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Does Internet Content Influence Brand Attitudes: A Look At The Valence Of Website Content

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Abstract

The aim of the current study was to find out if website content can have an influence on brand attitudes formed by internet advertisements (i.e. banners). To find out if this was the case, 420 participants were recruited through an online survey application and shown screenshots of Dutch news websites that displayed either negative, neutral or positively manipulated news items. It was expected that participants who viewed webpages that had a negative valence would have a significantly lower implicit brand attitude than participants in either the neutral or positive conditions. The banner was located on either the right side of the webpage or integrated within the content to determine whether the placement of the banner would further influence the effect of the manipulated content by increasing the likelihood of participants perceiving the banner. The participants then had to complete a single category implicit association test to assess whether their implicit brand attitude towards the banner was influenced. No statically significant difference was found for either valence of the content or location of the banner. However, a statistically significant difference was found for gender. It appears that the valence of the content nor the location of the banner has an influence on the way brand attitudes are formed in an online environment. Future research should consider using different sorts of websites to assess if this is the case for non-news websites as well.

Keywords: Valence, Banners, Implicit, Brand-attitude, SC-IAT, Online-advertising.

Internet advertisement has been around since the internet became big in people's home. Internet advertisement has increased the total expenditure on advertisements by a significant amount from 2008 to 2015 (Statista.com, 2017). It is not just the amount of money spent on internet advertisement that has increased in recent years though. The way internet advertisements are presented have seen many changes as well. It is mainly focused on targeted advertising now. Targeted advertising is advertisement that is targeted on an individual's preferences. This is done through collecting and saving data on consumers' browsing habits, which can later be used by marketers to advertise products specifically for an individual consumer. As 71% of consumers prefers personalized ads, a growing number of businesses are targeting their audiences based on demographics and websites they have visited (Kirkpatrick, 2016). Although this often allows for more efficient advertising by reducing cost, it can also lead to negative effects by increasing the chance that consumers might see a product on a website with content they dislike, leading to a negative brand attitude. For example, in May 2017 advertisers on a popular Dutch website called Geenstijl.nl were criticized for advertising on a website that displayed offensive female unfriendly content . Big companies including Ikea and Grolsch made the decision to no longer advertise on this website because they did not want to be associated with that kind of content (Reijmer, Linnemann, & Hertzberger, 2017). As those companies did not want to be associated with that sort of content in fear of people assuming they condone that sort of behavior, they made the decision to withdraw their advertisements from that website. This raises the question whether consumers' attitude towards an internet advertisement are indeed positively or negatively influenced by the content of a website. Before this question can be answered it is important to take a closer look at how internet advertisements are perceived, what kind of properties are important and how this can be measured. It also has to become clear how attitudes are formed, how these attitudes can be changed and how this can be measured.

Banner perception

To find out how internet advertisements have an effect on how brand attitudes are formed, it is important to look at how people banner perception works. Banner blindness is a term that was first coined by Benway (1998) and it means that users simply do not notice the banners on websites. Resnick and Albert (2013) did an experiment to investigate banner blindness in which they used an eye tracking device and manipulated both the user task, having either goal-directed or free-viewing tasks, as well as the location of the banner, which was either placed on the top of the webpage or on the right side of the webpage. Goal-directed behavior

is behavior that is oriented toward completing a certain goal. Free-viewing is when participants don't have a clear plan to find a particular object, but are guided by the appeal of the information (Kuhlen, 1992). They measured the dwell-time (the duration the gaze remains fixated on an object) of participants and found that in the free-viewing condition there was no significant difference between advertisements placed on the top or the side of a page. However, in the goal directed viewing condition there was a difference, namely that participants had a significantly higher dwell-time when the advertisement was placed on the top compared to when it was placed on the right side of a webpage. The higher dwell-time implies that participants lingered, or spent more time on, longer on the advertisements which were placed on the top. Resnick and Albert (2013) conclude that this is due to the fact that website navigation is often placed on the top of a website, and people will thus inadvertently look there for relevant information when engaged in goal-directed behavior.

Besides knowing what are important aspects for banner perception, it is also important to look at the elements a banner is comprised of.

Banner properties

There are two types of advertisements which are commonly used, text-only advertisements and display banner advertisements (Cho, Lee, & Tharp, 2001). To get a grasp of which type of banner would be most effective it is important to take a look at the Dual Coding Theory (Paivio, 1991). The Dual Coding Theory states that people have two ways of processing visual information, one for verbal information and another one for non-verbal information such as images. Image perception relies on fast automatic parallel peripheral processing that is not that effortful. In contrast, text perception relies focal attentive processes which are voluntary, in serial succession, slow and do take effort (Pieters & Wedel, 2004). Pieters and Wedel tested whether this was also the case with advertisements, by letting participants view advertisements that were either text-only or pictorial while measuring if the ad grabbed the participant's attention by using an eye tracking device. They found that pictorial advertisements attracted greater attention than text-only advertisements. This finding was later supported in an experiment done by Flores, Chen and Ross (2014) who took a look at brand involvement and brand attitudes. Brand product involvement is a concept which means that consumers are actively seeking information on a product and take the time to consider what they are purchasing. Flores, Chen and Ross let participants view websites that were manipulated on several factors including type of advertisement and high or low involvement products. A high

involvement product could be a smart-phone, whereas a low involvement-product could be a newspaper. They found that participants had more favorable brand attitudes when they were shown pictorial ads, but only when the advertisement contained high-involvement products.

It is thus safe to assume that the use of pictorial banners depicting high-involvement products would give the highest chances of changing peoples brand attitudes.

Brand attitudes

Previous research has provided evidence that stimuli might not go totally unnoticed when they are not processed consciously, i.e. being able to recall them, due to unconscious processing of stimuli (Treisman, 1980). Although through unconscious processing people are able to process visual and auditory stimuli, the question remains if this is true for internet advertisements. To find out whether this was also applicable to IA, Yoo (2008) did an experiment on the unconscious processing of IA and tested whether IA had an effect on implicit memory, more specifically the recollection of the tested brands, and implicit attitude toward the brand. Implicit memory is defined as the non-intentional, unconscious retrieval of previous information (Duke & Carlson, 1994). Implicit attitudes are defined as actions or judgments that manifest itself due to automatically activated evaluation, without the person's awareness of this manifestation (Greenwald & Banaji, 1995). In Yoo's (2008) experiment he let participants either actively evaluate the website elements (including the banners), or have them do a task which did not direct their attention towards the website elements. The results showed that when participants attention was directed towards the website elements both their explicit as their implicit attitude changed favorably. This was measured by using the Implicit Association Test (IAT). These findings implicate that internet advertisements can indeed still change brand attitudes even if the ads are not consciously processed.

