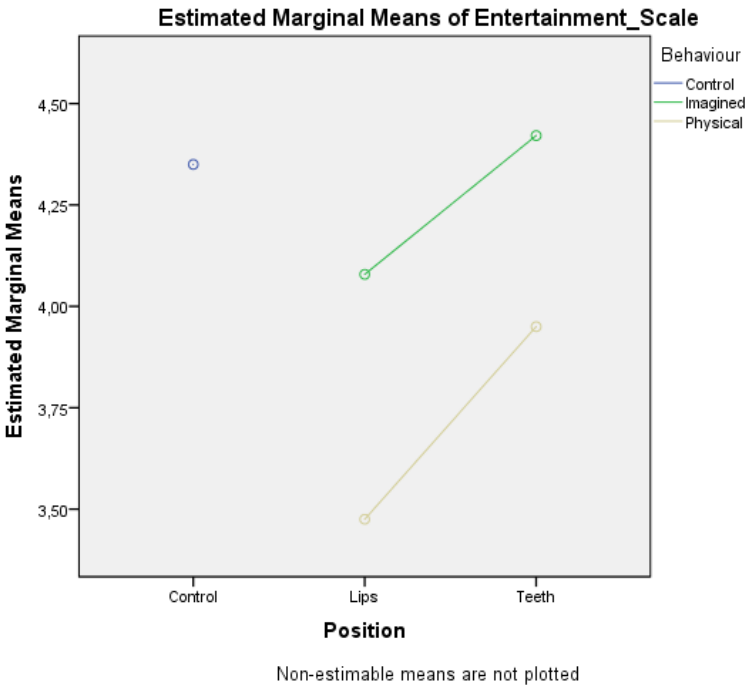

Figure 6: Main Effects on Entertainment (Study 1).

Table 6: Scale Means and Standard Deviations Experiment 1.

			Mean (Std. Deviation)				
Behaviour	Position	N	Funniness	Warmth	Worthiness to Share	Entertainment	Coziness
Physical	Lips	20	2.31[a] (0.83)	3.64 (0.88)	2.86 (1.18)	3.48 (1.07)	3.15 (0.91)
	Teeth	20	2.89 (1.08)	3.43 (0.94)	2.88 (0.92)	3.95 (0.99)	3.53 (1.11)
	Total	40	2.60 (1.00)	3.54 (0.90)	2.87 (1.04)	3.71 (1.04)	3.34 (1.02)
Imagined	Lips	20	2.92 (0.87)	3.33 (0.79)	3.06 (0.78)	4.05 (0.71)	3.53 (0.94)
	Teeth	20	2.84 (1.23)	3.21 (1.04)	2.85 (0.96)	4.38 (0.63)	3.47 [a] (1.17)
	Total	40	2.92 (1.04)	3.31 (0.92)	3.04 (0.81)	4.25 (0.68)	3.54 (1.03)
Total	Lips	40	2.61 (0.80)	3.51 (0.83)	2.99 (0.99)	3.77 (0.95)	3.37 (0.92)
	Teeth	40	2.90 (1.13)	3.34 (0.99)	2.91 (0.89)	4.18 (0.85)	3.50 (1.12)
Control	Control	20	3.43 (0.97)	3.95 (0.90)	3.46 (1.00)	4.35 (0.75)	3.88 (1.02)

Notes. a: N = 19.

There is no statistically significant difference between groups (lips/teeth/control) regarding the means of the funniness scale [F (1, 93) = 1.61, p = .208, partial η² = .017]. The same is valid for the scale of warmth [F (1, 93) = 0.66, p = .419, partial η² = .007]. There is also no statistically significant difference between groups for the scale worthiness to share [F (1, 93) = 0.14, p = .709, partial η² = .002]. As there was a violation to the Levene's test of equality of variances, in this case a Welch F-test was used. Regarding the scale of coziness, again no statistically significant differences between the means of the groups could be found [F (1, 93) = 0.28, p = .601, partial η² = .003]. The hypothesis,

"*In response to the facial expression of mimicking a smile, people will experience a commercial to be funnier.",* could not be supported by the data in this study.

Also, there only was a main effect of the behaviour on the entertainment scale [F (1, 93) = 7.87, p = .006, partial η² = .078], see ***Figure 6***. Using Tukey's HSD post hoc test, the physical condition could be identified to be statistically significant different from the control group on a 0.05 significance level (α = .006). People in the physical condition judged the video to be 0.6 scale points less entertaining on average than the control group. People imagining the actions judged the commercial to be 0.5 scale points more entertaining than people in the physical condition.

There is no statistically significant difference in means between the behavioural conditions regarding the funniness scale [F (1, 93) = 2.0, p = .160, partial η² = .021]. The same is valid for the scale of warmth [F (1, 93) = 1.12, p = .293, partial η² = .012]. Further, there neither is a statistically significant difference between behavioural groups for the scale worthiness to share [F (1, 93) = 0.62, p = .433, partial η² = .007] nor regarding the scale of coziness [F (1, 93) = 0.76, p = .387, partial η² = .008]. The hypothesis *"In response to the imagination of mimicking the facial expression of a smile, people rate a commercial to be funnier than when physically mimicking the facial expression."* is not supported. No interaction effect could be detected for the two factors position and behaviour.

