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Utrecht University

WHEN YOUR BEER SMILES AT YOU

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2016

A study to the effect of the latent presence of abstract facial features of emotions in packaging design on the consumer

University of Utrecht

Master psychology: Applied Cognitive Psychology

THESIS (27.5 ECTS)

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07-07-2016

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ABSTRACT

Studies from a wide variety of disciplines have long noted that people tend to attribute human features to nonhuman forms and events. Cartils, a branding and packing design consultancy, was interested in if this phenomenon could be used in packaging design and what influence this would have on the consumers. This study examined the effect of the presence of latent facial features and emotions in packaging design on prominence and appeal. The first part of this study examined which abstract shapes and emotions should be present in label designs, using a search task and a questionnaire. Based on the results, in part two of this study six beer label designs were created, representing a happy, angry and neutral emotion. These design were tested on prominence and appeal, using a three search tasks and a questionnaire, existing of order ranking and interview questions. Results showed to that angry designs stood out the most, but happy designs appealed the most. Further research was recommended to further investigate these effects of emotional packaging, and besides to Cartils was advised to use the methods of the present study for testing label designs in the future.

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Introduction

Anthropomorphism

Studies from a wide variety of disciplines have long noted that people tend to see the human in nonhuman forms and events (Darwin, 1872/2002; Feuerbach, 1873/2004; Freud, 1930/1989). This tendency is described as anthropomorphism: when the real or imagined behavior of nonhuman agents is perceived with humanlike characteristics, motivations, intentions, or emotions (Epley et al., 2007). Empirical research has shown the ease with which people give anthropomorphic descriptions of agents, ranging from God, to geometric shapes, to moving plants and computer-animations (Guthrie, 1993). People regularly see human features in natural phenomena, as seeing faces in clouds, the moon, trees, or in snowy mountains. They may attribute human emotions, goals and beliefs to animals, for example when the interaction between two birds is compared to a human love couple (Aggarwahl and McGill, 2007).

Whether agents are treated as human versus nonhuman has a powerful impact on how they are interpreted, how they are appreciated and treated, and how they are expected to behave (Epley et al., 2007). As anthropomorphism is seen for such a variety of agents, it can account for phenomena ranging from religious beliefs to effective marketing campaigns (Aggarwal & McGill, 2007). People see the human in artifacts as well as in nature. They sometimes see their cars as loyal companions, and argue with malfunctioning computers and engines. Faces are seen in houses, with the windows as eyes, the roof as hair and the door as a mouth. They also appear in the fronts of cars, seeing the grill as a mouth and the headlights as eyes, making cars look angry and bold or just happy and kind. Marketeers often encourage this tendency in consumers to anthropomorphize products and even complete brands. Brands are imbued with images and distinct personalities, which may affect their perceived credibility and enhance relationships (Aggarwahl and McGill, 2007). Hirschman and Holbrook (1982), confirmed that the emotions that products generate in people, can increase the enjoyment of buying, owning and using them. The emotions evoked by products are firmly influenced by the appearance of it (Desmet, Tax, and Overbeeke 1999). Besides, nowadays products are relatively similar in production techniques and quality, making the product design more important as an opportunity for differential advantage over their competitors (e.g., Dumaine, 1991).

Aggarwahl and McGill (2007) proposed that efforts by marketeers to anthropomorphize products may be viewed as shifting the category of evaluation from product to human and, more specifically, to particular human categories such as friends, helpers, families, or spokespeople. Their study took an important first step to understand the process by which products are anthropomorphized. They investigated the interaction of the

schema through which products are examined (human or object), the specific human schemas used for product anthropomorphizing (spokesperson, family, and twin) and the specific features of the product (being easily associated with the human schemas or not). They found that products may be evaluated more or less positively depending on the fit of the feature to the human schema as well as the valence of the affect associated with the schema (Aggarwahl and McGill, 2007).

People do not anthropomorphize all objects with equal ease. Literature suggests that the ability to anthropomorphize may depend on the presence of specific features. For example, movement in an object can create the impression that it is alive. Further, objects that are shaped like people are more likely to be anthropomorphized. Thus the shape of a bottle may be more easily anthropomorphized than a can because it is more similar to the shape of a human body. Other features that signify humanness include facial features, sounds and voices, intentionality, imitation, and communication ability (Dennett, 1996).

Faces in advertising

Human beings have always been drawn to actual faces as a significant role in human evolution. Even as babies, humans exhibit a viewing preference for faces over other types of objects (Haxby et al., 2002). For reasons of safety and survival, it is important for infants to discriminate among individuals and expressions. Faces are relevant for social interaction and communication, for recognition of danger, and to develop skills (Djamasbi et al., 2012). In fact, studies have even shown that there is a part of the brain dedicated to facial recognition called the “Fusiform Face Area” (Kanwisher and Yovel, 2006).

Returning to the field of marketing, the strong attention to faces has been used in advertising and packaging design. Heat maps from various eye tracking experiments consistently and repeatedly show that people are drawn to faces. When human images are present on advertisements, viewers tend to focus mainly on faces. Faces do attract the observers’ attention more than other elements of the image. This phenomenon should be used wisely in marketing, because faces could also divert attention away from information that is placed adjacent to them. Besides, the image of the face should fit the content of the promotion (Djamasbi et al., 2012).

Cartils[1]

The principle of anthropomorphism and the effects of presence of faces in marketing as described, raised interest by Cartils, a branding and packaging design consultancy. This company provides strategic advice on the development of brand packaging design to

[1] *Cartils unfortunately was declared bankrupt on 19-04-2016, during the third month of this study. The same path of research was retained as much as possible. However the study was no longer dedicated to Cartils, but only to the University of Utrecht.*

international companies producing fast moving consumer goods. This study was carried out to research Cartils' interest, in which was wondered how the presence of the suggestion of facial expressions in packaging designs would attribute to the power of packaging design. To investigate this, first it was relevant to acquire knowledge about what kind of facial expressions should be used, to be able to give answer to this broad question.

Abstract emotions

Multiple studies (Hansen and Hansen, 1988; Larson et al., 2007; Öhman et al., 2001; Schubö et al., 2006; Weymar et al., 2011) have shown that a threatening facial expression draws most attention of all emotions. These findings are all consistent with Darwin's (1872/2002) suggestion that threatening stimuli in general are detected more quickly than neutral or pleasant stimuli. This is an evolutionary phenomenon whereby threatening stimuli activate a specialized fear system in the human brain to give quickly threat defense based response (Öhman et al., 2001). Weymar et al. (2011) showed this, using EEG in their experiment for measuring the N2pc component as an electrophysiological indicator of attention selection. Building upon these findings, many studies (e.g., Larson et al., 2007; Öhman et al., 2001; Schubö et al., 2006) indicate that in visual search tasks consisting of crowds of faces, the threatening face is detected faster than a neutral or happy face. Thus, threatening faces 'pop out' (Hansen and Hansen, 1988), a feature also important for packaging designs to comply with. While majority of literature points to the threatening facial expression when fast detection in acquired, there are also studies showing contrary results. Leppanen et al. (2003), for example, found that the happy face is detected fastest, when measuring lateralized readiness potential (LRP) in their EEG experiment. Overall, further research to the detection of facial expressions is certainly not redundant.

It's relevant to take the difference between 'real' faces and photo's, and faces existing of just a couple of lines or forms like the 'smiley' or 'emoticon', into account. While Cartils is not using pictures in their packaging designs and is curious to know the effect of the suggestion, or the latent presence, of facial expressions in packaging labels, this study further focused on earlier studies using schematic features of faces. Larson et al. (2007), Öhman et al. (2001), Schubö et al. (2006) and Purcell and Stewart (2010) all used schematic faces as stimuli in comparable visual search tasks, measuring response time of the participants to determine which emotion and/or which form of abstraction were detected most quickly and thus drew the most attention. Time and again the eyebrows are named as most relevant element to express emotion (e.g. Hasegawa and Unuma, 2010). Hence all four comparable studies used two lines representing the eyebrows when creating stimuli, in a 'V'-formation for threatening faces, an upwards pointing 'V' in their happy faces, and horizontally next to each other in their neutral faces. Some studies emphasized the importance of the

presence of a surrounding/contour representing the head form in the experiment (e.g. Purcell and Stewart, 2011). Sometimes the mouth, eyes and even a nose is used for creating a face (e.g. Hasegawa and Unuma, 2010; Weymar et al., 2011), while others only used two lines representing the brows as stimuli (Larson et al., 2007). Results differed in which degree of abstraction faces are detected faster.

Goals

The present study tested the effects of schematic facial features when incorporated in packaging design. Is a consumer more likely to prefer a product when a facial expression is (latently) present in its package? And if so, should that face express a positive or a negative emotion? From the majority of earlier research can be concluded that threatening faces draw more attention, nevertheless it's important that the package encourages the right feeling at the same time, so that it not only catches the eye of consumers, but also holds their attention and makes them want to actual have it. In packaging design there are two relevant goals to take into account: first the product has to stand out on the shelf, and secondly it should be appealing in a way that is chosen over its competitors. Cartils was interested in if, and how, the latent presence of facial features and emotions in packaging designs can contribute to these two principles. In this study two experiments were conducted to examine this question. First, in part 1 of this study, there was tested which abstract shapes were best to represent emotions in templates for packaging designs. Secondly, in part 2 of this study, actual designs based on those shapes were tested on prominence and appeal.

PART 1

Introduction

The aim of the first part of this study was to determine what kind of schematic facial features scored best on prominence and appeal. Tested was which emotions they should represent and to what extent the facial characteristics should be abstract. Finally, based on the results, these shapes would serve as templates for actual label designs, which would be tested in the second part of the study, on how much they stand out on the shelf and how much they appeal.

The stimuli representing the facial expressions were used from an ongoing study by van der Smagt (2016) at the University of Utrecht. As shown in Figure 1, these stimuli consisted of twelve 'faces', divided into four levels of abstraction (face with contour, face without contour, schematic with contour and schematic without contour) and three levels of emotion (neutral, happy and angry). Also two levels of contour were included (‘with contour’ in levels 1 and 3, ‘without contour’ in levels 2 and 4).

