The emotional impact of packaging design. An eye tracking analysis

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Abstract

Improvement of merchandise appeal, increasing the willingness to buy, advertisement of product modifications - there are several reasons why packages are often designed to have an emotional impact on consumers. In this paper, the emphasis is set on user reactions to packaging design.

We present the results of an eye tracking study, where user reactions to (prescription only) pharmaceutical packaging with rather simple, restrained designs are compared to the more sumptuous styling of chocolate boxes. Differences in user reaction/information reception are described and implications for packaging design discussed.

Keywords: packaging; paper and ink interaction; print quality and measurement

1. Introduction

Product packaging has to fulfill multiple functions: in addition to the physical protection of the product, it has to relay a wide range of information (cf. Berndt & Sellschopf 2011) - e.g. on product properties, its application or usage, origin and price.

In addition, it is an important marketing instrument as well - ensuring brand recognition, product differentiation and increasing the willingness to buy (cf. Hinz & Weller 2011). An important task in packaging design is to create designs that reconcile all of these requirements, in order to satisfy the consumer's need for information while simultaneously creating a favorable emotional impact desired by the producer.

As it is difficult to achieve all of these objectives at the same time, packaging design often needs to compromise, only partially achieving one aim in order to reach an objective with a higher priority. Evidently, it is dependent on the product which of these requirements is more important: In pharmaceutical packaging, for instance, customer information on active ingredients and dosage is certainly much more important than it is in chocolate packaging - where, on the other hand, marketing goals may be of a higher significance.

Thus, objectives in packaging design differ, leading to a different use of visual components (text, images, color etc.) depending on whether the main focus is more on information transfer or rather on stimulating emotional responses. By using different layouts and designs, designers intend to cause different user reactions, thus hoping to initiate changes in the customer's perception and cognition.

Increasing the emotional appeal of products has recently become a major trend in brand communication (cf. Munzinger & Musiol 2009, 125; Busch 2007, 5). Today, products have to compete with hundreds of others in the shelves (Munzinger & Musiol 2009, 235), whose properties are becoming increasingly similar (cf. Hinz & Weller 2011, 234). This decrease in product differentiation makes it necessary to find other ways to distinguish a product or offering from its competitors. As the emotional impact of a product (or its packaging) is considered to influence the consumer's behavior, motivation and (buying) decisions (cf. Bittner & Schwarz 2010, 18) it is supposed to be an interesting tool to stir desire and produce sales (Munzinger & Musiol 2009, 16).

It is generally assumed that packaging design indeed *does* stimulate emotions, and that the emotional impact packaging design has on consumers is influenced by such factors as the size or shape of the packaging, graphic and surface design, color or typography (cf. Hinz & Weller 2011, 236; Duchowski 2007, 263). These visual marketing stimuli are thought to influence the consumer's perception and information processing (cf. Wedel & Pieters 2006, 37 ff.), thereby attracting and guiding his attention (Munzinger & Musiol 2009, 50 f).

While some authors are convinced that emotions are the key to improve sales, discuss case studies and promote "emotional selling" (e.g. Bittner & Schwarz 2010), others state a lack of literature or well-developed theories (Tapio Neuwirth 2008, 25) or note that some methods used in practice are based upon outdated beliefs and theories on advertising appeal (Munzinger & Musiol 2009, 215).

Recently, eye tracking has been considered to be a reliable tool to measure user reactions to visual stimuli (Busch 2007, 5). Wedel and Pieters (2006, 2) state that in the last decade, there has been a rapid growth in commercial applications of eye-tracking technology to assess the effectiveness of visual marketing efforts - and that the recognition of the central role of attention in consumers' cognitive processes and behavior and the realization that eye movements are an accurate reflection of these processes has furthered the use of eye-movement research in academia as well (l.c., 45). Though they concede that more research is needed to address the effects of the informational and emotional content of visual marketing stimuli on attention (l.c., 60), and Duchowski (2007, 262) states that the use of eye trackers is not often well documented or otherwise advertised (he speculates that advertising companies do not wish to disclose the usage of eye trackers because they fear that this might be perceived by the buying public as somewhat devious (l.c., 274)), they also consider eye trackers to be valuable tools in marketing research (l.c.).