As prior research has shown it is possible to alter (implicit) brand attitudes, it is important to take a closer look at what the current literature states on how these brand attitudes are formed and changed. Research has shown that the current brand attitude is of importance (Kindermann, 2017). Kindermann showed that when users (unconsciously) perceive a banner, a priming occurs due to the mere-exposure effect (Zajonc, 1968). The mere-exposure effects states that people tend to develop a preference for things merely because they are familiar with them. This priming effect can have a positive result if the user already had a positive or neutral attitude towards that brand. However, if the user initially had a negative attitude towards the brand, the mere-exposure effect can have an opposite effect, i.e. increasing the negative attitude.

This is congruent with research from Gibson (2008), who found that implicit attitudes towards mature brands can be adjusted for people whose attitudes towards a brand were initially neutral.

To find out more on what has an effect on brand attitudes, it is of importance to look at the way banners are presented, and the surroundings in which they are placed.

Brand placement & scene valence

Besides the properties of banner advertisements, brand placement can also play an important role in brand attitude formation. Brand placement is a method where a brand is placed, for example an actor drinking a certain beverage, in media such as television programs, movies or other visual media (Balasubramanian, 1994). It has been shown that brand placement has had better results than conventional media (i.e. billboards, paper advertisement and commercials) because unlike traditional advertisement, brand placement is more difficult to avoid without the recipient missing any of the media content (Avery & Ferraro, 2000). Previous research also showed that when the valence of a social scene was examined (either positive or negative), the valence had a significant effect on explicit as well as implicit brand attitudes (D'Hooge, Hudders, & Cauberghe, 2017). The 'scene' valence of websites can be thought of as the perceived valence (e.g. content with an offensive nature versus content with a positive/flattering nature) for the content of a website. Think of news items that display content that might offend some people, versus content that amuses/delights people. D'Hooge, Hudders and Cauberghe let participants view various images of people in a social setting which they told the participants was a new tv-show, with a fictional soft drink brand placed in the image. These images were manipulated to show either a positive scene, or a negative one. Furthermore, they placed the soft drink brand either prominently (enlarged the soft-drink) or subtly (the soft drink was smaller in size). They found that by prominently placing the brand in a positive scene the participants' attitude towards that brand was significantly more positive. More interestingly, although the brands were evaluated slightly more positive in the positive prominent condition compared to the positive subtle condition, the biggest difference was in the negative prominent condition. If brands are prominently placed in a negative scene, the brand attitude lowers by a considerable amount. These findings suggest that the valence of a website could have detrimental effects on brand attitude if the content is of a negative nature. To see whether scene valence is also applicable to internet advertisement, banners would have to be paired with stimuli of an either positive or negative valence. The technique to accomplish this pairing of a stimuli is called evaluative conditioning.

Evaluative conditioning

Gorn (1982) did research on pairing music with certain products and found that this could positively or negatively influence peoples' attitude towards the paired product. Since then there have been numerous studies on the technique called evaluative conditioning (Allen & Janiszewski, 1989; Allen & Madden, 1985; Shim, Stuart, & Engle, 1991). Evaluative conditioning refers to changes in the liking of a stimulus that occur due to the fact that a stimulus has been paired with a positive or negative stimulus (De Houwer, Thomas, & Baeyens, 2001). All these studies showed a general pattern that when a brand is consistently paired with a positive stimulus a positive attitude towards that brand is formed. The research from Shimp et al. (1991) found that when an unconditioned stimulus was paired with a conditioned stimulus the change in attitude was most prominent when the participant was consciously aware that the unconditioned stimulus had been paired with the conditioned stimulus, compared to when the participant was unaware of the pairing between conditioned and unconditioned stimulus. They also found that this effect only occurred with novel brands, but not with more mature brands (e.g. Apple / Coca Cola). To assess whether a person's implicit brand attitude has been changed it is important to look at a method to analyze implicit attitudes. One method of doing this is the Single Category Implicit Association Test (Karpinski & Steinman, 2006).

Single Category Implicit Association Test

To be able to measure subtle implicit attitude changes caused by pairing internet advertisements with either positively or negatively valenced content a Single Category Implicit Association Test (SC-IAT) would be able to distinguish between these subtle differences. The SC-IAT measures reaction times and is based on the assumption that people will respond faster to categories that are associated in their memory than to categories which are not. The main task of the SC-IAT is that users rapidly try to categorize two target concepts (i.e. the words 'positive' and 'negative') with an attribute (i.e. a brand). The SC-IAT is a modification of the Implicit Association Test (Greenwald, McGhee, & Schwartz, 2003) and measures the strength of evaluative association with a single attitude object, unlike the IAT which has 2 attitude objects.

Current research

As stated above, a lot of research has been done in relation to online advertising. Although the physical appearance and location of a banner are of great importance, there is little research to be found on the subject of 'scene' valence of websites. It would be interesting for advertisers to know if the valence of websites can have a positive or negative effect on the implicit attitudes consumers have towards their brand. Although having advertisement content that is congruent with the website content is important to facilitate positive brand attitude formations, if the valence of the website is of a negative nature, it might still have a negative net result. To test this, the current experiment had advertisements that were congruent in content, but the valence of the website's content was manipulated (i.e. content that is either pleasurable or aversive). To make sure that the participants noticed the advertisement, exposure was repeated several times. This was be done with evaluative conditioning. The biggest difference in the current research compared to that of D'hooge et al. (2017) is that the current research was done in an online environment compared to scenarios that depicted images of a fictional tv-show in which the valence was manipulated.

Furthermore, the current experiment aimed to test whether implicit brand attitudes are changed when using the technique called evaluative conditioning with negative, neutral and positive website content in regard to valence. It would be interesting so see if this is indeed changed when the advertisements adhere to all the suggested properties of a noticeable banner, or if banner blindness would still annul the effect of using the suggested properties of a noticeable banner. The properties of a noticeable banner would entail usage of colors, location and context congruity in this case.

As stated above, research has shown that the scene valence of brand placement is of importance, especially when the valence of a scene is negative. These results suggest that the valence of a website could influence how people perceive banners placed on these websites. It is expected that websites which contain negative content and have advertisements can result in negative brand attitudes for the brands that advertise on these websites. As stated by D'hooge et al. (2017) the valence of a scene can influence brand attitudes, because of this it was thus expected that, when a banner is placed on a website with a negative valence, it would result in lower implicit brand attitudes. Implicit is named explicitly in this case, due to the fact that Kindermann (2017) showed that banners that are unconsciously perceived, still influence brand attitudes.

Hypothesis 1: Placing advertisement banners on a website containing items with negative valence will result in a lower implicit brand attitude than by placing banners on a website with content that is either neutral or positive.