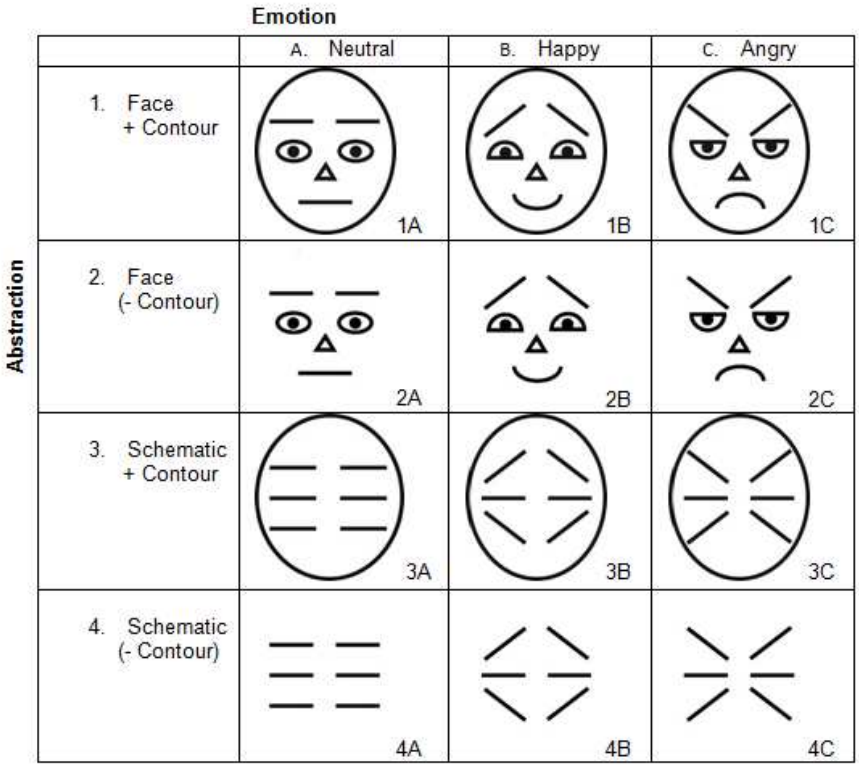

Figure 1. Shapes representing facial expressions used as stimuli for experiment 1A and 1B.

Experiment 1A: search task

Prominence and appeal were tested through two different methods. A successful packaging design has to catch the eye when the consumer is overwhelmed with visual triggers. For measuring prominence of the shapes, a visual search task was used, derived from similar research from Larson et al. (2007), Ohman et al. (2001), Purcell and Stewart (2010) and Schubo et al. (2006). To test which emotion and which level of abstraction would stand out the most, the response time in which participants detected a discrepant target in a field of homogenous distraction stimuli was measured. In this digital response task, there were eight targets existing of the four happy (1B, 2B, 3B and 4B) and four angry shapes (1C, 2C, 3C and 4C). For each happy and angry expression the detection speed was measured and compared to the neutral expressions (1A, 2A, 3A and 4A). Therefore distracter fields were filled with the neutral shape from the same level of abstraction as the target. Next to emotion and abstraction, also the response time of the four levels of abstraction (1, 2, 3 and 4) was compared. It was assumed that the faster the target is detected in its' distracter field, and thus the lower its' response time, the faster it seems to catch the eye and therefore stands out more.

Experiment 1B: questionnaire

For testing the effect of facial features in packaging design it's important, next to which shapes stand out the most, to figure out the initial feelings that the shapes evoke in people. Does it fit the message the brand intends to convey with the package? Besides, do participants interpret the 'angry' (or 'threatening') established stimuli as actually appropriate to an angry emotion? Larson (2007) and Purcell and Stewart (2010) also appointed to the importance of gauging the emotional value attributed to their stimuli. Therefore the subjective perception of the shapes were tested using a questionnaire. Because abstraction levels 1 and 2 already emit a distinct emotion as recognizable 'smiley faces', in this study only the emotional value of the schematic expressions (levels 3 and 4) were of interest. Therefore the subjective perception of most "striking", "cheerful", "tough" and "appealing" of stimuli 3A up to 4C were tested.

Methods

Experiment 1A: search task

Participants

The 20 participants were personally approached by the researcher and took part voluntarily in both experiments 1A and 1B. The ages within this group ranged from 16 – 52. A broad age range was chosen to represent the population who is influenced most by packaging design. While one participant didn't understand the search task right away and gave wrong responses during the first block, the data of this participant were excluded. Therefore the group of participants (N=19) for experiment 1A existed of seven men and twelve women, with an average age of 24.

Materials

This experiment was performed on an ASUS laptop (A55A) with Windows 7, a 15.6 inch screen and a screen resolution of 1366x768, and is programmed in OpenSesame 3.0.5.. Each shape was sized 20x17 mm on the screen. The participants responded during the tasks through controlling the keys in the number pad (1, 3, 5, 7 and 9) and the spacebar, with their index finger. No chin support was used, because the screen and the chair were adjustable to the participant.

Stimuli

The presented stimuli consisted of 3 formats of grids filled with the previously defined facial expressions: a 3x3 grid consisting of nine face shapes, a 5x5 grid consisting of 25 face shapes and a 7x7 grid consisting of 49 face shapes (see Figure 2 for examples). In every grid always one of the eight target stimuli (all B and C shapes) was present, the rest of the grid was homogenous and consisted of neutral stimuli of the same level of abstraction as the target. In each trial a target (the deviating stimulus) appeared random in one of the four quadrants of one of the three grid sizes: 8*3*4 = 96 trials were run to present each target on each location. These trials were presented in one block of the experiment: a block thus consisted of every combination of target, location and grid size possible. The block was repeated three times, creating three blocks and leading to a total of 96*3 = 288 trials in the experiment. After each block the participant got an indication about how far he/she was done completing the task.

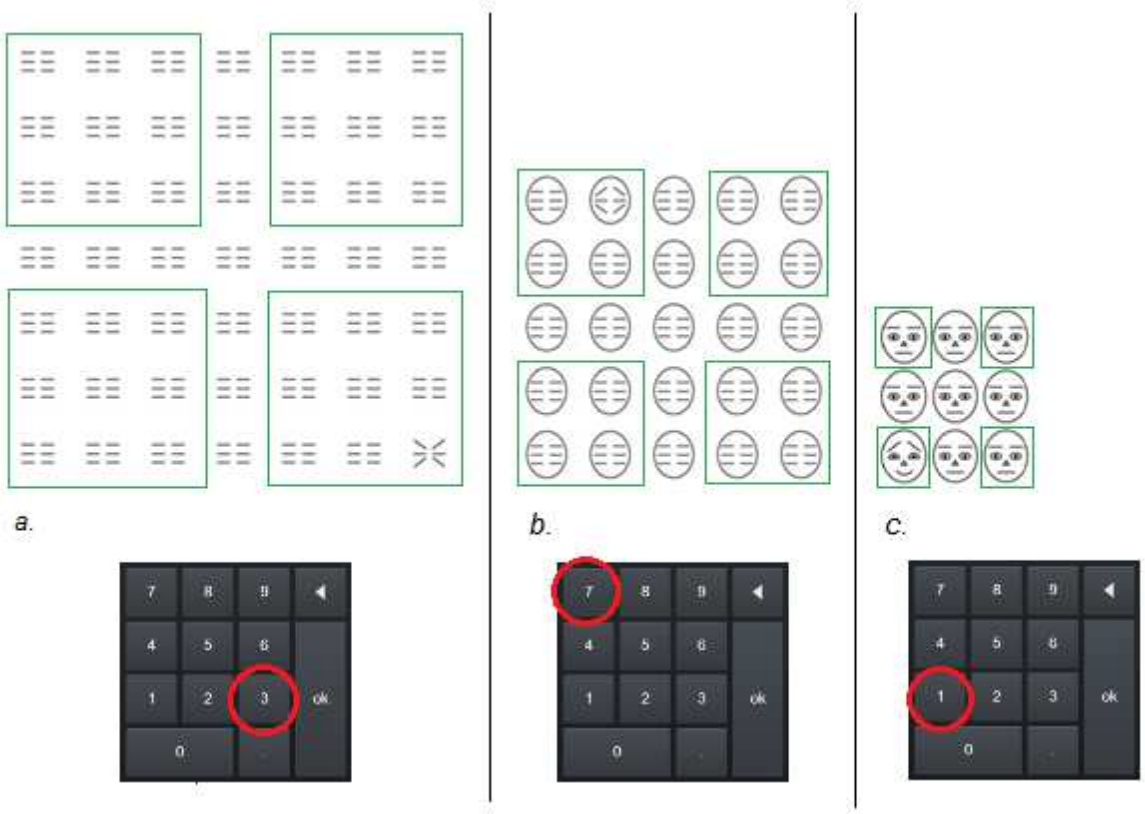

Figure 2. Examples of trials in the digital search task: the stimuli and their corresponding key presses in the numpad. The green areas indicate the quadrants in which the target could appear and were not present in the actual trials. The red circles indicate the correct key responses in the numpad corresponding to the target. *a*: 7*7 Grid of abstraction level 4 with angry target at correct response key 3. *b*: 3*3 Grid of abstraction level 1 with happy target at correct response key 1. *c*: 5*5 Grid of abstraction level 3 with happy target at correct response key 7.

Procedure

Participants performed the task individually on the laptop and filled in an informed consent prior starting the experiment. The researcher emphasized that just the index finger could be used to press the buttons and that the researcher would be present for any questions at all times. Participants first read the welcome message and an instruction concerning the search task on the screen, in which again was emphasized that it was important to press as quickly as possible with only the index finger. By pressing the space bar a practice session consisting of ten trials started, to master the control system. These trials were not included in the data analysis. After the practice a screen appeared which asked whether the task was clear, and by pressing the space bar the actual experiment started. Then first a screen appeared in which the participant was asked if he was ready for the target search and if so, to press 5. In response to the key press a screen with a fixation dot was displayed, which was replaced automatically for any of the grids after 1200 ms. The participant was instructed

to press the corresponding response key as soon as possible after the stimulus appeared on the screen. Thus, when the target was shown on the left at the top of the matrix (as shown in Figure 2b), there should be pressed in the left top of the numpad, which is key 7. When the target appeared on the upper right, key 9 should be pressed, when on the bottom left key 1 (as shown in Figure 2c) and on the bottom right (as shown in figure 2a), key 3 was the correct answer. After this response again the screen appeared in where the participant could press 5 for a new trial, when ready.

As mentioned, after the first and second block appeared a screen stating that the participants were 33% or 67% completing the task, and could continue the experiment by pressing the spacebar. After the third block a final screen appeared where the participants were told that they finished the experiment and could report that to the researcher, and was thanked for participating.

Analysis

A repeated measures analysis of variance (ANOVA) was conducted on the dependent variable response time (RT). As within-subject factors served abstraction (two levels: schematic and face), emotion (two levels: happy and angry), contour (two levels: with and without) and gridsize (three levels: 3*3, 5*5 and 7*7). Factors were compared using the means of the medians per participant of the RT for each shape. Post hoc analysis with Bonferroni corrections were conducted for pairwise comparisons (using an α of .05).

Experiment 1B: questionnaire

Participants

All 20 participants mentioned in experiment 1A performed in experiment 1B. This group consisted of eight men and twelve women, still ranging in age from 16 to 58, and with an average age of 24.