Discussion

In the first experiment, the effect of embodied persuasion on perceived appeals in advertising was investigated. The position of the pen is not found to influence the perceived funniness, which was suggested by Strack, Martin, and Stepper (1988) in their experiment. These findings are in line with the results of the meta-analysis of Wagenmakers et al. (2016).

Smiling or not smiling does not make a difference in people's perception of the commercial being funny or warm, worth to share or cozy according to the data of this experiment. Data showed however, that people prevented from smiling judged the video less entertaining than people with no manipulation. What was expected to happen for the construct of funniness when smiling was prevented, could thus be shown for entertainment. Smiling seems to have no positive influence on perceived entertainment, which is very interesting in relation to the data showing when people are prevented from smiling. Thus, resulting in the conclusion, that the inhibition of a facial expression has an influence on the judgement – only not for the positive effect. It might be that holding a pen with the teeth is not enough manipulation to elicit the unconscious smile, which could explain that there was no difference on perceived funniness, when smiling was induced. This might be because the wrong muscles are used or the muscles are not used enough.

There is also no difference between imagining or physically conducting the smile, in the perception of the commercial being funny, warm, worth to share or cozy. Imagining the behaviour led to higher entertainment than when physically doing it. Also, physical behaviour led to less entertainment than

in the control group. The explanation for the higher values when imagining having a pen between the teeth is, that the wrong muscles are used in the physical conditions. When using imagination, people might intuitively use the muscles the right way for smiling. Another explanation is that when imagining the pen between the teeth, people keep themselves feeling comfortable. The same reason might explain why people find the commercial more entertaining when imagining a pen between their lips instead of physically conducting this behaviour.

The findings of the first experiment are nevertheless interesting, as they tend to support the disembodied cognition hypothesis, as discussed by Mahon and Caramazza (2008), which states that there is no embodied grounding necessary for cognition.

EXPERIMENT 2

The second experiment builds on the research of Williams and Bargh (2008). This experiment is conducted to investigate the influence of (imagined) temperature on interpersonal warmth.

Method

In the second experiment, students of the University of Twente had to hold a hot or cold therapeutic pad, or to imagine this behaviour, while watching the same commercial as in experiment 1.

Participants

As in the first experiment, 20 subjects per condition were sampled using convenient sampling at the University of Twente. The control group was re-used from the first experiment. 20 participants already had knowledge of the commercial or the experiment, they had to be resampled. An overview of the demographic data of the sample for the second experiment can be found in ***Table 7***.

Table 7 Demographic Data Experiment 2 per Condition (N=100).

		Count (% within Condition)				
Variable		Hot/Physical *(N = 20)*	Hot/Imagined *(N = 20)*	Cold/Physical *(N = 20)*	Cold/Imagined *(N = 20)*	Control *(N = 20)*
Gender	Female	13 (65.0%)	11 (55.0%)	12 (60.0%)	9 (45.0%)	14 (70.0%)
	Male	7 (35.0%)	9 (45.0%)	8 (40.0%)	11 (55.0%)	6 (30.0%)
Age		26.0 (6.1)[a,b]	25.5 (3.5)[a,b]	22.4 (3.6)[a,b]	25.9 (4.0)[a]	23.4 (3.2)[a,c]
Nationality	German	12 (60.0%)	11 (55.0%)	8 (40.0%)	9 (45.0%)	10 (50.0%)
	Dutch	6 (30.0%)	9 (45.0%)	10 (50.0%)	7 (35.0%)	6 (30.0%)
	Other	2 (10.0%)	0 (0.0%)	2 (10.0%)	4 (20.0%)	0 (0.0%)

Notes. a: Mean (SD), b: N = 19, c: N = 18

Stimuli

For the priming cue, participants were asked to hold a hot or cold therapeutic pad (see ***Figure 7***) in their hands or to imagine the behaviour. The hot therapeutic pad had a temperature of about 45 °C and the cold one of 5 °C. Both pads had the same colour to minimize the influence of third variables. Participants in the control group received no priming, the control group was used for both experiments. The temperature of the pad (hot vs. cold) is assumed to have an influence on the perceived interpersonal warmth of a commercial.

Figure 7: Pad in Experiment 2.

The resulting experimental conditions are depicted in ***Table 8***.

Table 8: Experimental Design (Experiment 2).

	Form of Behaviour		
Temperature of Pad	Imagined	Physical	Control
Hot	Hot + imagined	Hot + physical	No manipulation
Cold	Cold + imagined	Cold + physical	

Measures

A factor analysis was conducted to test the validity and reliability of the research instrument (see Appendix 3). Data from both experiments were used in the analyses, as described in experiment 1.

Procedure

The second experiment took place under the same conditions as the first experiment and the procedure was identical.

Results

As in the first experiment, a MANOVA was conducted to test the effect of the form of behaviour (imagined, physical) and the temperature of the pad (hot, cold) on the different scales (see ***Table 9***).

Table 9: MANOVA Results Study 2.