Furthermore, to find out if the location of the banner could increase the dwell-time per banner and thus increasing the effect of the valence of a website on implicit brand attitudes, the current experiment aimed to find out if placing the banners in different locations. Placing the banner on the right side of a website has been found to be less effective than by placing it on the top of a website according to Resnick and Albert (2014). It would be interesting to know whether integrating the banner within the content of a website yields higher recognition results. Building on the findings of Resnick and Albert (2014) it would be safe to assume that when the banner is integrated in the content, this would result in a higher dwell-time than by placing the banner on the right side of a website if participants are engaged in goal-directed search. This was partially supported by Heinz and Mekler (2012) who stated that the users goal is more important than the placement of the banner for recognition and recollection.

To see whether users are influenced by the placement of a banner the current experiment will place the banner on either the side of the website or integrated within the content. This will result in six different conditions, namely the three different types of valence (positive, neutral and negative) and the two different placements of the banner (side and integrated). By placing the brand within the other content of the website it was expected that the user would have an increased dwell-time, and thus would more likely notice the advertisement.

Hypothesis 2: Integrating the banners in between the other content (e.g. news article headers) will result in a higher dwell-time per banner which leads to increased exposure, and thus increase the effect of the valence of a website on implicit brand attitudes, than by placing the banners on the side of a page.

Method

Design

The current study used a 2x3 between-subjects design and varied in the valence of the content of the website (positive vs. negative vs. neutral) and the location of the banner (integrated in the content vs. on the side of the website). A seventh group that participated, only took the SC-IAT. This was done to test whether no prior attitude was present towards the target

brand. This control group did not participate in the main manipulation task. A between-subjects design was chosen because the intervention and tasks chosen would have required too much time if the participant would fulfill several conditions. As the experiment was done online, a decision was made to keep the duration of the experiment limited to 15 minutes. In doing so, it was believed that the participants would stay sufficiently engaged while doing the experiment, and they would not be overburdened. This was also done to reduce the dropout rate and because it would prove difficult to put participants in the positive as well as the negative condition and expect any variation in brand attitude. Although the participants were more engaged and less burdened because of the current setup, it was expected that there would be additional individual variability. This was kept to a minimum by random assignment of the participants.

The location of the banner was split up in two conditions. The condition was manipulated by showing one group images of news items where the banner was placed on the side of the website, and showing the other group images of news items where the banner was integrated in the content of the website.

By having a control group do the same task, but on websites with neutral news items, alternative interpretations were controlled for. In doing so the intervention did not need to be counterbalanced. The SC-IAT (Single Category Implicit Association Test; Karpinski & Steinman, 2006) did have to be counterbalanced as the category will start on either the left(positive) or right(negative) side. The experiment randomized this in order to make sure there were no biases. Finally, as stated before, one group of participants did not participate in the intervention, but just did the SC-IAT. This was done in order to test whether the participants had no prior attitude to the brand depicted in the banners.

Participants

Because the experiment had to consider seven groups, 420 participants were recruited to assure that there was enough power to be able to show variance between the groups. Initially 846 participants started the experiment. Of these 846 participants, 246 participants only partially completed the experiment, meaning they dropped (e.g. due to a lack of interest). Another 65 were terminated (for not agreeing with the informed consent), and another 110 were over-quota, meaning that the condition they were in was full (e.g. male 18-35) and were thus excused from the survey. Of the remaining 420 participants all 4 groups (male 18-35, male 36-65, female 18-35, female 36-65) had 105 participants. As the experiment measured subtle between group differences it was expected that a large sample size was needed to measure any

differences. Every condition had 60 participants. The participants were recruited through the external organization's (DVJ Insights) recruitment panel. People are free to join this panel and are sent an email asking them to participate in the experiment if they meet the requirements (e.g. age, gender).

All participants were allowed to join and there was an even distribution between male and female. An even distribution was maintained with regard to age, with an age group ranging from 18-35 and 36-65. Participants younger than 18 years of age, or older than 65 years of age were not sent an invitation email.

Participants were rewarded in 'polletjes'. These can be exchanged for money, a 'bol.com' gift card, a donation to the charity 'Beat Batten!' or a lottery ticket. For a survey of 15 minutes they received 240 'polletjes' which corresponds to roughly €0.25.

Procedure

The first thing participants viewed when they started the survey was an information letter regarding the contents of the experiment. This told them that the current experiment was interested in how they perceived various news organizations websites. The general instruction the participants received instructed them that they were to view a set of images depicting websites. They were instructed to thoroughly examine these articles and select the article they preferred. After viewing the images of news-items they were instructed to complete a test (the SC-IAT) and they were told that they had to categorize words or images as quickly as they could. The final part of the instructions told them that they would receive a set of additional questions regarding their preferences for the websites.

Participants had to agree to a consent letter, which was approved by the psychology research ethics committee, and included that they understood that the current experiment was interested in their opinion about several Dutch news websites; agree that they understood that this information would be kept confidential and that they could stop with the experiment at all times and agree that the experiment would take approximately 15 minutes.

After they read this they had to fill in their gender and their age. They then had to accept the informed consent, upon rejecting the informed consent the survey was completed and they were thanked for their participation. They then had to do two exercises that trained them in following their gaze with their mouse cursor, this is further explained in the tasks sections. After the instructions and the exercise, participants had to sequentially look at the five (modified) screenshots of websites containing news articles (with either negative, neutral or positive

content) and a banner of the Asian phone brand ('Oppo' R7). They would then have to make a selection which headline article (there were 6-8 headlines per screenshot, depending on the layout of the newspapers website) they preferred by clicking on the article of their preference, this was required at each screenshot in order to continue the experiment. Although they were supposed to click on an article, this data was not logged and merely existed as a way to induce goal-directed behavior. The headlines were manipulated to be either positively, negatively or neutrally valenced. The banner was either displayed in between these headline articles, or on the side of the page. They had a maximum of two minutes per page and a maximum of five minutes for all the five pages. Once they completed viewing these, they had to do the SC-IAT (counterbalanced). All of the tasks were done in an online environment through a survey application called Decipher. The experiment lasted approximately 15 minutes.

The debriefing letter explained that the experiment actually did not look at their preferences for the websites, but rather measured if the valence of the webpages influenced the participants' implicit attitude toward the phone brand. Finally, they were thanked for their participation.

Apparatus

The current experiment used three pieces of software to conduct the experiment. These included Decipher to conduct the survey with, IBM SPSS 23 to do the statistical analysis with, and various applications made specifically for this experiment in JavaScript. The hardware used in the experiment participants own computers as the survey was done online. The stimuli used for the experiment were screenshots taken from various Dutch news websites (nrc.nl, ad.nl, volkskrant.nl, telegraaf.nl and nu.nl), the sequence in which the screenshots were shown were randomized. Participants were randomly assigned to the conditions (valence and location). A selection of these modified images (with either negative, neutral or positive content) can be seen in appendix A. The stimuli consisted of news items that were first pre-tested for valence using the Priluck and Till's (2004) Likert-scale with three 7-point statements to measure perceived valence (unpleasant/pleasant; dislike very much / like very much; left me with a bad feeling / left me with a good feeling). The 36 participants, employees from DVJ, were shown all 15 screenshots, for which they had to answer the three questions on a Likert-scale. These answers were grouped together by valence category (i.e. negative, neutral, positive) and a mean valence score was calculated per category. See the results section for the results of the pretest .