Although most of the research published addresses issues like copy testing, print advertising, or ad placement and is not especially focused on packaging design (l.c.; Busch 2007; Wedel & Pieters 2006), some of the results describing user reactions to these visual stimuli may certainly apply accordingly to packaging.

Some results that might be applicable in general are, for instance, that *pictures* have a high tendency to attract attention (Wedel & Pieters 2006, 50), are traditionally believed to have a higher emotional impact on consumers than textual information (Munzinger & Musiol 2009, 67) and therefore may be particularly suited to add an emotional appeal to a product (Busch 2007, 5). *Brand or logo elements* are also considered to be crucial in integrating information and in routing the consumer's attention (Wedel & Pieters 2006, 51). Besides, it seems that the style of a pictorial is able to influence the emotional appeal - color photos, for instance, tend to be interpreted as realistic and honest, whereas black and white photos create a more nostalgic and outdated impression (Seeger 2009, 366).

Compared to *text*, pictures are said to have some additional advantages - for instance, that pictures are better suited to catch the viewer's attention and could be processed more quickly (Busch 2007, 40 f.) - which might lead to the assumption that reading is a rather tedious task and that text, therefore, is not very well suited for marketing purposes.

Using eye tracking technology, assumptions like these can now be put to a test, and it can be determined if results from other fields of application are valid for packaging design as well.

The aim of this study was to identify differences in consumer reaction to various packaging designs. Objectives of research were to find out, if specific viewing patterns could be identified for emotional appealing and non-emotional packaging designs, respectively, and if characteristic differences could be detected. Next, it was to be determined which design elements (product names, product shots, brand names, logos etc.) got most of the attention, and which ones attracted the attention of the viewers first. Regarding the relationship between images and text, it was to be tested if pictorial elements got higher attention values than textual elements, and if this was always the case (or if, for instance, pharmaceutical packages got higher attention values for text and chocolate boxes higher values for pictures). At last, in a post-test survey, the test participants were asked to assess the emotional impact of the test samples and to specify which design elements influenced this assessment most.