Materials & procedure

Participants first filled in the questionnaire before participating in the search task, so that their subjective feelings about the shapes wouldn't be influenced by the task, in which they were exposed to the neutral emotions continuously. This questionnaire (see Appendix 1) was conducted on paper. The questionnaire and informed consent were handed by the researcher at the start of the experiment. Participants filled in the informed consent, as mentioned, and then read the instructions. Emphasized was that it was important to base the answers at first glance. At this time the participants were still not aware that the study contained facial expressions and were introduced to the abstract shapes (3A t/m 4C, see Figure 1), positioned in a circle, at the first question. There were four questions in total, each

on a new page. At three questions, the participants were asked to indicate their appreciation of the six shapes, and order them from highest to lowest: ‘Which shape do you think stands out the most?’, ‘Which shape makes you more happy?’ and ‘Which shape do you think is the most tough?’. Then there was one question that is based on the Two-Alternative Forced Choice (2-AFC) method: ‘Which shape appeals to you the most?’. The participants were repeatedly forced to choose between two shapes. All six shapes were compared to each other, creating a total of fifteen choices for the participant to make, based on their preference for one of the two shapes which they had to tick. In order to randomize, there were two versions of the questionnaire, in which the answer combinations of the 2AFC-question differed. After these four questions, the participant was instructed to start with the search task on the laptop.

Analysis

An univariate ANOVA was conducted on dependent variables ‘prominence’, ‘cheerfulness’ and ‘toughness’, to compare the means per shape. Each shape scored a total mean from 1 to 6, based on how they were arranged by the participants. The shape of first choice gained 6 points, the last choice 1 point. Post hoc analysis with Bonferroni corrections were conducted for pairwise comparisons (using an α of .05).

The scores on ‘appeal’ were approached in a qualitative way. Each shape gained a score of 1 when preferred, and thus was ticked, over the shape shown next to it. The shape that wasn’t ticked and thus was not preferred gained a score of 0. The scores per shape of all participants where then summed, creating six total scores to compare.

Results

Experiment 1A: search task

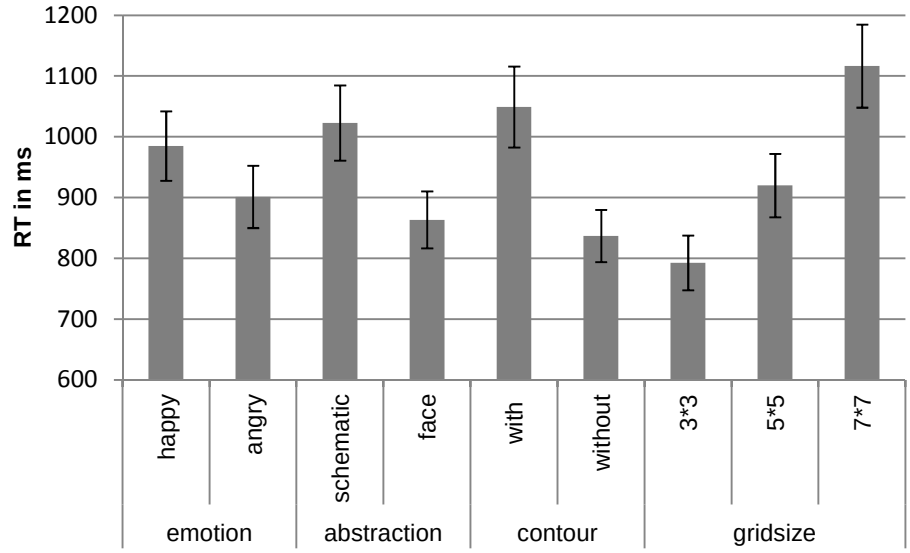

Figure 3. Mean RT's in ms including SE's for emotion, abstraction, contour and grid size.

For emotion, abstraction, contour and grid size a significant main effect was found, Mean RT and Standard Errors are shown Figure 3.

Firstly, the repeated measures ANOVA revealed that emotion had a significant effect on RT, $F(1, 18) = 52.866$, $p < .001$, $\eta^2 = .75$. Pairwise comparisons showed that threatening shapes (M = 901.249, SE = 51.282) were detected more quickly than happy shapes (M = 983.57; SE = 57.08), with a difference in RT of MD = 82.32 (SE = 11.44), $p = <.001$.

Secondly, the main effect of abstraction on RT, $F(1, 18) = 82.27$, $p < .001$, $\eta^2 = .82$, showed that schematic shapes (level 3 and 4) (M = 862.10, SE = 46.27) differed significantly from the face shapes (level 1 and 2)(M = 1022.72, SE = 61.99, with a difference in RT of MD = 160.62 (SE = 17.93), $p < .01$.

Thirdly a significant main effect for contour was shown, $F(1, 18) = 56.64$, $p < .001$, $\eta^2 = .76$. Shapes without a contour were detected more quickly (M = 835.54, SE = 42.41) than shapes with a contour (M = 1049.28, SE = 66.6), with a difference in RT of MD = 213.73 (SE = 28.69), $p < .001$.

Lastly there was a main effect for grid size on RT, $F(2, 36) = 70.91$, $p < .001$, $\eta^2 = .89$. The 3*3 grid (M = 792.61, SE = 44.85) was differing significantly from the 5*5 grid (M = 919.97, SE = 52.10), with a difference in RT of MD = 127.35 (SE = 11.38), $p < .001$. This 5*5 grid again was differing with the 7*7 grid (M = 1116.51, SE = 68.44) with a MD of 196.55 (SE = 25.99), $p < .001$.

Experiment 1B: questionnaire

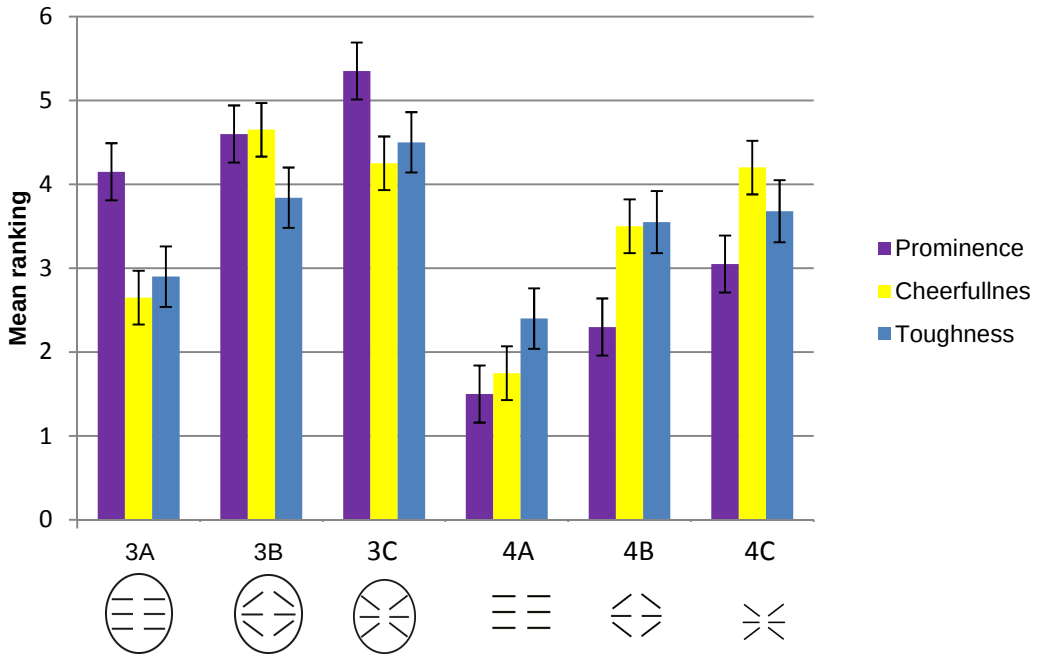

Figure 4. Mean ranking and SE's for each shape on prominence, cheerfulness and toughness.

Firstly, a significant main effect of prominence was found, $F(5, 114) = 36.94$, $p < .001$. As seen in Figure 4, shape 3C ($M = 5.35$, $SE = .24$) scored significant higher on prominence ($p < .05$) compared to all other shapes, except 3B which had a mean of 4.6 ($SE = .24$), with a mean difference of .45 ($SE = .34$). Pairwise comparisons revealed all the other shapes did differ from each other significantly, which is shown in the table of Appendix 2.

Secondly, for toughness a significant main effect was found, $F(5, 114) = 3.68$, $p < .01$. Shape 3C scored highest on toughness ($M = 4.5$, $SE = .36$), which corresponded with the purpose to emit an angry expression, but was not significantly differing with the second highest score. This again was shape 3B ($M = 3.84$, $SE = .37$), which differed from 3C with a MD of .66 ($SE = .52$). However, not any shape was differing significant with the shape scoring one place higher or lower in order.

Also cheerfulness appeared to have a significant main effect, $F(5, 114) = 12.39$, $p < .001$. Shape 3B scored highest ($M = 4.65$, $SE = .32$), consistent with its happy mentioned expression. However none of the shapes did differ significant with the shape higher or lower in order, except for shape 4A ($M = 1.75$, $SE = .32$) which differed with a MD of .9 ($SE = .45$, $p < .05$) from shape 3A.

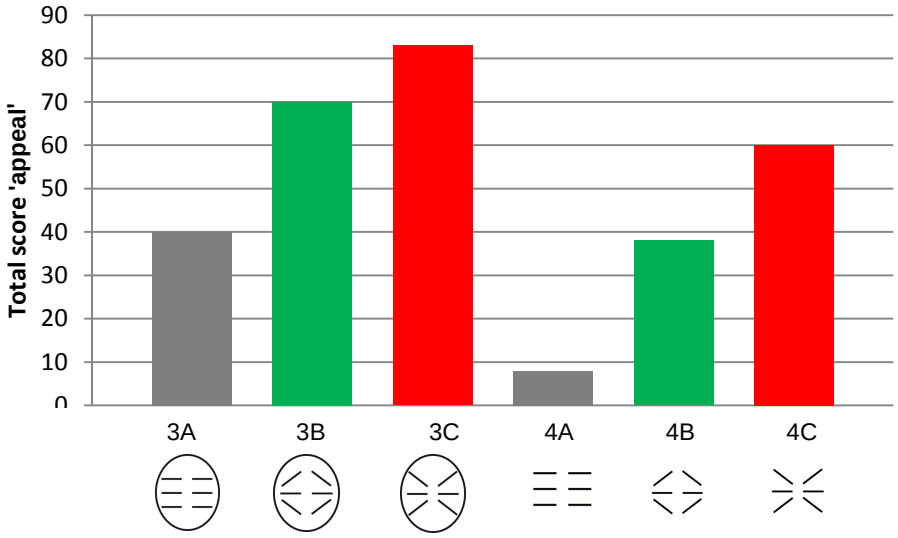

Figure 5. Total scores for each shape on 'appeal' in the 2AFC test.