Besides these manipulated news-item images, the SC-IAT also used several images of the brand logo of the target brand and can be seen in Appendix B.

An online 'eye' tracker (the participant was tasked to follow his gaze with the mouse cursor, which was tracked) was used during the study to ensure that the banner was perceived (Johnson, Mulder, Sijbinga, & Hulsebos, 2012). Although due to a faulty setup of the experiment the data of this technique could not be used.

The SC-IAT measures whether participants have a negative, neutral or positive implicit brand attitude towards the target brand by means of the categorization of words or images, which result in a D-score that ranges from -2(negative) to 2(positive). The way they categorized the stimuli and the time (in milliseconds) in which they did this determined their score. The main dependent variable was thus the D-score (Greenwald, Nosek, & Banaji, 2003; D-score) on the SC-IAT. This is measured at interval level.

Tasks

The Single Category Implicit Association Test (Karpinski and Steinman, 2006) was done to measure the implicit brand attitudes, which was the dependent variable in the current experiment. The test measures reaction times, and is based on the assumption that people respond quicker on categories that are associated in their memory than on categories that are not associated in their memory (Greenwald, McGhee, and Schwartz 1998). The participant was asked to categorize images of the relatively unknown Asian phone brand (Oppo) in their respective categories by pressing either the 'A' or 'L' key. For the task participants had to combine the brand with either the positive or negative categories. For counterbalancing purposes, the task consisted of 2 stages, which both consisted of 2 blocks. In the first stage, the participant had to press 'A' for positive words (gelukkig, eerlijk, prettig, fijn, mooi) and the brand words/pictures (e.g. 'Oppo', or a banner), and press 'L' for negative words (aggressief, bedriegelijk, slecht, grof, lelijk). Both stages had 24 practice trials(block 1 and 3), followed by 72 test trials(block 2 and 4). The responses for the practice trials are not taken in to account for the computation of the D-score. In the second stage, the participant had to press 'A' for positive words and press 'L' for negative words and brand words/pictures. The computed D-score, which is the average corrected RT (reaction time) from block 4 minus the average corrected RT from block 2 divided by the pooled SD, was the dependent variable in the current experiment. This D-score indicated whether a participant had a positive or negative implicit brand attitude towards the target brand. Greenwald, Nosek and Banaji (2003) state that the D-score can range

from a negative value of -2 (which is an extremely negative attitude) to a positive value of 2 (which is an extremely positive attitude). A D-score of 0 would imply that the person would have a neutral attitude towards the brand. The test took approximately 7-8 minutes and was done in the online survey application called Decipher. Participants used their own laptop or pc as it was an online experiment.

Interventions

The main intervention for the current experiment was to let participants look at several manipulated screenshots with content that depicted articles of popular Dutch news websites, and have them select their favorite article. The purpose of this was to make participants actively view (i.e. engage them in goal-directed behavior) certain manipulated web elements, while also showing them an internet advertisement. The task was developed by myself and the perceived valence of the items displayed on the website were pretested.

Participants of the current experiment got to see screenshots of Dutch news websites that depicted either only positive, only negative or only neutral news item images. It was expected that during the experiment these manipulations would influence the implicit attitudes formed by the banners. The participants got to view 5 screenshots of different Dutch news websites (NRC, Volkskrant, AD, Telegraaf and Nu.nl). All websites (either with positive, negative or neutral content) had the same banner displaying the same phone brand on it. The banner depicted a relatively unknown Asian phone brand (Oppo, device: R7). This was done in order to make sure that the participants did not have a predetermined attitude towards the target brand.

To test whether no prior attitudes existed, a group of 60 participants will not participate in the intervention but will only take the SC-IAT. The other participants were tasked to read the article headlines and select the article they prefer. This was done to ensure that they thoroughly read the entire ‘webpage’. The selected article did not have any consequences whatsoever and was merely a way to get them engaged in goal-directed behavior. The intervention came in six different versions: with positive, negative or neutral content (valence) and the banner placed on the side versus placed in the middle of the headlines. The manipulated content consisted of news links/headers, not the actual news articles themselves. The intervention was part of the online experiment and took approximately 4-5 minutes.

Analysis

To calculate the valence of the images, every image in the pre-test was shown to participants, on which they had to answer the three 7-point Likert-scale question. The mean of these three questions for the 5 images per valence category (negative, neutral or positive) was taken. The 5 images per category were first handpicked based on general assumptions of what seems to be a negative, neutral or positive news article. Although this could have led to certain images not having the appropriate valence, the main focus was that participants in a certain valence group would view images that had an overall negative, neutral or positive valence. This resulted in three mean valence ratings (negative, neutral and positive) of the 5 images per participant. Each of the 3 categories thus had 36 valence ratings, and each rating was the mean response of one set of 5 negative, neutral or positive images. These mean valence ratings were statistically analyzed using the valence ratings as the dependent variable, and the categories as the independent variable. The results from this analysis can be found in the results section.

The first step for the actual experiment was to import the data into a csv file(excel). The next step was to filter the data to compute the D-score. This was done in accordance with Karpinski and Steinman (2006) their adaptation of Greenwald, Nosek and Banaji (2003) their computed D-score algorithm to get an indication of the implicit brand attitude.

The D-score was computed by first discarding the practice blocks. Once this was done, the responses that had a reaction time lower than 300ms were eliminated from the dataset, as were the nonresponses. Responses with errors were replaced with the block mean plus an error penalty of 400ms (Greenwald, Nosek, & Banaji, 2003). After this, the average response times from block 2 were subtracted from the average response of block 4. Finally, that value was divided by the standard deviation of all correct response times within block 2 and 4.

After computing the D-score the data was imported in to SPSS for further analyses. With SPSS an ANOVA was done with the valence condition and the banner location condition as the independent variables and the D-score of the SC-IAT as the dependent variable. The control group which just did the SC-IAT was analyzed individually through a two-way ANOVA. This was done as it was an independent control group and this group did not have any effect on the outcome of the main experiment.

Results

To test whether the images were actually perceived as either negative, neutral or positive a one-way ANOVA was performed on the three different sorts of images. The data did not appear to be normally distributed according to Shapiro-Wilk's test of normality for negative (p=.179), neutral (p=.000) and positive (p=.017) images. Although, when viewing the Q-Q plot it was not considered to have too of a large impact on further analysis. Homogeneity of variances was assumed according to Levene's test p=.156. Furthermore, the data appeared to be normally distributed and no outliers were detected. The results of this pretest (N=36) revealed that the positively (M=5.856, SD=.765) manipulated images were indeed statistically significant different from neutral (M=3.825, SD=.814) images and negative (M=1.958, SD=.494) images $F(2,105)=274{,}787$, $p < .001$. A post hoc Tukey test showed that all manipulated images (negative, neutral and positive) differed significantly from all the other categories.