Half of the designs that were chosen for the test were packages for prescription-only drugs. As they are not to be sold over the counter, marketing issues can be assumed to be of minor importance, the main focus being on information transfer. These packages were assumed to have a rather simple, restrained design. To obtain a sufficient amount of test samples, two pharmacies that deliver presorted drugs to nursing homes were asked to collect their left over packages over a period of two weeks. As it turned out, not all prescription-only drugs had minimalistic packaging designs. Therefore, the following criteria were defined that were likely to increase the emotional impact of a packaging design in the view of the authors: nonstandard typography, multi-colored designs or colored backgrounds, color gradients, ornamental images or elaborate logos, trim lines, gloss lamination or embossment. For the test, six test samples were chosen at random that met at most two of the criteria named above. As a control element, one package was chosen that met five of the above criteria (five being the maximal number of matches that any of the packaging designs achieved).
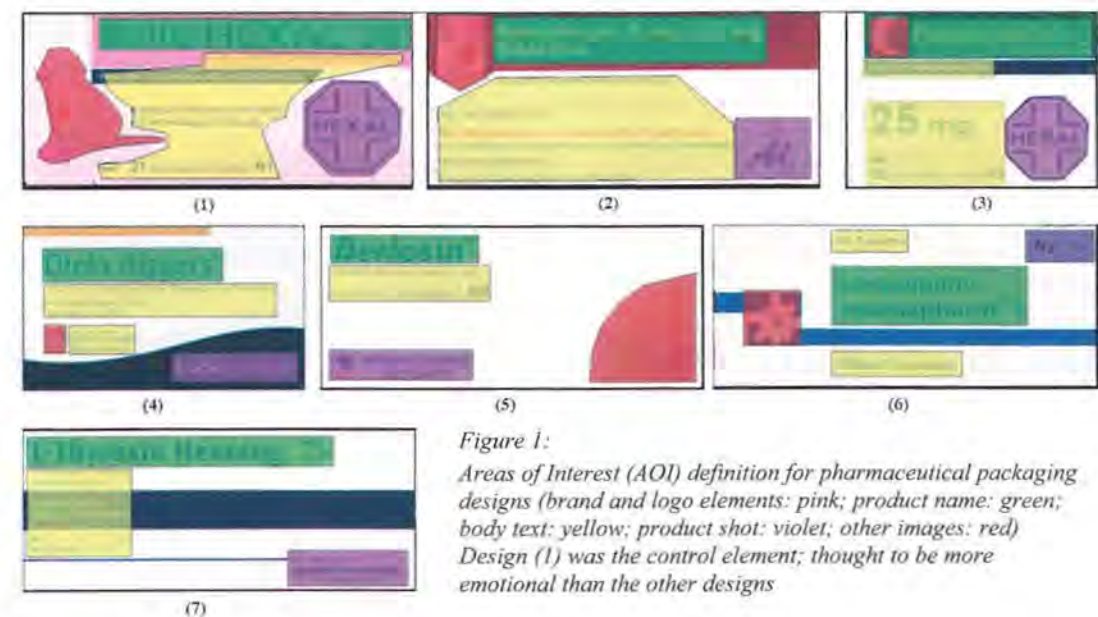
The other half of the test samples were chocolate boxes that had a more salient, sumptuous styling. Here the design was focused on providing buying incentives and increasing the merchandise appeal, whereas product information was of minor importance (at least compared to pharmaceutical packaging). To find packages with a rather high merchandising appeal, the authors decided to choose products that were both well-known and successful. The samples were selected by analyzing the best seller list of a specialist web shop for chocolates and other sweets (details can be found in Lipfert 2012, 38 f.). Again, the choice was narrowed by defining certain criteria: All seasonal goods and packages with obtrusive discount markers were excluded as well as those with transparencies, holograms, embossment or other effects. For the sake of simplicity, all samples had to be available in German stores as well. As before, six test samples were chosen, supplemented by one control element that contained less images and more text and was therefore assumed to be less emotional than the others.

2. Research and methods

The eye tracking tests that will be described in this paper was performed at the Leipzig University of Applied Sciences (HTWK Leipzig) in October 2011 (Lipfert 2012). The research design of this study being as follows:

Subjects:

Twenty fourth-year students (14 males, 6 females) studying Media Technology at HTWK Leipzig were recruited for the experiments. They had normal or corrected vision, and their ages ranged from 18 to 34 years (23.3 on average). Although they all attended basic lectures on visual media design in their first year, none of them had special knowledge in packaging design.

Figure 1:
Areas of Interest (AOI) definition for pharmaceutical packaging designs (brand and logo elements: pink; product name: green; body text: yellow; product shot: violet; other images: red) Design (1) was the control element; thought to be more emotional than the other designs

Stimuli:

Because the eye tracking system used for this test was computer-based, two-dimensional reproductions of the fourteen sample packaging designs were shown to the test participants on a 17" computer screen in random order[1]. To use the screen resolution to its full capacity, all samples were in landscape format, and to improve the quality of the samples, all packages were both scanned and reproduced photographically and then combined and retouched using an image processing program to obtain a realistic recreation.

These fourteen designs (seven chocolate boxes and seven pharmaceutical packages) were then shown to the subjects on a dark background; one sample at a time, each display lasting five seconds. All participants saw the pharmaceutical packages first and the chocolate boxes afterward. Within each group of packaging

[1] For a more detailed discussion on using digital images instead of real packages for the visual assessment of visual packaging designs, please cf. (Laine et al. 2010).