		MANOVA Results			
Source	Dependent Scale	df	F	Sig.	partial η²
Temperature	Funniness	1	2.72	.102	.028
	Warmth	1	7.17	.009*	.071
	Worthiness to Share	1	1.10	.297	.012
	Entertainment	1	1.36	.247	.014
	Coziness	1	0.36	.551	.004
Behaviour	Funniness	1	0.31	.580	.003
	Warmth	1	0.02	.894	.000
	Worthiness to Share	1	0.02	.901	.000
	Entertainment	1	1.07	.305	.011
	Coziness	1	0.91	.342	.010
Position*Temperature	Funniness	1	4.53	.036*	.046
	Warmth	1	2.02	.159	.021
	Worthiness to Share	1	3.53	.054	.039
	Entertainment	1	3.03	.085	.031
	Coziness	1	7.47	.007*	.074

Notes. * = significant at the .05 level.

For the temperature of the pad, a main effect could be identified on the scale of warmth [F (1, 94) = 7.17, p = .009, partial η² = .071], see ***Figure 8***. The Tukey's HSD post hoc test showed a statistically significant difference on the 0.05 level, between the mean of the cold condition (3.28) and the control group (3.95) as well as between the cold (3.28) and hot (3.84) condition. People in the control group rated the video 0.7 scale points higher on interpersonal warmth than people in the cold condition. People in the warmth condition rated the video 0.6 scale points higher on interpersonal warmth than people in the cold condition. Means and standard deviations per scale can be found in ***Table 10.*** The data of the study at hand provides support for the hypothesis *"In response to physical*

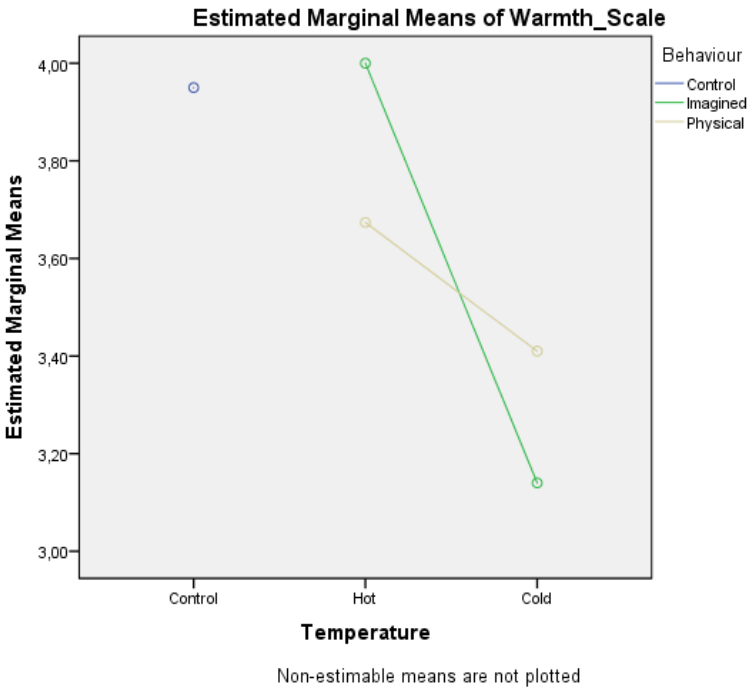

Figure 8: Effects of Temperature and Behaviour on Warmth (Study 2).

warmth, people will experience more interpersonal warmth as they watch a commercial". This is because there is an effect of temperature on the perceived interpersonal warmth.

There were no statistically significant differences between the group means of the other scales.

Table 10: Scale Means and Standard Deviations Experiment 2.

Behaviour	Position	N	Mean (Std. Deviation)				
			Funniness	Warmth	Worthiness to Share	Entertainment	Coziness
Physical	Hot	19	3.32 (0.91)	3.67 (1.06)	2.68 (0.91)	4.32 (0.99)	3.53 (0.86)
	Cold	20	3.43 (1.03)	3.41 (0.88)	2.88 (0.87)	4.43 (0.49)	3.98 (0.75)
	Total	39	3.37 (0.96)	3.54 (0.97)	2.79 (0.88)	4.37 (0.77)	3.76 (0.83)
Imagined	Hot	20	3.68 (0.98)	4.00 (0.85)	3.08 (1.02)	4.45 (0.93)	3.90 (1.05)
	Cold	20	2.81 (1.16)	3.14 (0.97)	2.43 (0.99)	3.90 (0.95)	3.20 (0.95)
	Total	40	3.24 (1.15)	3.57 (1.00)	2.76 (1.05)	4.18 (0.97)	3.55 (1.05)
Total	Hot	39	3.50 (0.95)	3.84 (0.96)	2.89 (0.98)	4.39 (0.95)	3.72 (0.97)
	Cold	40	3.12 (1.13)	3.28 (0.92)	2.66 (0.95)	4.16 (0.80)	3.59 (0.93)
Control	Control	20	3.43 (0.97)	3.95 (0.90)	3.46 (1.00)	4.35 (0.75)	3.88 (1.02)

Regarding the form of behaviour, no main effect could be found for the scale of warmth [F (1, 94) = 0.02, p = .894, partial η^2 = .000]. The hypothesis *"In response to the imagination of physical warmth, people rate a commercial to convey more interpersonal warmth than when physically experiencing warmth."* thus needs to be rejected. No statistically significant differences could be found between the group means of the other four scales.

For the second experiment, there is an interaction effect between temperature and form of behaviour for the scale of funniness [F (1, 94) = 4.53, p = .036, partial η^2 = .046], see ***Figure 9***. This is an interesting finding, as the analysis of the variables on the scale of funniness showed no significant main effects.