Before starting to do statistical analysis, the D-score was first computed. This was done by subtracting the average response time of block 2 from the average response time of block 4, divided by the standard deviation of all correct response times within block 2 and 4. Respondents who had over 10% of their trials below 300ms were removed (52 participants, 12% of the total respondents), these participants were removed during the computing of the D-score and were thus never taken in to account in the actual analysis After removing those participants the number of trials for block 2 (M=66.741, SD=6.030) and block 4 (M=66.701, SD=5.761) adhered to Greenwald et al. (2003) their recommendations.

After computing the D-score and removing participants that had over 10% of their responses below 300ms, the data was screened to check for missing values and possible outliers. No values were missing, although 1 participant was removed because it turned out to be an outlier, this outlier also caused the data distribution to be skewed according to the Shapiro-Wilk test of normality which showed that the negative (p=.211) and positive (p=.215) valence conditions were normally distributed, however the neutral condition (p<.001) was not. The location conditions showed that the integrated condition was not normally distributed (p < .001), the side condition was normally distributed however (p=.329). After taking a closer look at the data one participant appeared to have a D-score of above 2, which according to Greenwald, Nosek and Banaji (2003) is considered to be improbable.

After removing the outlier, the data was tested again to see if it was normally distributed, the D-score data did indeed turn out to be normally distributed according to the Shapiro-Wilk

test of normality. This time the results appeared to be normally distributed for the neutral valence condition (p=.430) and the integrated location condition(p=.242). This means that the first assumption to do an ANOVA was met, namely that the data should be normally distributed. A split-half reliability test of the average reaction times of block 2 and block 4, using the Spearman-Brown correction, showed that the internal consistency was sufficient (r = .86). For a full overview of the descriptive statistics, see Appendix C.

To check if the participants had no bias towards the brand, and thus a D-score of around 0, a control group who did not partake in the experiment was analyzed. To see whether the assumptions for a one sample t-test were adhered to, the data was explored. Shapiro-Wilk's test of normality showed that the data was indeed normally distributed p=.186. No outliers were discovered. A one-sample t test (M = -.061, SD = .491) with the D-score as variable showed that there was indeed no statistical significant difference in terms of D-scores for positive or negative implicit attitudes toward the brand, $t(51)$ = -.897, p = .374. This confirms that participants initially had a neutral attitude towards the brand. It can thus be assumed that participants in the experimental group also had an initially neutral attitude towards the brand.

After computing the D-score, checking for outliers and normal distributions of the data and assessing the reliability, further analysis on the experimental group could be done to test the hypothesis (see table 1 for the descriptive statistics). Levene's test of equality showed that the variance of the dependent variable was equal among all groups $F(5,308)$=.880, p=.495. A two-way ANOVA with the content valence of websites and the location of the banner as independent variables and the implicit brand attitude as the dependent variable showed no significant main effect of scene valence on implicit brand attitude ($F(2,308) = 1.200$, $p = .302$, $\eta_p^2 = .008$). This was not in line with the first hypothesis. The two-way ANOVA also did not show a significant main effect of location on implicit brand attitude ($F(1,308) = .159$, $p = .690$, $\eta_p^2 = .001$). Neither was there a significant interaction effect of valence and location on implicit brand attitude ($F(2,308) = 1.387$, $p = .251$, , $\eta_p^2 = .009$). These results do not confirm the second hypothesis.

Table 1

Descriptive statistics of the independent variables valence and location with the dependent variable brand attitude

valence		Mean	Std. Deviation	N
negative	integrated	0,051	0,437	56
	side	-0,019	0,458	52
	Total	0,017	0,446	108
neutral	integrated	0,030	0,396	50
	side	0,125	0,456	53
	Total	0,079	0,428	103
positive	integrated	0,143	0,452	50
	side	0,064	0,368	54
	Total	0,102	0,411	104
Total	integrated	0,074	0,429	156
	side	0,057	0,430	159
	Total	0,065	0,429	315

As both hypotheses were not confirmed additional exploratory analyses were conducted to see if any other variance had an effect on brand attitude. To see whether gender had any influence on implicit brand attitude a two-way ANOVA was done where gender (male, female) were taken as an independent variable along with valence (negative, neutral and positive) and location (side and integrated), and implicit brand attitude as the dependent variable. Levene's test of equality showed that there the error variance of the dependent variable was not significant (F (11,302) = .559, p = .861) and thus homogeneity can be assumed. Results indicated that gender showed a significant main effect on implicit brand attitude (F (1,302) = 7.529, p = .006, η_p^2 = .024). The results of these findings indicated that males (M = .131, SD = .433) tended to score higher than females (M = .000, SD = .418). There was no significant interaction between gender and valence F (2, 302) = .352, p = .704, η_p^2 = .002. There was also no interaction effect between gender and location F (1, 302) = 2.456, p = .118, η_p^2 = .008. Finally, there was also no interaction effect between valence, location and gender F (2, 302) = 1.085, p = .339, η_p^2 = .007.

In an attempt to see if age had any influence on the implicit brand attitude a two-way ANOVA was done with gender, valence and location as the independent variables, age as a covariate and implicit brand attitude, or the D-score, as dependent variable. Levene's test of equality showed that there was no significant difference in variance in the dependent variable

(F (11,302) = .577, p = .848) and thus homogeneity can be assumed. It appeared that age did not have a statistically significant effect on implicit brand attitude $F(1,301)=.686$, $p=.408$, $\eta_p^2 =.002$.

Discussion

The aim of the current study was to find out if the valence of the content of websites was able to influence the implicit brand attitude of people and whether the location of the banner moderated the effect of valence. The implicit brand attitude was then measured through a SC-IAT.