designs, the stimuli were displayed in random order. Using eye tracking technology, the overall distribution of attention was analyzed in order to identify differences in user reaction.
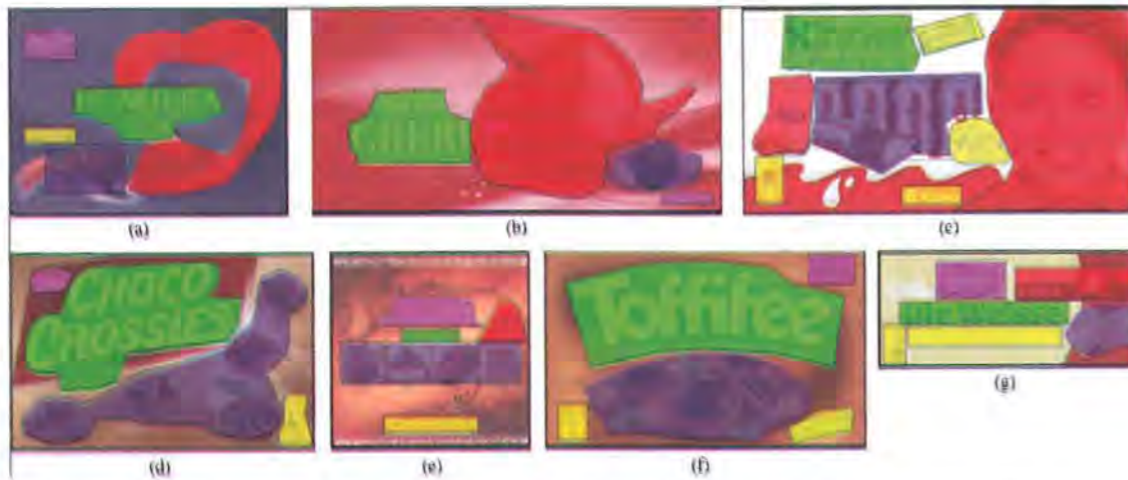

Figure 2: Areas of Interest (AOI) definition for chocolate boxes (brand and logo elements: pink; product name: green; body text: yellow; product shot: violet; other images: red) Design (g) was the control element; thought to be more simple, restrained than the other designs

Apparatus and procedure:

The stimuli were presented on a NYAN 2 XT/EDGE eye tracking system produced by Interactive Minds, Dresden (Interactive Minds 2012). A Samsung SyncMaster 17" TFT display with 1280×1024 pixel resolution was used at a sampling rate of 60 Hz rate and $0.45°$ accuracy. The samples were slightly enlarged in order to compensate for the lower resolution of computer screens.

Then, user reactions were recorded and their visual scan paths analyzed. In order to assess the relative importance of the main visual components on the sample packages (brand name, logo, product name, product shot etc.). Areas of Interest (AOI) were defined beforehand for each of these elements in order to compare hit rates, the time to first fixation, gaze durations etc. These Areas of Interest are shown in Figure 1 and Figure 2, respectively.

After the test, the participants were asked to complete a questionnaire, inquiring at the outset to name those designs that were already known to them prior to the test and to rate the display time (too short/too long). Furthermore, they were asked to assess for each design, whether it was rather informative than emotional (or vice versa), and to name those visual components most important for this decision.

3. Results

In a first step, the overall emotional impact the presented stimuli had on the test participants was to be determined. To do this, the test subjects were asked to rank all packaging designs by using a 7-point Likert scale ranging from very emotional (+3) to very restrained (-3)[2]. As the results in Figure 3 show, all pharmaceutical packages were assigned non-emotional values (the control element being the only exception), whereas all but two chocolate boxes were placed on the emotional side (one of these two being the control element). Thus, the assessment of the test subjects was more or less consistent with the expectations of the study design.

In a next step, it was to be determined if this difference in emotional appeal triggered different information reception strategies that led to observable variations in eye movements. A comparison of various scan paths (mapping the eye movement of a test subjects to the corresponding stimulus) allowed for a quick first estimate.