People imagining warmth rated the video funnier than people physically experiencing warmth. Subjects imagining the coldness rated the video less funny than people physically experiencing coldness. A follow-up test

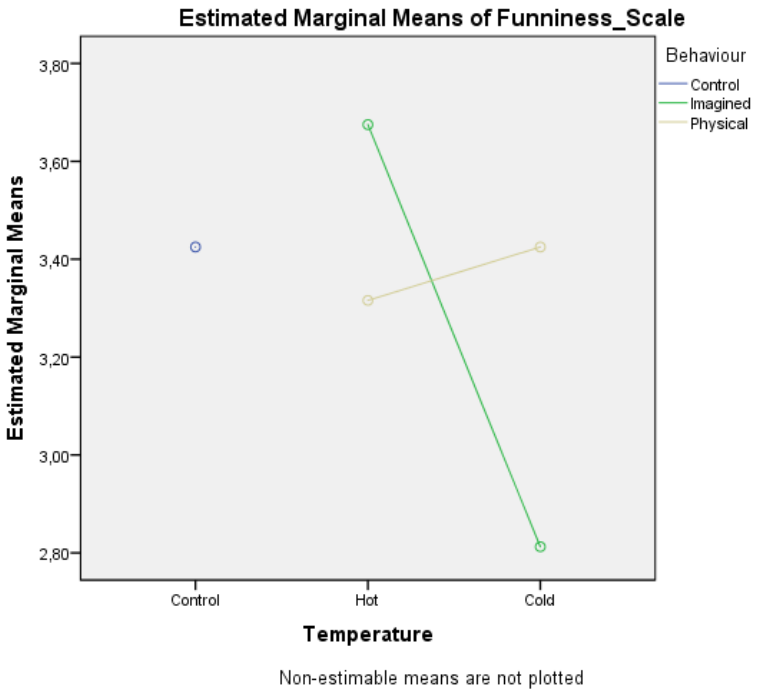

Figure 9: Effects of Temperature and Behaviour on Funniness (Study 2).

shows, that the difference between the form of behaviour for the hot conditions is not statistically significant (p = .272), neither is the difference in the cold condition (p = .059). Nevertheless, the last is almost significant, therefore a tendency is reported. People physically experiencing the cold judge the video to be 0.6 scale points funnier (3.43), than the people imagining the coldness (2.81). Thus, judgements tend to be more extreme when temperature is imagined rather than experienced.

There also is an interaction effect between the temperature and the form of behaviour for the scale of coziness [F (1, 94) = 7.47, p = .007, partial η^2 = .074]. Also with this scale, no main effects could be detected. As it can be seen in ***Figure 10***, experiencing warmth leads to lower means than experiencing coldness in the physical conditions on the coziness scale.

Again, people imagining the behaviour judge the video cozier than people physically experiencing warmth, and they judge it less cozy than people physically experiencing coldness. As for the scale of funniness, a follow-up test was conducted, showing that the difference between imagination and physical behaviour in the hot condition is not statistically significant (p = .177). In the cold condition, the difference between imagined and physical behaviour is statistically significant (p = .01).

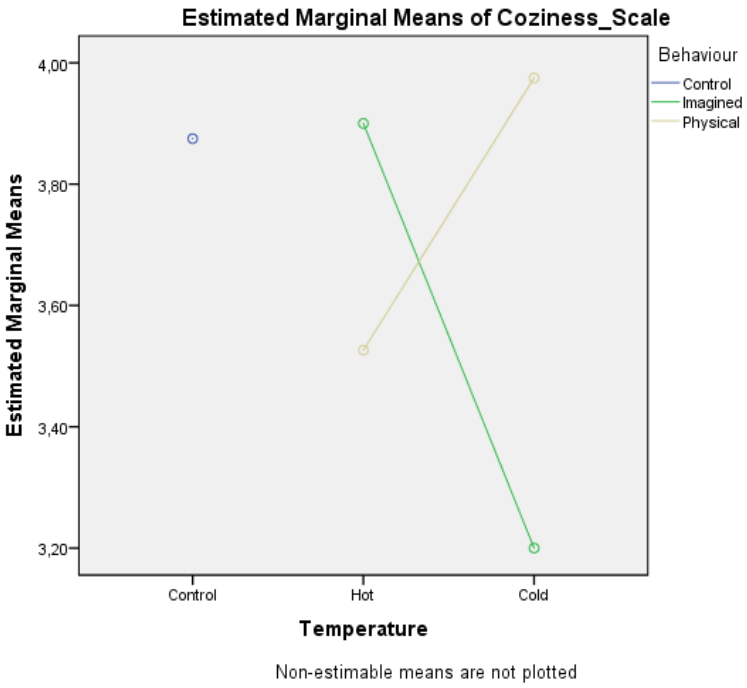

Figure 10: Effects of Temperature and Behaviour on Coziness (Study 2).

People physically experiencing the coldness judge the video to be 0.8 scale points cozier (3.98), than people imagining it (3.20). Again, values are more extreme within the imagination condition.

For the scales of warmth, worthiness to share and entertainment, no interaction effect could be found. Nevertheless, it should be noted that for worthiness to share [F (1, 94) = 3.53, p = .054, partial η² = .039] as well as for entertainment [F (1, 94) = 3.03, p = .085, partial η² = .031], the interaction effect is quite close to significant on the .05 level. The graphs can be found in ***Figure 11*** and ***Figure 12***.