Findings

It was hypothesized that participants in the negative valence group would have a significantly lower implicit brand attitude towards the brand (Oppo) than banners placed on websites with content that is either neutral or positive. However, there appears to be no significant difference between these groups. Although D'Hooge, Hudders and Cauberghe (2017) did manage to find significant differences between the positive and negative valence groups, this was not the case for the current study. However, D'Hooge, Hudders and Cauberghe found these differences in an experiment that used media scenes depicting social settings and not websites depicting images of news items. This discrepancy, in stimuli used to manipulate valence, might have caused that the current study did not find any significant differences between the groups. Another discrepancy between the current study and that of D'Hooge, Hudders and Cauberghe is that the latter conducted the experiment in confined laboratory, thus controlling for environmental effects. Having participants' attention throughout the conditioning is of course important, although when looking at the drop-out rate (246 participants failed to complete the experiment) of participants in this experiment it can be argued that participants were not motivated. According to Reips (2002), the average drop-out rate for online experiments is around 34%, the drop-out rate in the current experiment was 49%. Reips found that a high drop-out rate can be correlated with motivational confounding. Especially when looking at the drop-out rate it was evident that this test might have been unsuitable for online purposes due to the length and amount of concentration required, although this can only be assumed by looking at the data as no (qualitative) data was acquired asking for participants' opinion. Furthermore, it was not just the drop-out rate that was higher than the average proposed by Reips, a significant number of the participants, namely 52 participants of the 420 that completed the experiment, which was approximately 12% of the total number of

participants that completed the experiment, were excluded from the experiment during data-cleaning as their responses indicated that they did not take the experiment seriously. This might have also influenced the way they completed the initial task in which they had to look at the images of news items, possibly interfering with the evaluative conditioning.

Besides the fact that participants might have not taken the experiment seriously enough, it could also have been due to the fact that they simply did not notice the banner during the task. Although Kindermann (2017) found that it was possible to unconsciously perceive banners and change brand attitudes this way, the results from the current experiment do not support the findings of Kindermann. It was expected that priming participants through evaluative conditioning would result in a more positive or negative implicit brand attitude as proposed by Kindermann.

It was also hypothesized that the location of the banner, when integrated within the content, would result in a higher dwell time and thus increase the effect valence has on implicit brand attitudes. Additionally, when the banner was integrated within the content this would result in a higher visual dwell-time and thus would be noticed more frequently, leading to a stronger impact of valence than when the banner was located on the side of the affective scenes. However, there appears to be no significant difference between these groups. Resnick and Albert (2013) found that participants tended to have a lower visual dwell-time when the banner was located on the side of a website, and thus more likely notice the banner when engaged in a goal-directed task, just as they were in the current experiment. Although Resnick and Albert found these differences in dwell-time, these differences appeared to have had no effect on the current experimental setup. This could have been due to the banner blindness effect. If participants did not even perceive the banner then this would be consistent with Zajonc (1986) his findings regarding the mere-exposure effect.

Although none of the hypotheses are confirmed in this experiment, there appears to be a significant difference in implicit brand attitude for gender. More concisely, males tend to have a significantly higher D-score than females for the (smartphone) brand in the current experiment. Although these results were not originally hypothesized, it is worth mentioning. The type of product, a smartphone, depicted in the banner could have been the cause of this finding. This is consistent with the findings of several other studies that found that there were significant gender differences in attitudes towards computers (Bain, Rice, 2006; Young, 2000). It must be noted that these studies are quite dated and that the studies in question researched attitudes towards computers and not smartphones.

Significance and implications

The current findings suggest that the advertisement probably was not perceived adequately enough, as this should have resulted in differences in brand attitude between the valence conditions. Although these findings have to interpreted with some caution as the current experiment used screenshots of website elements instead of real websites. D'Hooge, Hudders and Cauberghe (2017) did find differences in implicit brand attitude when manipulating the valence of a scene. The current findings implicate that there is a discrepancy between valence of social settings and the valence of website content. One possible explanation for these findings comes from Benway's experiments (1998). In Benway's experiment participants were instructed to actively search for a specific piece of information they were able to find by either navigating the website, or by simply clicking on a banner which would lead them straight to their goal. This sort of actively searching for information was goal-directed behavior. In a different experiment by Bachofer (1998) participants were instructed to investigate similar pages, but without any further instructions. This was done by 'free-viewing', which means that they were not required to find a specific piece of information. The difference in results between Benway's and Bachofer's experiment was that participants in Bachofer's experiment scored higher on recollection tasks than participants in Benway's experiment. It can thus be assumed that when participants are engaged in tasks that require little attention (i.e. free-viewing) they will look at irrelevant content (i.e. banners) more often than when they are engaged in a more difficult task (i.e. goal-directed behavior). The current experiment used goal directed behavior, based on the findings of Resnick and Albert (2013). This would have lead to an increased banner blindness effect according to the findings of Benway (1998) and Bachofer (1998).

Another possible explanation for the lack of statistical differences in brand attitude can be found by looking at the findings of Moorman, Neijens and Smit (2002). According to Moorman, Neijens and Smit, people will recall an advertisement more frequently when it is highly congruent with the surrounding context (e.g. a smartphone in magazine about electronics). Besides the fact that people are able to more frequently recall the ad when it is congruent with the website's content, if it is congruent they may even develop positive attitudes towards the brand, as long as the brand is relatively unknown or new (Dahlén, 2005). This finding is again supported by Flores et al. (2014) who found that products that were evaluated on websites that were highly congruent with the advertised product were rated significantly higher in terms of appeal than products on websites that were incongruent with the advertised

product. Therefore, the congruency of products and websites is of importance when creating and placing internet advertisements. It might have been a methodological flaw to assume that smartphones were congruent with news-websites. If participants did not process the advertisement to be congruent with the website content, Moorman, Neijens and Smit their findings would suggest that the participants would probably not even be able to accurately recall the advertisement. The current experiment presented a smartphone brand on a news-website and no pre-tests were done to ascertain whether the brand and the website were thought to be congruent. Although no pre-test was done, it can be assumed that these are not highly congruent, possibly resulting in a diminished effect of valence on brand attitude.

Resnick and Albert (2013) suggested that advertisements on the side of websites had a significantly lower visual dwell-time compared to those placed on the top of websites. Although they measured the differences between top and side advertisements, it was expected that these differences would also manifest when advertisements were placed on the side of a website compared to integrated in the content of the website. Because of the absence of data to properly test whether this was the case these suggestions, regarding internet advertisements, must be taken with caution. Another thing that must be noted is that the participants in the current experiment were engaged in a goal-directed task. Both Resnick and Albert (2013) and Heinz and Meckler (2012) agreed that the goal of a user is of importance when it comes to banner perception. The current findings implicate that the location of the banner does not influence implicit brand attitude and have no significant interaction with the valence manipulation of the content of a website.

A third implication is suggested due to the statistically significant difference between how males and females on implicit brand attitude. Apparently, males tended to have a significantly higher positive implicit brand attitude towards the depicted brand than females. This suggests that males apparently either perceive internet advertisements differently, or that they are more inclined to perceive the advertisement used in this experiment. Gefen and Straub (1997) found that females tended to differ from males in how they perceived the social presence of an email. These results indicate that there appears to be a difference in how gender reacts or responds to technology and what they deem important in an online environment. For the current experiment this could explain the differences in gender. Moreover, Wolin and Korgaonkar (2003) found that males and females differed significantly on several aspects including that males tended to have more positive beliefs about online advertising than females did. It must be noted that they also found that males tended to use the internet more for functional and

entertainment reasons and that females were more likely to use the internet for shopping. Another side note to this is that although females tended to do more online shopping, Wolin and Kargaonkar found that males still bought more online. These studies show that there does indeed appear to be a difference in web-behavior and interests between males and females which the current study's findings support. Advertisers should be aware of this and place their products on websites that are visited by the gender their products are mainly intended for.