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[2] In order to prevent a distortion of the eye tracking test results, this question was included in the post-test-questionnaire. Before answering the question, the corresponding packaging design was displayed to the test participants for another second, which was assumed to be long enough to recall but not long enough to extract new information, which might possibly have influenced the answers in the post-test survey.
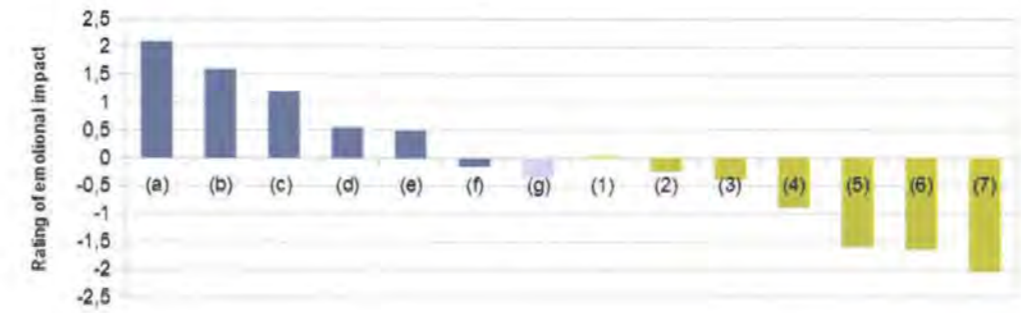

Figure 3: Rating of the emotional impact of all stimuli by test participants in a post-test survey using a 7-point Likert scale. Chocolate boxes are marked (a) - (g); pharmaceutical packages (1) - (7). Please note that (g) and (1) are control elements

For pharmaceutical packaging, the results were largely as expected. The scan paths of the participants were more or less homogeneous, their eye movement essentially following a standard reading pattern (cf. Figure 4). The measurements for the Time to First Fixation in Table 1 (i) show that for all stimuli, the attention of the test participants focused first on text elements; either on the product name or the body text (there was an almost equal distribution between these two). Furthermore, text elements were not only the first to be fixated, they also got the longest viewing time (cf. Table 1 (ii)). Pictorial elements, on the other hand, received considerably less attention - with two notable exceptions: The (in the original multicolored) logo in Figure 1 (5) and the rather unusual, gear-wheel like object in Figure 1 (6) were the only ones to receive a significantly higher attention. The results for design (1), which was supposed to be the control element, did not differ significantly from the other designs in the test

Figure 4: Sample scan paths from pharmaceutical packaging design analysis. Each circle visualizes a fixation of the viewer. The numbers in the upper half of the circle specify the order in which the fixations were made, the number in the lower half and the size of the circles visualize gaze duration

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In the post-test survey, the test participants were asked to specify, which design elements had influenced their rating shown in Figure 3 most. All test subjects ascribed the highest influence values to the design color and the text elements. The only pictorial elements that got significantly higher ratings were the stylized outlines of four heads that can be found in the upper left corner of Figure 1 (3). Interestingly, this design was rated as the second most emotional of all packaging designs (the control element excluded). With the exception of design in Figure 1 (3), which was familiar to 7 out of 20 test participants, all other designs were unknown to all but one or two test subjects.

Table 1: Eye tracking results for prescription-only pharmaceutical packaging designs (average of all individual results). (i): The Time to First Fixation (in seconds) indicates, when a certain Area of Interest (AOI) was first focused. (ii): The Gaze Duration (in seconds) indicates the average viewing time for a certain AOI. The expression "n.a." (not available) indicates there is no such design element in this particular packaging design. The earliest and second earliest values (or highest and second highest, respectively) are marked for clarity

Time to first fixation	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Product name	0.67	0.78	0.81	0.43	1.17	0.28	0.56
Body text	0.62	0.56	0.76	0.92	0.54	2.11	0.55
Brand / Logo	2.23	4.01	2.31	3.4	2.35	n.a.	2.98
Other images	2.1	1.24	2.06	3.42	2.99	2.25	n.a.
Product shot	n.a.	n.a.	n.a.	n.a.	n.a.	2.6	n.a.

(i)

Gaze duration	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Product name	0.67	0.86	1.31	0.91	0.55	1.4	0.95
Body text[3]	2.44	2.36	0.87	1.47	1.54	0.57	2.26
Brand / Logo	0.13	0.11	0.34	0.36	0.68	n.a.	0.31
Other images[3]	0.28	0.14	0.15	0.07	0.41	0.61	n.a.
Product shot	n.a.	n.a.	n.a.	n.a.	n.a.	0.39	n.a.