Both figures show the same pattern already found for the scales of funniness and coziness, which is that ratings are extremer in the imagination conditions. People seem to rate the video worthier to share and entertaining when imagining the warmth instead of experiencing it. They also rate it less warm when imagining coldness than when experiencing coldness. No follow-up tests were conducted, as the interaction effects were not statistically significant.

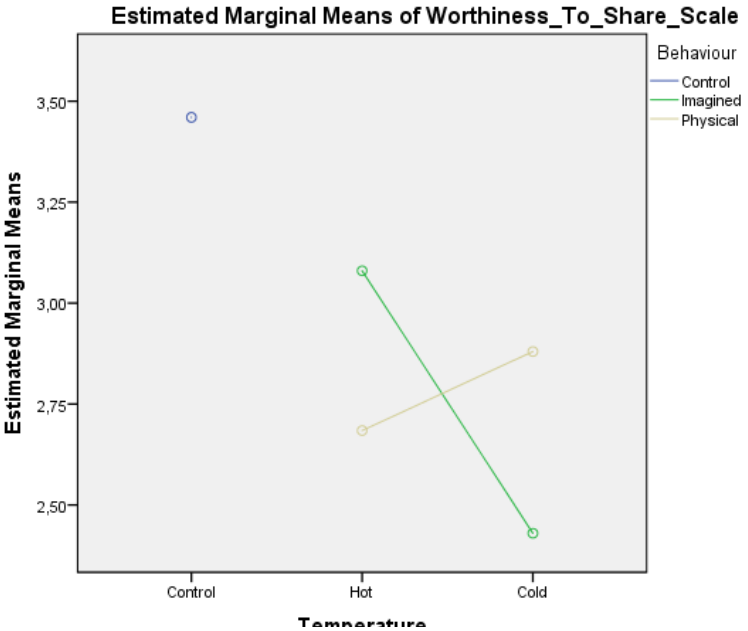

Figure 11: Effects of Temperature and Behaviour on Worthiness to Share (Study 2).

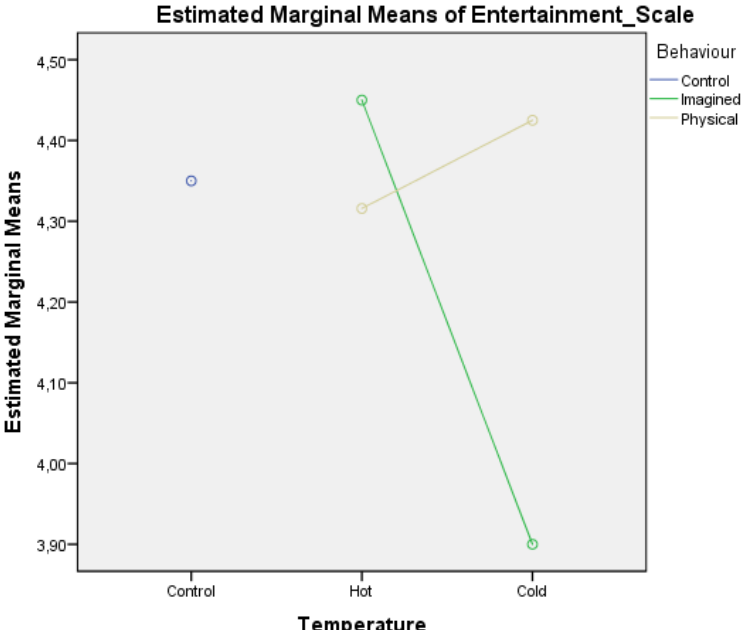

Figure 12: Effects of Temperature and Behaviour on Entertainment (Study 2).

Discussion

In the second experiment, the temperature of the pad is found to have an influence on the perceived interpersonal warmth of the video, as suggested by Williams and Bargh (2008) in their study. People experiencing warmth found the commercial to convey more interpersonal warmth than people experiencing coldness. Interestingly, there is no influence of the temperature of the pad on warmth when imagining the hot or cold experience. Possibly people kept the imagined temperature of the pad in a too comfortable range, therefore missing out on the effect. It might also be, that the therapeutic pad elicits negative feelings because it is associated with being sick, therefore interfering with the interpersonal warmth.

Experiencing warmth or coldness had no influence on how entertaining or worth to share people thought the video was. An explanation could be that these four scales, in contrast to interpersonal warmth, are not temperature related enough in language, so people might not build a link between warmth and entertainment without a cue.

Imagining warmth or coldness did not result in different outcomes than when people physically experienced the temperatures for the construct of entertainment and worthiness to share.

The second experiment could reveal an interesting aspect of imagination within the constructs of funniness and coziness, which might be the most relevant finding of this study. Imagining the temperature of the pad resulted in more extreme ratings on the scales, but only for people who imagined coldness, not warmth. The influence of the imagined temperature seems thus to be higher than the influence of the physical temperature. This is in line with the hypothesis. It could be an explanation, that people keep the imagined temperature in a comfortable range for themselves. This might not be handy for the construct of interpersonal warmth, but feeling comfortable could still have an influence on coziness and funniness.