The scores on appeal were achieved by summation of how often each shape was elected in the 2-AFC answers, by total of all participants (as shown in Figure 5). Shape 3C appealed the most, and was again followed by shape 3B. Overall the threatening shapes were found more appealing (with a total score of 83+60 = 143) than the happy shapes (with a total score of 70+38 = 108). The neutral shapes scored lowest in total (40+8 = 48). As shown in Figure 5, for each emotion, the shapes with contour was preferred over the one without. The shapes with contour scored higher (40+70+83 = 193) than the ones without (8+38+60 = 106).

Conclusion

Experiment 1A: search task

Experiment 1A had identified four factors who should be taken into account when creating an outstanding abstract face. Firstly, angry faces were shown to catch the eye faster than happy faces. Secondly, for quick detection in a field of distracters, the face should rather be represented in a schematic way than a design more similar to a real face. Thirdly, shapes without a contour were standing out more than shapes with a contour. At last, the search task showed that the larger the grid, the higher the response time was, indicating targets were standing out less when presented in larger grids when compared to smaller grids. Although effects of emotion, contour and abstraction were all significant, they were found to be most strong in the strongest grid, and weakest in the smallest grid.

Experiment 1B: questionnaire

Three main conclusions could be made out of experiment 1B about subjective perceptions concerning abstract facial features. Firstly, shapes with a contour appeared to be rated higher on prominence, appeal, toughness and cheerfulness. Secondly, when looking at

prominence and appeal, angry faces were preferred, followed by the happy faces and lastly the neutral ones. At last, neutral faces seemed to be less preferred in general, and were rated low on prominence, appeal, toughness and cheerfulness. This indicated that any emotion, happy or angry, elicits a stronger sense of prominence, toughness, cheerfulness and appeal than a (neutral) facial expression without emotion, even when it is barely recognizable as a face.

Discussion

The conclusions of part 1 of this study were relevant for the further course of this study, the shapes served as guidelines on how emotional facial features should be created in various packaging labels. In the second part of this study those labels had to be used as stimuli, for further researching the effects of emotions in packaging design. The goals of standing out on the shelf and appeal to the consumer were taking into account at the same time, and the researcher handed out a briefing (see Appendix 3) for the design team of Cartils who was going to create those label designs.

Chosen was to include the shapes 3A, 3B, 3C, 4A, 4B and 4C in this second experiment, serving as templates for the new designs, as they were detected fastest in terms of the level of abstraction. The angry shape was detected most quick, and therewith this study's results were in line with the earlier referred findings of Darwin (1872/2002), Hansen and Hansen (1988), Larson et al. (2007), Öhman et al. (2001), Schubö et al. (2006) and Weymar et al. (2011). Nevertheless, it has been decided to take all three, the neutral, happy and angry, emotions in order to investigate the effect of emotions in more detail. As discussed before, literature is not providing clear answers about which emotion catches the eye most quickly and besides, the facial features were not only meant to stand out, but also have to attract to people. For Cartils it was important to find out if it actually matters whether an 'emotion' is present in a package, and if so, which one it would have to be. Therefore was chosen to design labels containing happy, angry and neutral emotions. In addition, both levels 3 and 4, shapes with and without contour, were included. In experiment 1A was shown that shapes without contours were detected more quickly, while in experiment 1B was shown that overall shapes with contours were evaluated more outstanding and appealing, and were perceived as more cheerful and tougher, than shapes without contour. In experiment 1A, the effect of crowding probably resulted in that the more crowded the distracter fields were, the more difficult the target was found. For that reason the shapes without contour could have been detected more quickly and stood out more than those with a contour. Subjective appreciation of the shapes was measured in experiment 1B, and results showed that the shapes with a contour were rated more outstanding. Thus, the effect of contour differed for

prominence and appeal, therefore it was decided to create two lines of one brand: three similar designs of all three emotions with a clear framework around the label, and three similar designs of the three emotions with a more open label. Another benefit of creating two variants of one brand as stimuli, was that it should decrease the esthetic effect of graphical differences between the three designs. It was expected to provide more reliable measurements, because there could be controlled with two kinds of happy designs, two kinds of angry and two kinds of neutral designs.

PART 2

Introduction

Part 1 of this study revealed that it would be useful to create packaging labels based on shapes 3A, 3B, 3C, 4A, 4B, 4C, to test the effect of the latent presence of emotional facial features in packaging designs on in which degree they stand out on the shelf and how they appeal. Taking the results of part 1 and the existing literature in consideration, a design briefing (see Appendix 3) was offered to the design team of Cartils so that they could create labels of one brand which would serve as stimuli in part 2 of this study. While Cartils was specialized in alcoholic beverages, and the main question of this study was aiming for a broad, non specific target population, there was chosen to design beer labels of a non-existing brand. This fictive brand should resemble a realistic, ordinary beer and was called 'Cerves', as shown in Figure 6. In consideration was taken that possible outcomes could be due to graphic design rather than the implemented 'faces'. To strengthen any effects for emotion, two versions of each emotion were created, aiming that both versions of an emotion would show a similar effect. This could decrease the outcome that for example the 'happy one' was preferred just because it was found to be prettier instead of the feeling it evokes.

Figure 6. The six 'Cerves' designs created by Cartils' design team.

For creating two lines of Cerves, also the effect of a contour was taken into consideration, as shown in Figure 7. Therefore the designs of 'Cerves A' came with a clearly framework around the label, based on shapes of abstraction level 3 (with contour) and 'Cerves B' with an more open label, based on abstraction levels 4 (without contour). Both brands A and B came with three slightly deferring variants: neutral, happy and angry. The positioning of the

elements within the label were based on the stimuli of part 1 of this study: coins, medals, grains and banners were adjusted in a way they matched the schematic facial features belonging to each emotion. Attempted was to keep the amount of color equally over the three bottles.

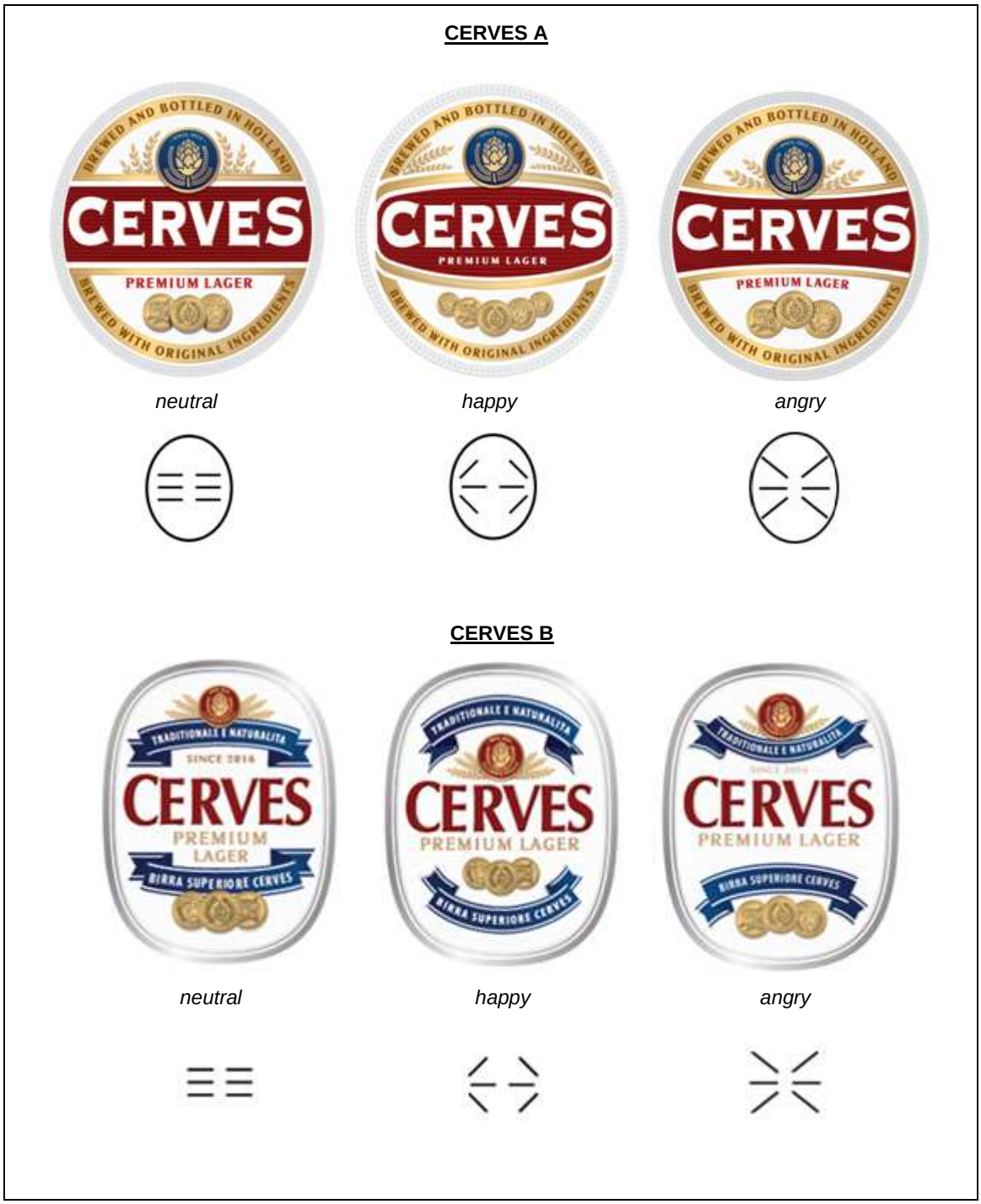

Figure 7. The labels of the designs accompanied by the templates of experiment 1. Cerves A: the neutral, happy and angry design with matching shapes of abstraction level 3. Cerves B: the neutral, happy and angry design with matching shapes of abstraction level 4.

Methods

Experiment 2A: search task

Participants

The 25 participants were personally approached by the researcher and took part voluntarily in both experiments 1A and 1B. This group consisted of eight men and twelve women, ranging in age from 18-60, and with an average age of 32.

Materials

The same materials as mentioned in experiment 1A were used to conduct this search task.

Stimuli

This experiment consisted of three different search tasks with different stimuli, which will be discussed in the order that each task appears.

The first block was the ‘homogenous task’: in these trials a 7*7 hexagonal field was shown existing of 48 neutral distracters (the neutral label) and one target, the happy or angry label. As examples show in Figure 8, the target (the deviating stimulus) appeared random in one of the four quadrants of the field. Inside every quadrant the target appeared on four locations. A total of 2*4*4 = 32 trials took place for Cerves A first, followed by 32 trials of Cerves B, making the homogenous task existing of 64 trials.