(ii)

Compared to the pharmaceutical packaging designs, the eye tracking results for the chocolate packaging proved to be more ambiguous. Here, no uniform viewing patterns could be detected; the scan paths showed more variation from one test subject to another (cf. Figure 5).

Figure 5: Sample scan paths from chocolate box design analysis. Each circle visualizes a fixation of the viewer. The numbers in the upper half of the circle specify the order in which the fixations were made, the number in the lower half and the size of the circles visualize gaze duration

The values for Time to First Fixation in Table 2 (i) show that, again, the name of the product (i.e. a text element) was the item that first grabbed the attention of the test participants. In general, the product shot and brand or logo elements came second and third. Whereas the quite prominent red cherry in Figure 2 (b) got the attention of the test subjects comparatively early, other quite noticeable pictorial elements like the red heart in Figure 2 (a) or the boy's face in (c) attracted the attention of the test participants comparatively late. Furthermore, the pictorial of the Swiss flag in Figure 2 (g) obviously caught the participants' eye sooner than the corresponding product shot.

A comparison of Table 2 (i) and (ii) shows that whereas brand or logo elements grabbed the subjects' attention quite early in the scanning process, it was obviously only viewed for a short time, because the gaze duration values are comparatively low (though they are still higher than the corresponding gaze duration values for pharmaceutical packaging). Body text, on the other hand, grabbed the participants' attention rather late, but it kept their attention longer than the brand/logo elements. Apart from that, product names, product shots and other pictorials got, on average, most of the attention.

The gaze duration was longest for the product name in Table 2 (a), (b) and (f), and longest for the product shot in Table 2 (c), (d) and (e). In Table 2 (g), the Swiss flag got more viewing time than the corresponding product shot. Remarkable are the high gaze duration values for the logo element in Figure 2 (a), the big red cherry in Figure 2 (b) and the boy's face in Figure 2 (c).

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[3] For designs that included more than one body text element or more than one image apart from the product shot and the brand and logo elements, the gaze duration for that body text / image element that got the most attention is shown.

Table 2 (i): Eye tracking results for chocolate box designs (average of all individual results). (i): The Time to First Fixation (in seconds) indicates, when a certain Area of Interest (AOI) was first focused. (ii): The Gaze Duration (in seconds) indicates the average viewing time for a certain AOI. The expression "n.a." (not available) indicates there is no such design element in this particular packaging design. The three earliest (or highest) values are marked for clarity

Time to first fixation	(a)	(b)	(c)	(d)	(e)	(f)	(g)
Product name	0.32	0.41	1.03	0.47	0.72	0.44	0.64
Body text	2.63	n.a.	1.84	2.47	2.57	3.0	2.01
Brand / Logo	1.76	2.38	n.a.	1.93	0.91	2.06	1.33
Other images	2.47	0.87	4.29	n.a.	1.3	n.a.	1.37
Product shot	2.34	1.87	0.49	1.38	0.89	1.96	2.51

(i)

Gaze duration	(a)	(b)	(c)	(d)	(e)	(f)	(g)
Product name	1.43	1.74	0.46	1.02	0.27	1.45	0.58
Body text[4]	0.35	n.a.	0.37	0.81	0.48	0.48	0.57
Brand / Logo	0.53	0.22	n.a.	0.37	0.41	0.3	0.49
Other images[4]	0.32	1.03	0.73	n.a.	0.29	n.a.	0.67
Product shot	0.48	0.51	0.73	1.21	0.87	0.75	0.54

(ii)

Results from the post-test survey show that, apart from Figure 2 (e) and (g), all packaging designs were known to almost all of the participants. When asked to assess which design elements influenced their rating of the emotional impact (shown in Figure 2) most, color and the product shot were mentioned most often (14.4 and 9.6 times out of 20, respectively). Product names, body texts and brand/logo elements were mentioned less frequently (5.6; 3.0 and 3.3 times, respectively). Here, the test subjects could add elements of their own to the given list, and three design elements were named remarkably often: the boy's face in Figure 2 (c), the heart and the word "love" in design (a).