Overall Discussion

The research at hand aimed to investigate the impact of imagined behaviour on attitudes in the context of embodied persuasion. The position of the pen is not found to have an effect on the perceived funniness, as it was suggested by Strack, Martin and Stepper (1988). The temperature of the pad does have an influence on the perception of the interpersonal warmth conveyed, as in Williams and Bargh (2008).

An interesting finding of the first experiment is, that the inhibition of a facial expression of smiling has an influence on the amount of entertainment a video conveys. Also, imagining the behaviour leads to more entertainment while watching the video in contrast to physical behaviour. Both of the effects occurred for the construct of entertainment in place of funniness. It might be the case that

participants of the original experiment by Strack, Martin and Stepper (1988) found the comics they had to rate more entertaining than funny. This should be tested in a follow-up study.

In the second experiment, comparable findings were obtained as in the study of Willams and Bargh (2008). The warmth people experienced led to a higher rating of interpersonal warmth for the video. Another finding of interest in the second experiment is, that the influence of the imagined temperature seems to be stronger than the influence of the physical temperature regarding the perceived funniness and coziness. This is an important finding, because it shows the tendency that imagination takes a role in embodied persuasion.

The research question, which impact imagined behaviour has on the perception of appeals in advertising could not be answered sufficiently, but revealed interesting starting points for further research regarding the power of imagining behaviour on the participants' judgements of the video.

Theoretical and Practical Implications

Regarding theoretical implications, this study provides some important findings on the role of imagination in embodied persuasion. Although the hypothesized relations have not fully been supported by the results of this research, it was found that the form of behaviour can moderate the relation of embodied temperature on attitudes for the concepts of funniness and coziness. It might be that not only directly related concepts, such as interpersonal warmth and physical warmth, can be influenced. There is more in-depth research needed to investigate these relations. Also, concerning the distinctness of concepts such as funniness and interpersonal warmth, there might be interrelations and as well variation between subjects.

Also, the aspect of imagination is still a point for discussion, as it worked at least in some parts in the study at hand. A simpler and shorter questionnaire might improve the results, because it is possible that the respondents had to think too deeply about certain questions – forgetting their first opinion or changing it while answering the questionnaire. To control for differences in the individuals, a baseline could be measured for each individual and calculated within the analysis. Also, it would be possible to measure the activity in the brain, and by this identifying which areas of the brain have been activated.

As a practical implication, this research gives some indication for the use of imagination in embodied persuasion as valuable tool, however, this remains very basic and needs to be built on. For now, yet too many side effects might have occurred that were not anticipated.

Limitations and Future Research

The study at hand has some important limitations. First, only students of the University of Twente were considered, who mostly are in a similar situation of life. Although there was a diversity in nationalities, most of the participants were either Dutch or German. All participants were recruited using convenient sampling, which also had an influence on the results. It seems to be that students of study

programmes not related to Communication Studies or Psychology are more willing to take part in a research like this, this might be the result of ‘over-studying’ of those participant groups. Future research would improve by using random sampling methods and recruit outside of the University as well. The concepts of funniness and warmth might be culturally and sub-culturally influenced. Also, larger sampling would reduce the impact of those observations that had to be excluded from the further analysis due to knowledge of the experiment.

Secondly, a few participants inquired about the function of the researcher, for example, that there would be an incident happening while they hold the pen or the pad (or imagined it). Some of the subjects indicated in the debriefing questions, that they believed they had been observed by the researcher. Feeling watched or anticipating something else to happen might cause discomfort and will most probably have an influence on the results. Besides, the room in which the experiment was conducted was small, so it is possible, that subjects felt constrained in their personal space. Therefore, in upcoming studies, the subject should be introduced to the task and then left alone in the room – only observed via a camera.

Thirdly, the questions regarding a certain use of Facebook caused some trouble for many participants. Future research would be improved by using an option “not applicable” next to the Likert scale of one to five, allowing the participants to effectively skip the question.

Finally, it might have been an issue that the therapeutic pads got colder/warmer during the commercial, so that a constant temperature could not be sustained. Also, the pads might have been too warm or too cold for the some of the participants. When imagining, the temperature most probably stays at a certain level and participants will imagine a temperature they subjectively judge as cold and warm, and maybe also as comfortable. This might induce a bias as the conditions not only change in physical versus imagined behaviour. Future research should take this into account by asking for example for the temperature the subjects find comfortable or ask, whether they found the therapeutic pad too hot or too cold.

In summary, the study at hand can provide valuable starting points for further research, already suggesting a tendency of imagination being able to play an important role in the context of embodied persuasion.

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APPENDICES

Appendix 1: Questionnaire of the Pre-Study.

UNIVERSITY OF TWENTE.

Dear participant,

thank you for taking part in my survey, which is part of my thesis research in the master programme Communication Studies. It will take about five minutes. Within this questionnaire, I am interested in your opinion – there is no right or wrong answer for the questions. The data resulting from the research will be treated confidentially, your answers will not be traceable to you as an individual. If you have any questions or concerns after the survey, don't hesitate to write an e-mail to a.k.borjes@student.utwente.nl!

By going further in this survey, you agree on the fact that you fill in the questionnaire voluntarily and are able to withdraw at any time without giving reasons.

You will be asked to watch a video next. Therefore, please make sure you have the Adobe Flash-Player activated.