Limitations and future research

The current study had a few limitations that need to be discussed. First and foremost was the fact that the current experiment let participants do a quite complicated procedure (the SC-IAT) in an online environment. Although it is a complicated procedure, previous research found that the IAT can be validly administered in an online environment (Houben & Wiers, 2008). The high drop-out rate suggests that the participants were either not instructed adequately enough, or that they just appeared to lose interest during the course of the experiment. This could have had a big influence on the outcome of the SC-IAT as this requires participants full concentration, future research should try and instruct the participants as concisely as possible and urge them to keep focused Another suggestion could be to give a better indication as what the participants might expect in the experiment, and thus preparing them. Once every participant was finished and the D-score computation began (and thus examining the raw data), it became apparent, by looking at the data, that many participants either dropped out, failed to take the experiment seriously or were possibly not fully concentrated.

Another limitation of this study was the discrepancy between the participants used for the pretest and that of the actual experiment. The pre-test was done within a company consisting of people with a university degree, whereas the participants recruited for the actual experiment were a national representative sample. This could have caused a difference in how people perceived the valence in the actual experiment. Cutting and Dunn (1999) found that family background and level of education is of importance when it comes to processing emotions. Although no data was gathered on the educational background of the participants, this might still have played a role. Future research should try and get a similar representative sample for the pre-test and the experiment to ensure that the different valence conditions are perceived similarly.

As mentioned earlier, the current study was unable to verify if users actually perceived the banners. Due to the faulty experiment setup, the online eye tracking data was not usable. It thus remains the question as to whether participants actually noticed the banners, and if they did not perceive the banner, the whole valence manipulation could have been ineffective. It is recommended for future research to run an extensive pre-test to assure the banner is perceived, one option for this could be to use an eye-tracker during the pre-test.

Finally, the stimuli (screenshots of Dutch news websites) used were made for this experiment and were not actual websites. Besides the stimuli, the banner might also have had its limitations, although an initial neutral attitude was found it was not clear whether this banner was suitable for the current study. The choice to use screenshots of websites was made due to time and effort constraints. This might have caused different browsing behavior under participants, as they were limited to 1 'page' that did not have the exact same layout and navigational options as the normal websites would have. In future studies, the experiment should try to use actual websites to see whether using real websites influences the way banners are perceived. It might also be of interest to future studies to use non-news websites to see if advertisements are perceived differently on those websites. Lastly, pre-testing the brand/banner to see if it is suitable for brand attitude experiments is also recommended, as a relatively unknown smartphone might not be something people are drawn to or from.

Conclusion

The current experiment looked at whether the valence of the content of a website could influence people their brand attitude when confronted with an internet advertisement. It also manipulated the location of the banner to show the banner on either the side of a website or show it when it was integrated within the content of a website. In contrast to what prior research found, the current experiment found that valence in fact did not have an influence on participants' implicit brand attitude. Valence did not influence implicit brand attitude neither when the banner was located on the side or when it was integrated within the content of the website. Although the main hypotheses were not confirmed, a significant statistical difference was found for gender on implicit brand attitude. Explanations were given as to what might have caused these findings and what their possible implications are. Furthermore, some factors that proved to be limitations for the current experiment were also discussed.

It can be concluded that although no significant differences were found between the valence conditions on implicit brand attitude, this might have been due to participants not

perceiving the banner. In the current state, it is difficult to give advertisers solid recommendations as it cannot be safely assumed that the valence of websites has no effect on brand attitudes. The same goes for the location of the banner, although prior research states that placing banners on the side of a website is least effective, the current experiment cannot confirm these findings probably due to the fact that the banners were not perceived. Future research should thoroughly test whether the banners are perceived, and whether the valence is perceived identically by the pre-test and experimental groups. Another thing to keep in mind is that the banner should be pre-tested to have a similar appeal for males and females, as the current experiment found that differences between genders which might have been caused by the banner choice.

Finally, it would still be recommended to further investigate the effects website content can have on brand attitude as the amount of internet advertisements keeps increasing. It is expected to reach 200 billion US dollar in 2020 (Statista.com, 2017), and because it is an ever-expanding field in advertisement, it is of importance to create advertisements that are as effective as can be.