4. Discussion

Interpreting the results, first, it has to be stated that there definitely is a difference in the information reception processes reflected in the eye tracking results. The homogeneous, reading-order based scan paths recorded while showing the pharmaceutical stimuli certainly differ from the more irregular, less predictable patterns for chocolate boxes. However, the two examples inserted as control elements (design (1) that was considered to be quite elaborate for a prescription-only packaging and design (g) that was thought to be rather austere for a chocolate design) showed only minor differences compared to the other designs of the same group. This could mean that their emotional appeal is either too weak to elicit significant changes in the participants' reactions, or that there may be different viewing strategies that could have been learned beforehand and are activated if the viewer looks at a pharmaceutical package or a chocolate box, respectively.

Assessing the relative importance of the various elements used in packaging design, it has to be stated that pictorial elements got less attention from the test participants than expected. We assumed that the attention of the subjects would focus - at least while looking at the chocolate boxes - first and foremost on the graphic elements of the packages. It turned out, however, that the product name (a text item) was the most important element for all viewers. It caught the participants' attention sooner and held it longer than the pictorial elements - which would support results in ad design stating that text elements (most notably: headlines) may be more important than previously thought (cf. Busch 2007, 40; Wedel & Pieters 2006, 49). Though pictorials do have a high tendency to attract attention (and have been assigned a certain influence on the emotional appeal of a packaging design in the post-test survey), their influence tends to be over-estimated. In particular, the size of a certain pictorial does not seem to be the primary factor in capturing the viewer's attention (as the comparatively high attention values for the rather small brand element in Figure 6 (i) compared to the huge red heart or the rather high values for the product shot in Figure 6 (ii) compared to the big red cherry) show. This, again, is consistent with findings in (Wedel & Pieters 2006, 51). Thus, images got less attention than assumed; especially background-images got low attention values, even if they were big in size and clearly intended to be "key visuals".

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[4] For designs that included more than one body text element or more than one image apart from the product shot and the brand and logo elements, the gaze duration for that body text / image element that got the most attention is shown.

Figure 6: Sample heat maps from packaging design analysis. Those areas of the stimuli that received most attention from the test participants are marked with colored spots (red means high levels of attention, followed by yellow and green). Areas that got only minor attention are darkened

The assumption that certain key stimuli like erotic signals or pictures showing children, animals or faces get a higher visual attention (Munzinger & Musiol 2009, 86, 97; Seeger 2009, 364; Busch 2007, 6) could at least be confirmed for the faces in the designs (4), (7) and (c): Though they did not belong to those components that grabbed the viewer's attention early, they tended to get a higher gaze duration and were mentioned by the participants as having an influence on the emotional appeal in the post-test survey.

While pictorials got less attention than assumed, text elements got more. Especially the product name is standing out, because it got not only very early fixations, but also long gaze durations. Thus, it seems to be the key design element that viewers use to identify a certain package design and to employ it as a visual anchor for the subsequent viewing process. This, again, is consistent with findings from ad design, where the headline of an ad has been attributed a pivotal role (cf. Duchowski 2007, 264; Wedel & Pieters 2006, 50 f.). Other design elements that are used for identification seem to be the brand and logo elements: though they get comparatively low gaze durations, they get their first fixations comparatively early. Results in (Wedel & Pieters 2006, 52) and (Duchowski 2007, 265) point to a crucial role of brand and logo elements in routing the viewers' attention and in promoting accurate brand memory (although additional research seems to be necessary).

Considering its relatively small size, body text seems to get comparatively high attention values. This is certainly so for the pharmaceutical packages, but also for the text elements on chocolate boxes (considering the minor percentage of design space they get). Though, according to the post-test survey, text seems to play an important role in rating the emotional appeal of a packaging design as non-emotional, they do grab the viewer's attention, and can, therefore, not be neglected in packaging design. Again, various results from ad design emphasize the relative importance of body text (cf. Duchowski 2007, 264 ff.; Busch 2007, 40).