Thank you for your help,

Anna K. Börjes

0% 100%

>> Next

Please watch the following video!
In case it does not work, please visit: https://www.youtube.com /watch?v=kuRn2S7iPNU

0% 100%

<< Back >> Next

Now, please indicate how much you agree or disagree with the following statements.

	I do not agree at all	I somewhat disagree	I neither disagree nor agree	I somewhat agree	I totally agree
While watching the video, I did not have a cozy feeling.	○	○	○	○	○
When I now think about the video, I still do not have to laugh out loud.	○	○	○	○	○
The video is not entertaining.	○	○	○	○	○
While watching the video, I had to giggle.	○	○	○	○	○
While watching the video, I had to grin.	○	○	○	○	○
When I now think about the video, I still have to grin.	○	○	○	○	○
I would not share the video on a platform for funny content (e.g. 9gag.com)	○	○	○	○	○
I really feel with the cat.	○	○	○	○	○
The video is not amusing.	○	○	○	○	○
I would not share this video via social media because I don't think it is funny.	○	○	○	○	○
While watching the video, I did not have to laugh out loud.	○	○	○	○	○
I do not feel good after watching the video.	○	○	○	○	○
I would tell my friends about this video in person because it is so affectionate.	○	○	○	○	○
While watching the video, I wanted to give the cat a hug/pet the cat.	○	○	○	○	○
I would tell my friends about this video in person because I think it is funny.	○	○	○	○	○

I am not touched by the video.	○	○	○	○	○
I would save the video on my computer/mobile because I think it is funny.	○	○	○	○	○
I would not give the video the heart (new like options) on facebook, if it appeared in my timeline.	○	○	○	○	○
The video does not move me.	○	○	○	○	○
I can not really understand the problems of the cat.	○	○	○	○	○
The video is comical.	○	○	○	○	○
When I now think about the video, I still have to giggle.	○	○	○	○	○
When I now think about the video, I still do not have a cozy feeling.	○	○	○	○	○
The video does not use the kind of jokes I like.	○	○	○	○	○
I would save the video on my computer/mobile because it is so affectionate.	○	○	○	○	○
The video is heartwarming.	○	○	○	○	○
I would share the video via social media because I think it is so affectionate.	○	○	○	○	○
I would give the video the laughter smiley (new like options) on facebook, if it appeared in my timeline.	○	○	○	○	○
While watching the video, I felt really sad for the cat.	○	○	○	○	○
While watching the video, I really wanted to help the family.	○	○	○	○	○

After having watched the video, I am not in a content mood.

○	○	○	○	○

0% 100%

<< Back >> Next

Please indicate below, how funny you think the video was!

Not at all funny — Neutral — Totally funny

0	1	2	3	4	5	6	7	8	9	10
○	○	○	○	○	○	○	○	○	○	○

0% 100%

<< Back >> Next

Please indicate below, how much interpersonal warmth you think the video conveyed!

No warmth at all — Neutral — Full warmth

0	1	2	3	4	5	6	7	8	9	10
○	○	○	○	○	○	○	○	○	○	○

0% 100%

<< Back >> Next

Now, please answer some general questions which are needed to make a better sense of the results. Remember, the data is treated confidentially.

Please indicate your gender.

- ○ Male
- ○ Female
- ○ Other

In which year were you born?

What is your nationality?

0% 100%

<< Back >> Next

Thank you again for taking part in this survey!
All answers have been recorded, you can close your browser window now.

0% 100%

Appendix 2: Factor Analysis and Cronbach's Alpha Scores for Pre-Study

Items	Factor			
	1	2	3	4
Total Scale Funniness (α = .910)				
When I now think about the video, I still have to giggle.	.855			
While watching the video, I had to giggle.	.853			
I would tell my friends about this video in person because I think it is funny.	.738			
I would save the video on my computer/mobile because I think it is funny.	.725			
While watching the video, I had to laugh out loud.	.688			
While watching the video, I had to grin.	.661			
I would give the video the laughter smiley (new like options) on Facebook, if it appeared on my timeline.	.649			
I would share the video on a platform for funny content (e.g. 9gag.com).	.617			
When I now think about the video, I still have to grin.	.589			
I would share this video via social media because I think it is funny.	.562			
When I now think about the video, I still have to laugh out loud.	.513			
Total Scale Empathy (α = .789)				
While watching the video, I felt really sad for the cat.		.744		
I would save the video on my computer/mobile because it is so affectionate.		.693		
I really feel with the cat.		.641		
While watching the video, I really wanted to help the family.		.637		
I would share the video via social media because I think it is so affectionate.		.622		
While watching the video, I wanted to give the cat a hug/pet the cat.		.569		
Total Scale Warmth (α = .780)				
While watching the video, I had a cozy feeling.			.780	
I am touched by the video.			.718	
I would give the video the heart (new like options) on Facebook, if it appeared on my timeline.			.681	
When I now think about the video, I still have a cozy feeling.			.647	
The video is entertaining.			.488	
Total Scale Enjoyment (α = .589)				
I feel good after watching the video.				.735
The video is comical.				.687
The video is amusing.				.609

Notes. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Appendix 3: Questionnaire for both Experiments

Dear participant,

thank you for taking part in my experiment, which is part of my thesis research in the master programme Communication Studies. It will take five to ten minutes. In this questionnaire, I am interested in your opinion – there is no right or wrong answer for the questions. The data resulting from the research will be treated confidentially, your answers will not be traceable to you as an individual. If you have any questions or concerns after the experiment, don't hesitate to write an e-mail to a.k.borjes@student.utwente.nl!
Anna K. Börjes

You will now be introduced to your task and then see a commercial. After this, you will rate the film to help investigate the relative importance of being distracted while processing the advertising message. Please keep in mind the task you have been given while watching the film. Afterwards, fill in the questionnaire directly.