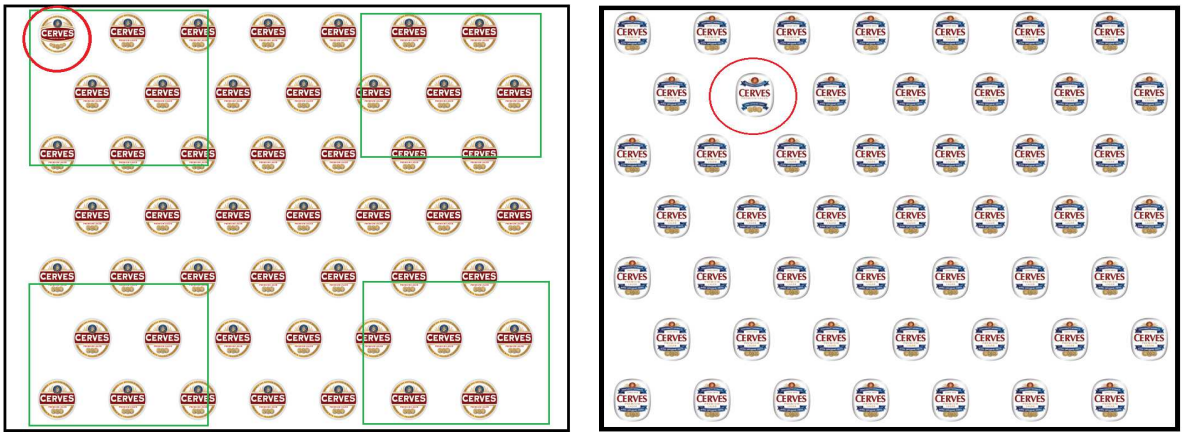

Figure 8. Example trials of block 1: ‘homogenous task’. Left: Cerves A with discrepant target: correct response was key 7. The green rimmed areas were meant to explain the quadrants in which the targets could appear, and were just present in the instruction. Right: Cerves B with discrepant target: correct response was key 7. The red circles were not present in the actual trials.

The second block was called the ‘shelf task’, and was intended to create a more realistic search situation, meaning to represent a shelf more closely (see Figure 9). This time a hexagonal field of 5*5 was shown, filled with 25 beer bottles and their labels. The hexagonal field was jittered this time to vary the distance of the distracters to the target. The field of 25 bottles existed of one design of Cerves, the target stimuli, and the rest of the field

was filled with ten different beer brands for distraction. In every trial the distracters switched locations and compositions, and the target stimuli could be the happy, angry or neutral label. The target again appeared random in one of the four quadrants, and within every quadrant on four locations. Cerves A was tested first, with 3*4*4 = 48 trials, followed by Cerves B with another 48 trials. In total, the shelf task included 116 trials.

Figure 9. Example trials of block 2: shelf task. Left: Cerves A with discrepant target: correct response was key 7. Right: Cerves B with discrepant target: correct response was key 9. The red circles were not present in the actual trials.

The third task was the ‘lab task’. This time the stimuli appeared in a circle of twenty labels without their bottles. Twelve different beer brands were displayed in random compositions again. The target, the happy, angry or neutral variant of Cerves, was shown in one of the four quadrants of the circle. Within every quadrant the target appeared on three locations, creating a total of 3*4*3= 36 trials for Cerves A, and 36 trials for Cerves B. The lab task included 72 trials, making the total experiment (homogenous, shelf and lab task) exist of 64+116+72 = 252 trials.

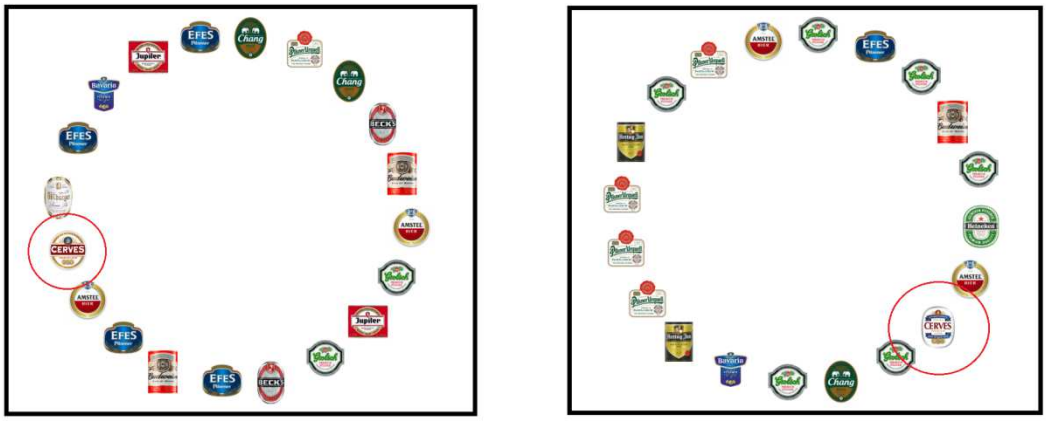

Figure 10. Example trials of block 3: lab task. Left: Cerves A with discrepant target: correct response was key 1. Right: Cerves B with discrepant target: correct response was key 3. The red circles were not present in the actual trials.

In each block first was participated in the trials with Cerves A, followed by the trials of Cerves B. The possible appearing of a learn effect was taken into consideration, but not seen as relevant for the results while comparing the mean prominence of just the two brands was not one of the goals of this study.

Procedure

Participants were seated at a desk and performed the task individually on the laptop. First they read the welcome message on the screen en where then referred to the informed consent which was handed out by the researcher. By pressing the space bar they continued to the instruction of the digital experiment. The detection of the targets and the responses by key pressing were similar to experiment 1. The researcher emphasized that there should be answered as quick as possible and with just one and the same finger, and remained nearby for any questions. Firstly, a screen appeared in which the participant was asked if he was ready for the search task and if so, to press 5. In response to the key press a screen with a fixation dot was displayed, which was replaced automatically for the field after 1000 ms. The participant was instructed to press the key corresponding to the location (quadrant) in which the discrepancy could be seen, as fast as possible. Thus, when the target was shown on the left at the top of the matrix there should be pressed in the left top of the numpad (as shown in both fields of Figure 8 and in the field of Cerves A in Figure 9), which is key 7. When the target appeared on the upper right, key 9 should be pressed (as shown in Figure 9, Cerves B). When the target was present on the bottom left (Figure 10, Cerves A), key 1 had to be pressed, and on the bottom right (Figure 10, Cerves B) key 3 was the correct answer. After the key press, again the screen appeared in where the participant could press 5 for a new trial, when ready.

As mentioned the experiment began with the ‘homogeneous’ task, participants started with a practice session of seven trials of regarding Cerves A. The participant was instructed to find one deviating label in a field of 48 of the same labels. Then a screen appeared, asking if the task was clear and that the participant could proceed by pressing the space bar. The 36 trials regarding Cerves A were performed and then a screen explaining the same task with the Cerves B variant appeared. Participants could continue after each screen to the following session by pressing the space bar. Every instruction screen contained an example of how the trials looked like. Again first a practice session of seven trials was performed prior to the actual task in which performance was measured. After this task participants got to read the instruction of the ‘shelf’ task. This time was explained that they had to search the bottle with label of Cerves A in a field of other bottles of other brands. Again they first performed seven practice trials of Cerves A followed by 48 measured trials. After that, the same practice and measured trials followed for Cerves B. Then the last task was explained, where participants

were asked to search the Cerves label in a circle of labels of other brands. In the same way the 'lab' task existed of seven practice trials and 36 actual trials for both Cerves A and B. The last screen informed the participants they finished the search task (experiment 1A) and that they could call the researcher. The participant then continued with the questionnaire (experiment 2B), as will be further explained.

Analysis

For analyzing all three tasks a repeated measures ANOVA was conducted, with response time (RT) as dependent variable. Independent variables emotion, brand and test were compared using the mean of the medians per participant of the RT for each shape. Post hoc analysis with Bonferroni corrections were conducted for pairwise comparisons (using an α of .05).

For the homogenous task, emotion (two levels: happy and angry) and brand (two levels: Cerves A and Cerves B) served as within-subject factors. For both the self and the lab task a repeated measures ANOVA was conducted with emotion (three levels: happy, angry and neutral) and brand (two levels: Cerves A and Cerves B) as within subject factors. While the shelf and lab test both contained three levels of emotions (happy, angry and neutral) and two levels of brand (Cerves A and B), a repeated measures ANOVA was used to analyze the results of both tests together, with 'test' containing of two levels (shelf and lab).

Experiment 2B: questionnaire

Participants

The same group of participants as in experiment 2A took part in experiment 2B.

Materials & stimuli

As shown in Figure 11, six 'real life' bottles were created, by attaching the label designs to existing filled beer bottles. On the caps a logo of the University of Utrecht was pasted. The bottles were made of translucent green glass. The bottles were showed in a white carton box, to exclude the effect of background and the order of putting them down. The box was shown to the participants on eye level at a distance of 2.5 meters. The participants wrote answers on a paper reply form and the researcher made notes of the participants' reactions.

Figure 11. From left to right: stimuli Cerves A happy, angry and neutral, and Cerves B happy, angry and neutral.

Procedure

The researcher revealed the box with three bottles to the participant. Cerves A was always shown together in one box, so was Cerves B. The order in which each Cerves brand was shown first was randomized. Also the order of the three bottles from left to right was randomized, so that 'neutral', 'happy' and 'angry' differed from position for each participant. The researcher asked the participant which bottle he or she would choose if he or she would have to buy one. Explained was that the context of the question was a standard location in which beer is sold, like the café or the supermarket, and that the participant should just follow his or her feeling by making the decision. The participants were instructed to write down the order of preference of the three bottles on the reply form. Then the researcher interrogated the participant to find out on what their decisions were based. Following to this first round, the other Cerves design was shown and tested on the same manner. After that, the experiment was finished and the participants were thanked for their involvement.

Analysis

For analyzing the questionnaire in which designs had to be ranked in order of preference an one-way ANOVA including a Post Hoc Bonferroni analysis was conducted to compare the mean scores per bottle and their differences (using an α of .05). For each bottle, a score of 1, 2 or 3 was assigned per participant. When a bottle was most preferred, a score of 3 was assigned, the least preferred bottle scored 1.

The answers given by the participants to the open questions were analyzed qualitatively. The researcher made notes of the answers to the open questions directly. The results were analyzed through categorizing and coding the answers. Ten categories were found, in which the open answers of the participants could be subdivided.