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Appendix A

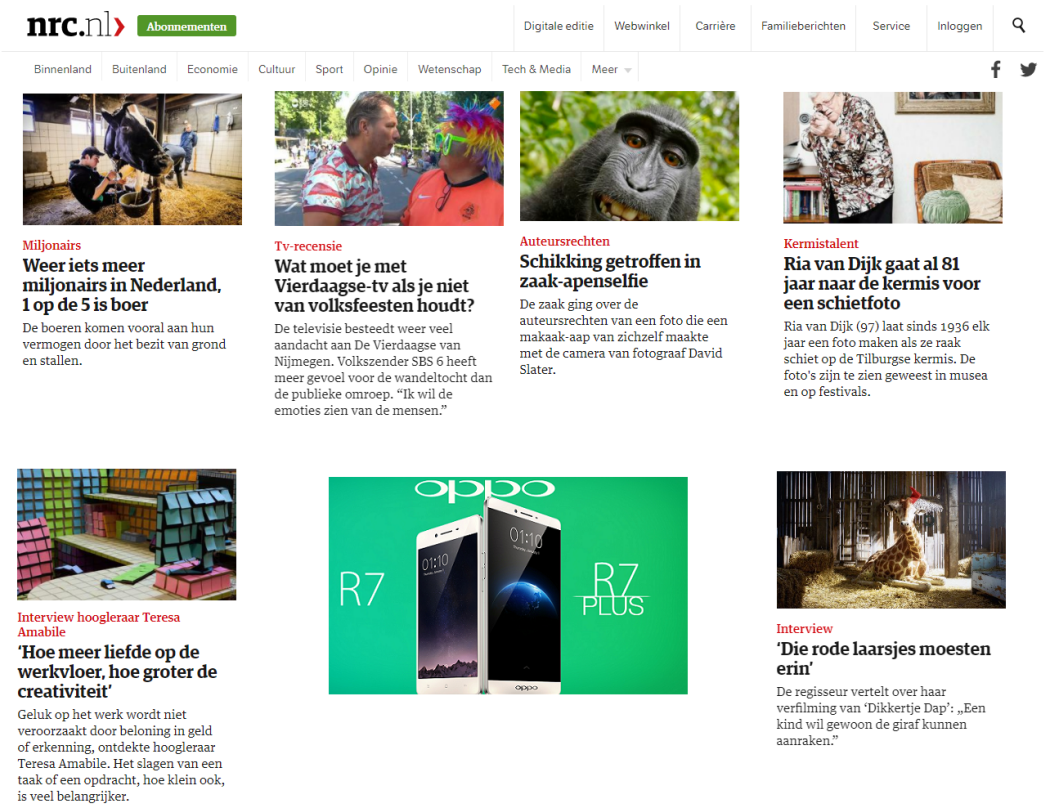

Figure 3. Example of positive valence image

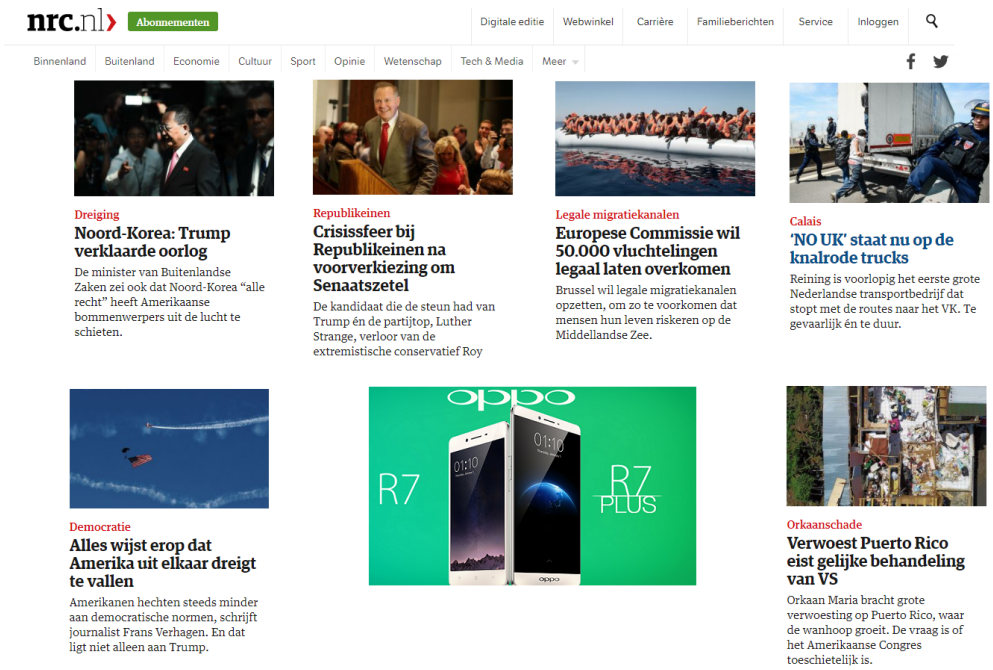

Figure 4. Example of negative valence image

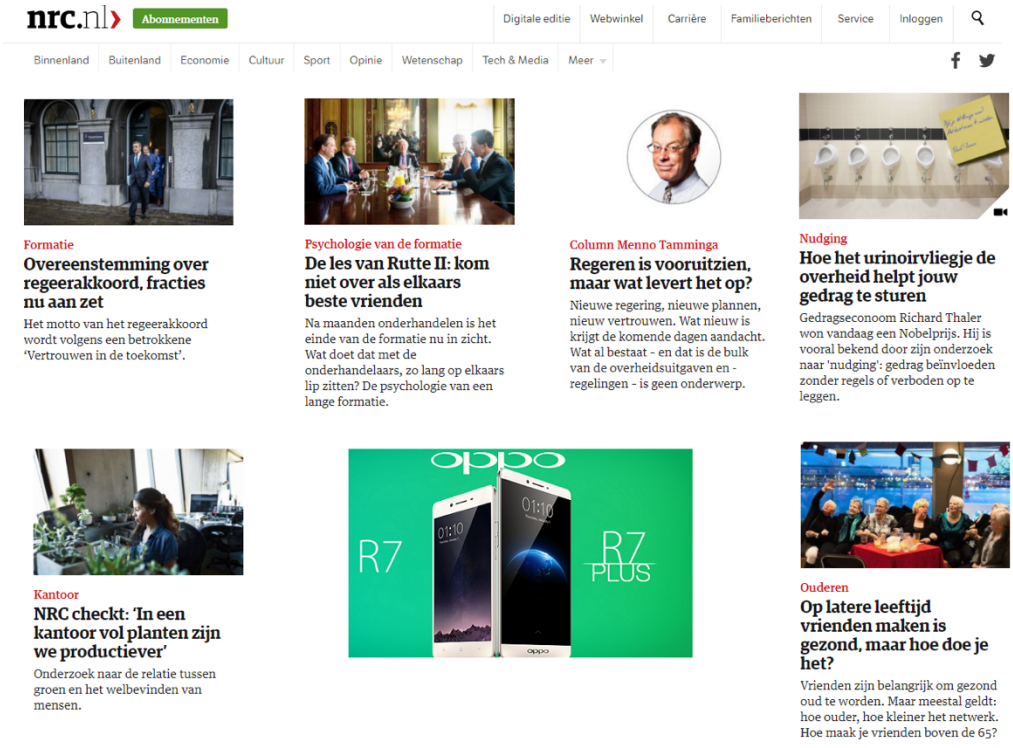

Figure 5. Example of neutral valence image

Appendix B

Figure 6. Example of image used in the SC-IAT

Appendix C

Table 2

Descriptive Statistics of every condition with the mean, SD and N per group.

valence			Mean	Std. Deviation	N
negative	integrated	male	0,159	0,424	32
		female	-0,093	0,419	24
		Total	0,051	0,436	56
	side	male	0,015	0,442	27
		female	-0,056	0,479	25
		Total	-0,019	0,457	52
	Total	male	0,093	0,435	59
		female	-0,074	0,446	49
		Total	0,017	0,446	108
neutral	integrated	male	0,154	0,348	23
		female	-0,076	0,408	27
		Total	0,029	0,395	50
	side	male	0,084	0,450	26
		female	0,164	0,466	27
		Total	0,124	0,455	53
	Total	male	0,116	0,403	49
		female	0,043	0,450	54
		Total	0,078	0,428	103
positive	integrated	male	0,210	0,511	27
		female	0,068	0,374	22
		Total	0,146	0,456	49
	side	male	0,173	0,399	21
		female	-0,005	0,334	33
		Total	0,063	0,368	54
	Total	male	0,194	0,461	48

		female	0,024	0,349	55
		Total	0,103	0,412	103
Total	integrated	male	0,174	0,431	82
		female	-0,038	0,403	73
		Total	0,074	0,430	155
	side	male	0,084	0,432	74
		female	0,033	0,429	85
		Total	0,056	0,430	159
	Total	male	0,131	0,433	156
		female	0,000	0,417	158
		Total	0,065	0,429	314