Please indicate how much you agree or disagree with the following statements.

	I do not agree at all	I somewhat disagree	I somewhat agree and somewhat disagree	I somewhat agree	I totally agree
While watching the video, I had to grin.	☐	☐	☐	☐	☐
While watching the video, I did **not** have to laugh out loud.	☐	☐	☐	☐	☐
I would **not** share the video on a platform for funny content (e.g. 9gag.com).	☐	☐	☐	☐	☐
I would give the video the laughter smiley (new like options) on Facebook, if it appeared on my timeline.	☐	☐	☐	☐	☐
I would **not** share this video via social media because I **don't** think it is funny.	☐	☐	☐	☐	☐
I would **not** tell my friends about this video in person because **I don't** think it is funny.	☐	☐	☐	☐	☐
While watching the video, I had to giggle.	☐	☐	☐	☐	☐
When I now think about the video, I still have to grin.	☐	☐	☐	☐	☐
I would **not** save the video on my computer/mobile because I don't think it is funny.	☐	☐	☐	☐	☐

When I now think about the video, I still have to giggle.	☐	☐	☐	☐	☐

Now, please indicate how much you agree or disagree with the following statements.

	I do not agree at all	I somewhat disagree	I somewhat agree and somewhat disagree	I somewhat agree	I totally agree
The video is **not** amusing.	☐	☐	☐	☐	☐
The video is comical.	☐	☐	☐	☐	☐
I do **not** feel good after watching the video.	☐	☐	☐	☐	☐

Please indicate how much you agree or disagree with the following statements.

	I do not agree at all	I somewhat disagree	I somewhat agree and somewhat disagree	I somewhat agree	I totally agree
I really feel with the cat.	☐	☐	☐	☐	☐
While watching the video, I did **not** really want to help the family.	☐	☐	☐	☐	☐
While watching the video, I wanted to give the cat a hug/pet the cat.	☐	☐	☐	☐	☐
While watching the video, I did **not** feel really sad for the cat.	☐	☐	☐	☐	☐
I would save the video on my computer/mobile because it conveys so much interpersonal warmth.	☐	☐	☐	☐	☐
I **wouldn't** share the video via social media because I **don't** think it conveys much interpersonal warmth.	☐	☐	☐	☐	☐

Please indicate how much you agree or disagree with the following statements.

	I do not agree at all	I somewhat disagree	I somewhat agree and somewhat disagree	I somewhat agree	I totally agree
I am **not** touched by the video.	☐	☐	☐	☐	☐
I would give the video the heart (new like options) on Facebook, if it appeared on my timeline.	☐	☐	☐	☐	☐

While watching the video, I did **not** have a cozy feeling.	☐	☐	☐	☐	☐
The video is entertaining.	☐	☐	☐	☐	☐
When I now think about the video, I still do **not** have a cozy feeling.	☐	☐	☐	☐	☐

How funny would you rate the commercial on a scale from 0 (not at all funny) to 10 (very funny)?

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

How much interpersonal warmth you think the commercial conveys on a scale from 0 (not at all warm) to 10 (very warm)?

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Now, I would like to ask you some general questions which are needed to make a better sense of the results. Remember your data is treated confidentially.

Please indicate your gender:	☐ Female ☐ Male ☐ Other
How old are you?	_____
What is your nationality?	_____
Did you know the commercial before the experiment?	☐ Yes ☐ No
Did you know the company “Sainsbury’s” before the experiment?	☐ Yes ☐ No
In which research field you think the study is conducted in?	_____
What is the purpose of the study?	_____
Why do you think you had to perform your specific task (as introduced to you by the researcher)?	_____

Appendix 4: Factor Analysis and Cronbach's Alpha Scores for both Experiments

Items	Factor				
	1	2	3	4	5
Total Scale Warmth (α = .824)					
While watching the video, I really felt sad for the cat.	.811				
I really feel with the cat.	.772				
While watching the video, I wanted to give the cat a hug/pet the cat.	.731				
While watching the video, I really wanted to help the family.	.679				
I am touched by the video.	.533				
Total Scale Funniness (α = .822)					
While watching the video, I had to giggle.		.800			
When I now think about the video, I still have to grin.		.658			
When I now think about the video, I still have to giggle.		.625			
While watching the video, I had to grin.		.584			
Total Scale Worthiness to Share (α = .797)					
I would share the video via social media because I think it conveys much interpersonal warmth.			.799		
I would tell my friends about this video in person because I think it is funny.			.656		
I would save the video on my computer/mobile because I think it is funny.			.590		
I would share this video via social media because I think it is funny.			.583		
I would save the video on my computer/mobile because it conveys so much interpersonal warmth.			.564		
Total Scale Entertainment (α = .764)					
The video is amusing.				.797	
The video is entertaining.				.783	
Total Scale Coziness (α = .635)					
When I now think about the video, I still have a cozy feeling.					.776
While watching the video, I had a cozy feeling.					.753

Notes. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.