Results

Experiment 2A: search task

Homogenous, shelf and lab test

Results (M and SE) of all three tests were shown in Figure 12. Firstly, analyzing the homogenous test, for emotion and brand independently no significant main effects were found. There was a significant interaction effect of emotion and brand, $F(1, 24) = 6,83$, $p < .05$, $\eta^2 = .22$. The angry design of Cerves B was detected faster (M = 4290.89, SE = 544.31) compared to the other designs.

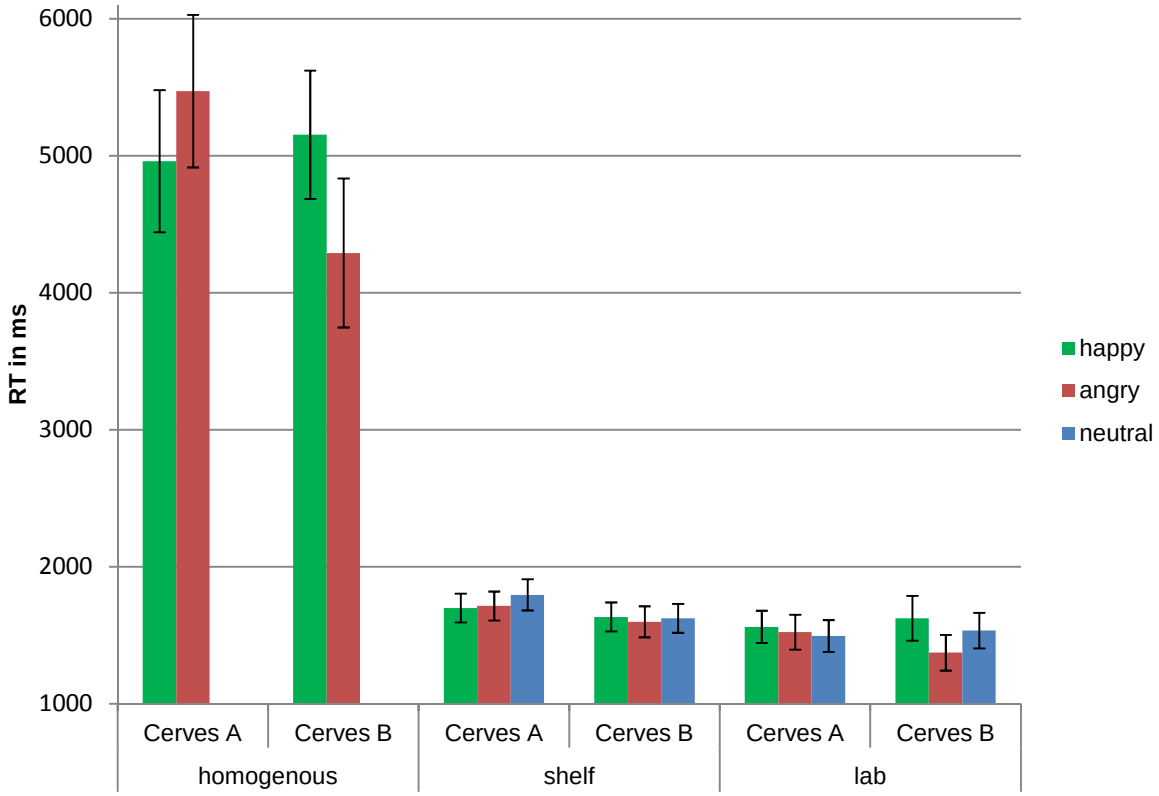

Figure 12. Mean RT's and SE's of brand and emotion in the homogenous, shelf and lab task.

Secondly, when results of the shelf test were analyzed, no significant effects were found at all.

Thirdly, a significant effect of emotion was found analyzing of the lab test, $F(2, 23) = 3.49$, $p < .05$, $\eta^2 = .23$. Pairwise comparisons revealed that the angry designs (M = 1446.71, SE = 125.44) were detected significantly quicker (MD = 145.45, SE = 53.87, $p < .05$) than the happy designs (M = 1592.16, SE = 136.77). Second, an interaction effect of emotion and

brand was found, F(2, 48) = .92, *p* < .05. The angry design of Cerves B appeared to stood out (M = 1371.95, SE = 130.81) most, literally as well as seen in Figure 12, and was detected fastest of all designs.

Shelf & lab test

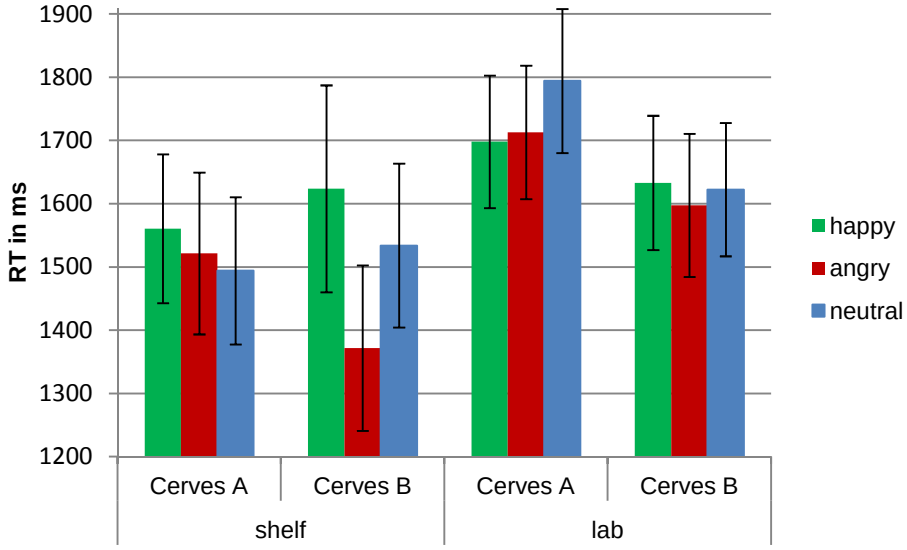

Figure 13. Mean RT's in ms and SE's of emotion, brand en test in the shelf and lab test.

Significant main effects for emotion and for test were found when analyzing the shelf and lab test together (see Figure 13). Firstly, emotions were differing in RT, F(2, 23) = 4.12, *p* < .05, η^2 = .26. Although the effect was not significant (MD = 77.85, SE = 30.93, *p* = .057) pair wise comparisons revealed that the angry designs (M = 1551.04, SE = 105.90) were detected faster than the happy designs (M = 1628.89, SE = 111.45). The mean RT of the neutral designs scored in between the mean RT's of both emotions and did not differ significant with either of them.

Secondly, the repeated measures ANOVA showed a difference between the shelf and lab test, F(1, 24) = 6.59, *p* <.05, η^2 = .22. In the lab test (M = 1517.65, SE = 123.36) participants scored a lower mean RT (MD = 158.81, SE = 61.89, *p* <.05) than in the shelf test (M = 1676.46, SE = 96.26). Because the shelf and lab test did differ significantly differed from each other, shown was that targets were standing out more in the lab test than in the self test.

Experiment 2B: questionnaire

Order ranking

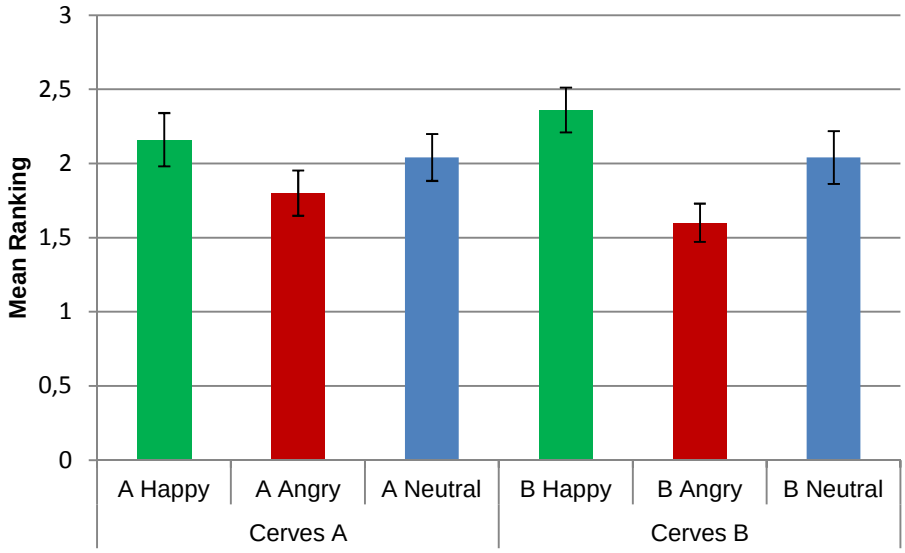

Figure 14. Mean scores per design, when ranked by preference from 1 to 3, for both Cerves A and B.

A significant effect was found comparing the preferences of the bottles, $F(5, 144) = 2.83$, $p < .05$. Post hoc analysis revealed that only Cerves B angry and Cerves B happy differed significantly from each other (MD = .76, SE = .23, $p < .05$). Although not significantly, Cerves B happy scored highest (M = 2.36, SE = .15) followed by Cerves A happy (M = 2.16, SE = .18). On an equal third place the neutral variants of Cerves A (M = 2.04, SE = .16) and B (M = 2.04, SE = .18) were found, followed by Cerves A angry (M = 1.8, SE = .15), and the lowest score was obtained by Cerves B angry (M = 1.6, SE = .13).

Open questions

Comments about the designs were divided in ten categories: ‘fluency and contrariness of the lines’, ‘amount of coins’, ‘character and feeling’, ‘habituation with the homogenous task’, ‘openness, one whole and positioning’, ‘letters’, ‘prominence’, ‘quality’, ‘catchiness and appearing’, and ‘pretty or ugly’.

An often heard reasoning concerned the directions of the ‘lines’ within the label. With lines the ribbons, grains, coins and shape of the banner were meant. Often the lines flowing with the shape of the label -representing the happy expression- were preferred. The contradicting lines in combination with the label –visible in the threatening expression- were found unattractive most times. Round forms were appreciated. On the other hand, a few participants had an opposite opinion and liked the opposite positions of the lines, or just liked

horizontally and straight shapes – which was seen in the neutral expression.

Another often heard remark was about the openness, the positioning of the elements, and the label as one whole. At Cerves A, it was seen as a negative aspect by all three designs. At Cerves B it was mentioned at all designs positively and negatively. A preference was found for a demarcation of the ribbons within Cerves B, thus the happy design. Both threatening designs were described as not one whole.

Prominence also was an argument for preferring a label. This comment was always intended positively, and was heard at comments of all six of the bottles.

The remarks about character and feeling of the designs was consistent with their intended expression. Cerves A happy was called cheerful, soft and friendly. Cerves B happy was called charming an calm, but also old-fashioned (in a negative way). Both neutral designs were described as boring, ordinary, hard looking and lacking atmosphere.