Furthermore, the familiarity of packaging seems to be a factor that may not be neglected. As mentioned before, results from the post-test survey showed that most of the chocolate box designs were known to the test participants, whereas most of the pharmaceutical packaging designs were not. According to results from (Wedel & Pieters 2006, 60 f.), this has to be taken into account, because familiar designs "require and attract less attention than unfamiliar ads because they are easier to process. ... Familiarity decreases attention to the brand, does not affect pictorial attention, but increases attention to the text". The authors suggest that familiar designs can be learned and that, on repeated viewing, only one or two basic features are used by the viewers while trying to identify a brand rapidly and accurately (l.c., 55). Consequently, in the post-test survey, when asked to assess the display duration of five seconds that was predefined for each stimulus, test participants tended to assess this period as being too short for the pharmaceutical packaging designs, but not so for the chocolate boxes (Lipfert 2012, 66): possibly, because this period of time is long enough for recognition, but too short for an all-embracing scan of an unknown design. Therefore, it might be interesting to repeat the eye tracking test using chocolate boxes that are comparatively unknown to the test subjects, in order to determine if this has a significant impact on their viewing strategies.

One final result that could be derived from the survey conducted at the end of the usability test showed that the subjects attributed a much higher emotional values to the *coloring* of the packaging than to the images. In fact, when asked to specify which design element influenced their rating of the emotional appeal of the packaging most, color got the highest values (on average 16.9 mentions out of 20 for packaging designs and 14.4 for chocolate boxes, respectively), followed, for the pharmaceutical designs, by textual and brand/logo elements (7.9 and 3.7 mentions, respectively) and, for the chocolate boxes, by product shot and product name (9.6 and 5.6 mentions, respectively).

Thus, color seems to play a most important role in influencing the emotional impact of a packaging design. Unfortunately, these effects are hard to explore using eye tracking technology, if the whole package is designned in a bright violet or red (as Figure 2 (a) and (b)): if the background, product shot and additional images are all designed in different shades of the same color, it is hard to determine by looking at scan paths and gaze durations, if the attention of the viewers is more on the shown objects or on their color values. Color is an inherent value of all objects that cannot be separated from the other properties of a design element.

5. Conclusions

Summarizing, it can be said that by comparing both groups of packaging designs, differences in user reaction could certainly be detected: The visual scan paths were more predictable for the pharmaceutical packages than for the more marketing-oriented designs of the chocolate boxes. However, the importance of text elements even for the more emotional designs seems to be higher, whereas the importance of images seems to be lower than originally assumed. The coloring of the packaging, on the other hand, seems to have a much higher emotional impact on consumers; its importance should likewise not be underestimated.

An interesting finding is that apparently minor details of the packaging design like the insertion of a stylized head in a logo, the usage of the word "love" in a brand name or a Swiss flag can have a significant influence on viewing strategies and on the emotional impact of a packaging design. This reconfirms the common rule that in graphic design, details matter - and even small changes can significantly improve (or else: impair) the emotional appeal of a (packaging) design.

Thus, careful planning and execution and analysis of packaging designs are crucial to ensure consumer acceptance and economic success of the corresponding products (Hinz & Weller 2011, 227). As this study indicates, eye tracking can play a valuable role in evaluating, understanding and improving existing packaging designs. As of now, however, these examinations tend to raise as many new questions as they may answer, because the information reception and the subsequent cognitive processes are quite complex and still not fully understood. Therefore, eye tracking still requires some expertise and poses some challenges (Duchowski 2007, 301); sometimes results are not completely consistent across studies (Wedel & Pieters 2006, 55), some are "underresearched" (l.c., 52) and some factors need to be further investigated (l.c., 65). Nonetheless, as eye tracking is entering into mainstream science and is becoming continuously easier to use (Duchowski 2007, VII; 301) it may become a valuable tool to increase the visual efficiency and the emotional appeal of packaging designs.

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