When discussing Cerves A happy, the coins were an often named subject. Four people disliked that the presence of five coins, instead of three coins as in the angry and neutral variant, while two people did like this.

Concerning quality of Cerves A, the angry design scored only positive and the neutral design only negative. The happy design had both positive and negative evaluations on quality. At Cerves B, the happy and neutral designs scored only positively, the threatening design only negative on quality judgment.

Interestingly, multiple times comments were made about the presence of the neutral design in the first task of experiment 2A influencing their preference. In that case the participants preferred the neutral design for that reason.

Three other categories were made concerning the letter type, the catchiness and the opinions of just called ugly or pretty. No relevant distinctions between the designs could be made on these themes.

Conclusion

Three main findings were done in part 2 of this study. Firstly, results of the lab and shelf test together concerning the prominence of the emotions, pointed to that angry designs stood out more than happy ones. Also in the lab test analyzed independently, the angry designs were detected faster than the happy designs. An overall conclusion can be made that it is advisable to use angry looking labels, and not happy ones, when creating labels designs that have to stand out most.

Secondly, the shelf test and the lab test were compared and did differ in mean detection speed. During the lab test, participants needed less time to detect the target than in

the shelf test. Also, while the results of the lab test showed effects of emotion on prominence, no relevant effects appeared in the shelf test at all. Out these finding could be assumed that the labels stood out more in an experimental setting than in a ‘more real-life setting’. Another comparison between test was done, the homogenous was meant to replicate the methods and results of experiment 1A, in which angry shapes seemed to be detected more quickly than happy shapes. However, no difference could be found between detection speed of the happy and angry designs, nor between the two brands. If the label designs were compared to each other however, the angry design of Cerves B seemed to stand out most of all label designs. Nevertheless, this finding was not sufficiently strong to argue that the emotions, regardless of whether they were implemented in the shapes or in the labels, appeared to show the same effect when measured by a comparable method.

Thirdly, next to prominence, appeal was a relevant factor in packaging design. The happy designs were found most appealing, for they were rated as most likely to buy. In second place participants chose the neutral variants of Cerves, and the angry designs were the least popular. The order of preferences was the same for both Cerves A and B, indicating that the sequence of emotions was not just by coincidence. Also no considerable differences were found in Cerves A and B for prominence in all three search tests, emphasizing the difference between the three emotions. Assumed was that the designs of Cerves A and B matched correctly per emotion, enhancing the reliability of the effects found for happy, angry or neutral designs. This confirmed the reason there were created two brands in the first place. The graphical display of the label was an often heard argument for the ranking of the designs by participants. The embedded elements of the happy designs were often preferred to the incoherence of the angry designs. Whether it was due to the emotion that the label aroused, or that the graphic structure of the happy design is just found to be more appealing, overall a preference for happy labels was existing and threatening labels were liked least.

General discussion

Selling emotions

What happens when your beer smiles at you has been found not straightforwardly explainable. The main goal of the present study was to prove an effect of latent emotions in packaging labels on firstly, how much these would stand out on the shelf, and secondly, on how they would appeal to the consumer.

When comparing happy, angry and neutral label designs on prominence, results showed that generally angry labels were standing out the most. This finding was consistent with results of earlier research, which showed that angry emotions 'pop out'. Although not all search tasks showed this effect that powerful, assumptions for further research concerning latent emotions in packaging design would direct to a focus on 'angry looking' designs. But, standing out on the shelf is not the only factor that should be taken in consideration when latent emotions are created in packaging design. Not only should the package catch the eye of the consumer, the package secondly has to hold their attention and at the same time evoke the right feeling, and attract to them in a way they want to buy this product. This study showed that happy designs were found most appealing. Angry designs even were found to appeal the least, happy and neutral designs were preferred over it. Thus, emotions were not consistent in their effects on prominence and appeal. Therefore no clear advice in marketing strategies could be given to if, and so, which emotion should be used in packaging design, because both prominence and appeal are relevant in consumer behavior. Nevertheless, this study proved that effects of facial features in packaging labels on the consumer can occur and further research to examine those effects in more detail is recommended.

Testing emotions

Next to the effect of emotions, assumptions could be made concerning the used methods in this study. The strongest effects for all variables on prominence were found in the tests that were set up in a more experimental context, like in experiment 1A and in the lab task. When tests were conducted in a 'real life' approach, as in the shelf task, these effects were shown to decrease. Though, the homogenous test was a typical 'experimental' test but didn't show clear effects on prominence. Assumed was that this result was due to the display of the stimuli, in which it took long for participants to detect the target. Because response times were notably high compared to the other search tests, indicated was that instead of catching the eye, the target was detected by scanning the field of distracters, making it questionable if 'standing out on the shelf' was measured in a reliable way. For further research is recommended to make sure that in each trial the target catches the eye, and that not the whole field of distracters should be scanned for detecting the target. Therefore, the number

of distracters shouldn't be too big, and the deviation between the target and the distracters shouldn't be too small.

Another recommendation for future research is to include a control variable, not containing any facial features or indication of a face at all, in the study design. In that case, happy and angry, but also designs containing a neutral emotion (in which facial features still can be seen), could be compared to designs without emotion. The added value for facial features could then be tested in more detail. This 'faceless' control ,label was excluded from this study design, because at the time the beer labels were created Cartils went bankrupt and no time was left for creating this variant within Cerves A and B.

Everlasting duality

Even if the results of this study could have given a clear answer to if there should be used emotions in packaging design, the question will remain about if effects are due to the emotional value of the designs, or due to the esthetic aspect en graphical display of the labels. As found in the qualitative measurement of the designs, the graphical display was of big influence on which bottle was preferred. Over all, it seems hard to determine in which degree an evaluation or feeling about a package is based on graphic design and to what extent on the emotion that it contains. Therefore it is hard to point out to the preference for emotions in packaging design, even when there would be found yet such a strong effect of it. But actually, for marketing goals it wouldn't be of such relevance, as long as the effect is of positive influence of consumer behavior.

Recommendations for Cartils

While 'emotional packaging', in the way of creating abstract facial features in labels, is an unfamiliar area for both the psychological field as in marketing research, further research could provide interesting additional assumptions for both perspectives. Creating more brands than just two, as in this study, could lead to more powerful statements.

Deviating from the initial goals of Cartils, the methods used in this study can provide a useful tool for measuring prominence and appeal of packages. When in the future packaging designers and marketing strategists are faced to choices between different designs of one brand to be launched, testing and comparing using the methods of part 2 of this study could point out to which design works best. The present study provided evidence that a more experimental setting, like the lab test, may even measure prominence better than a more real-life setting (the shelf test). Therefore it would be advised to, next to field research, use these relatively 'simple' practicable experimental tests for measuring effects of packaging designs.

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APPENDIX

Appendix 1: *Questionnaire experiment 1A*

SCHRIFTELIJKE VRAGENLIJST

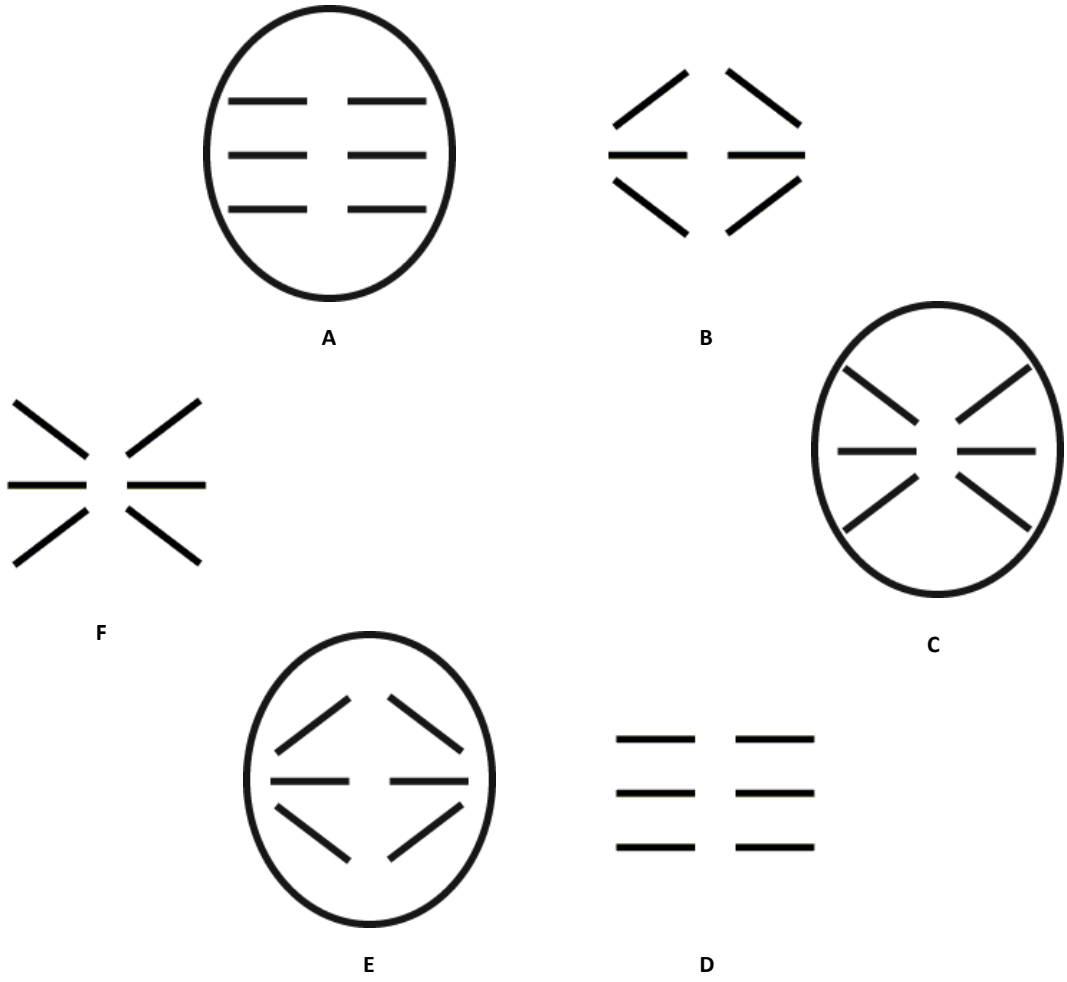
U bent vanuit het digitale experiment doorverwezen naar dit vragenformulier. Er wordt u gevraagd schriftelijk enkele vragen te beantwoorden, alvorens u weer verder gaat met het digitale experiment. Daarnaast vindt u op de volgende pagina een instemmingformulier (toestemmingsverklaring), welke u dient te ondertekenen voor aanvang van dit onderzoek.

Ga vervolgens bij het beantwoorden van de vragen af op uw eerste gevoel, enige logische/rationele onderbouwing van uw antwoordkeuze is niet van belang voor dit onderzoek. Uw eerste ingeving is het beste antwoord!

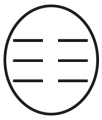
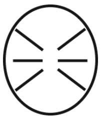
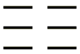
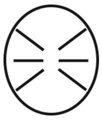
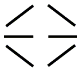
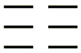
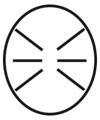
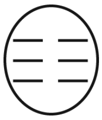
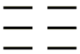
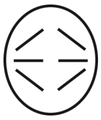
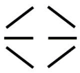
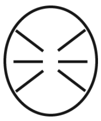
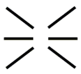
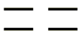
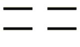
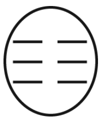
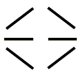
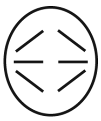
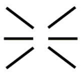
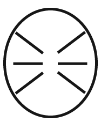
1. Geef van onderstaande zes vormen aan welke u het **meest op vindt vallen**.

Noteer de cijfers behorend bij de vormen op volgorde van meest opvallend (links) naar minst opvallend (rechts).

Meest opvallend *Minst opvallend*



2. Geef in onderstaande tabel steeds op elke regel aan welke van de twee vormen u **het meeste aanspreekt** (links of rechts). Zet een kruisje in het lege hokje rechts naast de desbetreffende vorm.

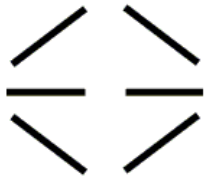
			
			
			
			

3. Geef van onderstaande zes vormen aan welke u **het meest vrolijk** maakt.

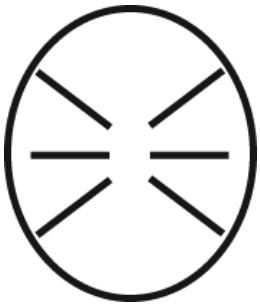
Noteer de cijfers behorend bij de vormen op volgorde van meest vrolijk (links) naar minst vrolijk (rechts).

Meest vrolijk *Minst vrolijk*

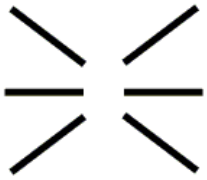
A



B

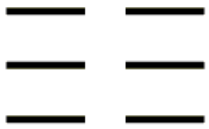


C



F

E

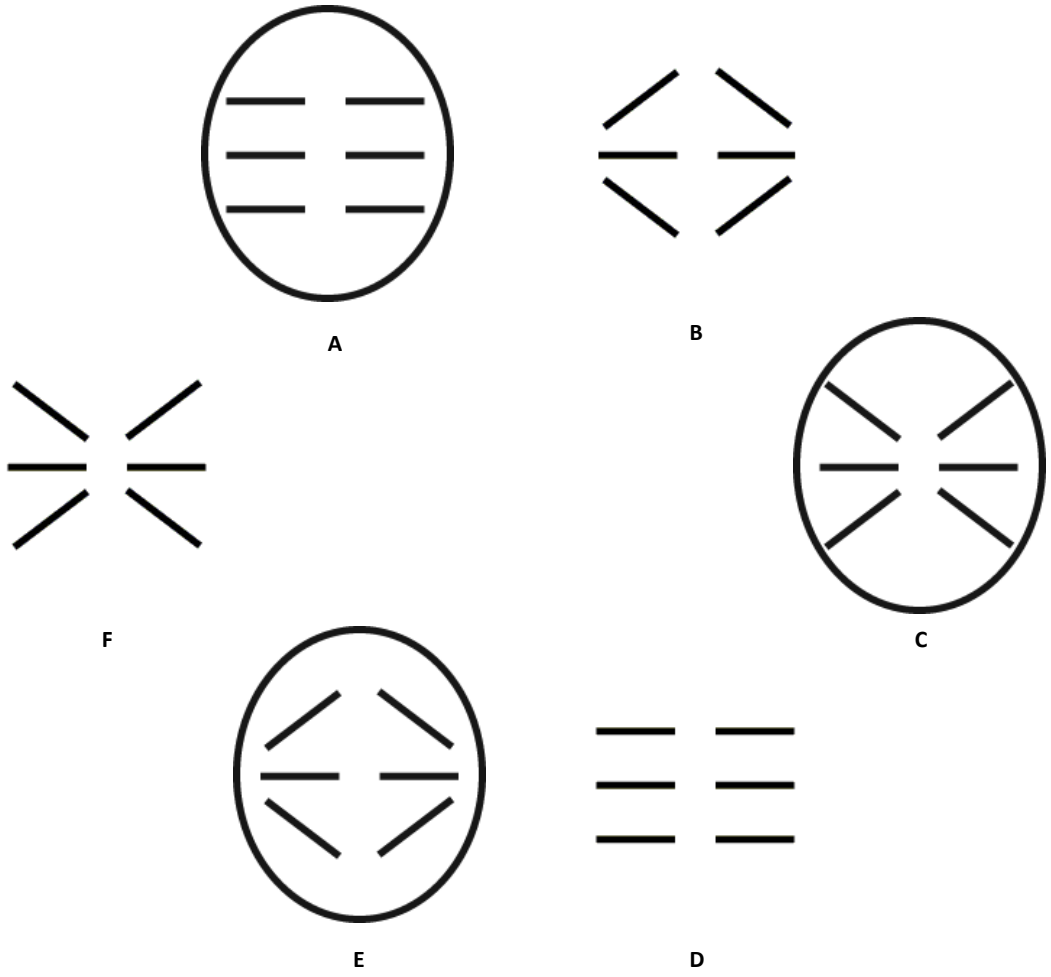


D

4. Geef van onderstaande zes vormen aan welke u het **stoerste** vindt.

Noteer de cijfers behorend bij de vorm op volgorde van meest stoer (links) naar minst stoer (rechts).

Meest stoer *Minst stoer*



Dit is het einde van de schriftelijke taak.

U kunt verder gaan met de digitale taak op de laptop door op de spatiebalk te drukken.

Appendix 2: *additional tables for experiment 2A*

Table 1. *Mean (M) ratings and Standard Errors (SE) per Shape on Prominence*

Shape	M	SE
3A	4.15	.24
3B	4.60	.24
3C	5.35	.24
4A	1.50	.24
4B	2.30	.24
4C	3.05	.24

Table 2. *Bonferroni comparisons for Shape on Prominence*

Shape Comparisons	MD	SE	Sig.
3A vs. 3B	1.85	.34	.000
3A vs. 3C	-1.20	.34	.001
3A vs. 4A	2.65	.34	.000
3A vs. 4B	-.45	.34	.189*
3A vs. 4C	1.10	.34	.002
3B vs. 3C	-3.05	.34	.000
3B vs. 4A	.80	.34	.020
3B vs. 4B	-2.30	.34	.000
3B vs. 4C	-.75	.34	.030
3C vs. 4A	3.85	.34	.000
3C vs. 4B	.75	.34	.030
3C vs. 4C	2.30	.34	.000
4A vs. 4B	-3.10	.34	.000
4A vs. 4C	-1.55	.34	.000
4B vs. 4C	1.55	.34	.000

*not significant: $p < .05$

Appendix 3: *briefing to Cartils' design team for creating label designs*

Design Briefing: *'Smiling packaging'* *14-04-2016*

Introduction

This briefing is for my graduation project, about the influence of latent ('hidden') features of facial expressions in packaging design on the consumer. It would be very helpful if you could find the opportunity to create different designs of existing beer labels, to serve as stimuli in my experiment.

Background

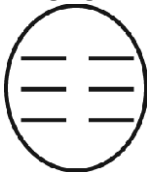
The subject of 'smiley's' in packaging design has evolved from the fact that people always tend to unconsciously draw their attention to faces. It's a natural phenomenon which is studied in a wide range in the scientific field, from evolutionary psychology to the marketing field.

These advertisements prove through the technique of 'eye tracking' that most attention is drawn to faces.

But it's not just real faces who are detected easily, people tend to quickly see faces in lifeless object too. Cartils is wondering if this phenomenon could be used in advantage for packaging design.

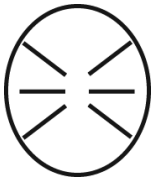
Case

I finished my first experiment in which I have mainly researched which emotion (happy or angry) draws the most attention, and thereby in which degree of abstraction the face should be present to be detected most quickly. Results led to the conclusion that the following structures should be used like 'molds' in packaging design to further test the effect of 'smiling' packaging.



1. 'Neutral' structure

2. 'Happy' structure



3. 'Angry' structure

Design guidelines

Two beer brand designs are chosen as a basis for the creation of designs who will serve as stimuli in experiment 2, under the name 'Cerves'. Out of both designs, a 'neutral'(1), a 'happy'(2) and an 'angry'(3) version have to be created (six designs in total), based on the structures. The resulting designs have to be perceived as credible common beers which can be found in every supermarket or bar.

Brics-based design: Cerves A

First the design of 'Brics' (a fictive brand created for an earlier study) needs to be redesigned in such a way that the structures are subtle present in the label. Little adjustments using existing elements of the base file should form the 3 structures. The following guidelines for Brics are quite specific, but there is space for the designer's professional creative interpretation.

A: This border should be less prominently present.

B: These grain straws are now pointing upwards, which is useful for the happy variant (A2). For the neutral variant (A1) they should be horizontally placed. For the angry variant (A3) they should be pointing downwards, and from the top of the emblem instead of the bottom as they are now.

C: The (edges of) the banner should be straight horizontal lines in the neutral variant. In the angry variant the upper side should be formed in a 'V' shape while the down side should be formed as a downwards pointing 'V' (based on the structure). In the happy variant this adjustment should be made the other way, so a downwards pointing 'V' on the upper side and a 'V' on the down side.

D: The name should be changed in 'Cerves'. If preferred the same font type can be used.

E: Just like the grains, the coins have to underscore the lines from the structure. So in the way they are placed now, they represent the happy version. When the coins are placed right next to each other they can be used in the neutral version, and when in a downwards pointing 'V' the angry version. There's also the possibility to create more coins in the line, to add grains or locate the objects different for instance.

Peroni-based design: Cerves B

The Peroni design is chosen as a basis for the second set of stimuli because of its more open structure (compared to Brics). The designs (B1, B2 & B3) that need to be developed are expected to have:

- A logo positioned in the middle, but without a banner.
- Elements at the top and bottom that frame the graphics and can be used to create the 'V-shapes' that indicate the eyes and mouth of the face (like the ribbons in the Peroni design, but more modern)

- An ‘open border’ (the two elements are not connected in a way that they form a closed border).
- Other elements – like the coins and grains – can be used to add beer expectation

The elements used to build this design can be translated from the graphical elements used in the Brics-based variants.

For both brands the neck labels can be adjusted to the front labels.