The visual design of a websites user interface

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International business

2014

DEGREE THESIS	
Arcada	
Degree Programme:	Internatinal business
Identification number:	3651
Author:	Nina Aro
Title:	The Visual design of a websites user interface
Supervisor (Arcada):	Peter Mildén
Commissioned by:	Arcada

Abstract:

This study examines web design interface. In the theory part the main aspects and principles of web design will be described. The main principles that are introduced in the study are: balance, rhythm, emphasis and unity. Improvement suggestions for web pages with a bad interface will be done and also the end result and changes will be shown. The study goes deeply into detail looking at the structure of a webpage. The significance of colors and the use of them in design will also be focused on. A short explanation of each color will be explained in the concept of using them in web design. The eye-tracking machine Tobii will be used in the empirical part. Eye tracking is the process of measuring either the point of gaze or the motion of an eye relative to the head. Six webpages will be tested. Each site is very similar, small changes have been done to the coloring and product pictures. They are all e-commerce web pages that sell clothing as their main product. The webpages are done by the author, by making a realistic looking appearance. The purpose of the study is to examine the use of different colors and whether using human models or just pictures of the products are recommended. A conjoint analysis will be presented based on a questionnaire. The result of the test will be introduces by showing heat maps, time duration graphs and tables. The aim of the study is to figure out a common pattern for web design, more precisely where to place the different elements and what background color is recommended to

Keywords:	User interface, Eye-tracking, Balance, Rhythm, Emphasis, Unity, Webpage structure, Web design, Conjoint analyses
Number of pages:	70
Language:	English
Date of acceptance:	

DEGREE THESIS	
Arcada	
Utbildningsprogram:	International business
Identifikationsnummer:	3651
Författare:	Nina Aro
Arbetets namn:	Den visuella utformningen av webbsidor
Handledare (Arcada):	Peter Mildén
Uppdragsgivare:	Arcada

Sammandrag:

Denna studie undersöker webbdesign. I teoridelen kommer de viktigaste aspekterna och principerna för webbdesign att beskrivas. De huvudprinciper som introduceras i studien är: balans, rytm, betoning och enhet. Förbättringsförslag på webbsidor med dålig design kommer att ske och även slutresultatet och ändringar kommer att visas. Studien går djupt in i detalj och tittar på strukturen av webdesign. Innebörden av olika färger och användningen av dem i design kommer också att fokuseras på. En kort förklaring av varje färg i begreppet visuell design kommer att finnas samt hur de kan användas inom webbdesign. Eye-tracking maskinen Tobii kommer att användas i den empiriska delen. Eye-tracking är en process för mätning av antingen blickens punkt eller rörelsen hos ett öga i förhållande till huvudet. Sex webbsidor kommer att testas och gemföras. Varje sida är mycket lika och de är alla e -handel webbsidor som säljer kläder som sin huvudprodukt. En conjoint analys kommer att presenteras på basen av frågeformuläret. Syftet med studien är att undersöka användningen av olika färger och om att använda mänskliga modeller eller bara bilder av produkterna rekommenderas. Resultatet av testet kommer att introducerar genom att visa värmekartor. Syftet med studien är att räkna ut ett gemensamt mönster för webbdesign, mer exakt var placeringen de olika elementen är lönsam och vilken bakgrundsfärg rekommenderas att använda. Resultatet av studien visar att respondenterna föredrog naturlig bakgrunds färg och att använda modeller som visar kläder rekommenderas också.

Nyckelord:	Användargränssnitt, Eye-tracking, Balans, Rytm, Betoning, Enhetlig, Webbsida struktur, Web design, Conjoint analys
Sidantal:	70
Språk:	English
Datum för godkännande:	

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1 INTRODUCTION

Developers and software programmers nowadays mostly build Website interfaces. Often collaborations between graphics designs and user interface have been done when looking at the principle in building an interface. The main focus is on creating a design that is international and functional to the user. The most important principles when designing a webpage are: balance, harmony, rhythm, contrast and repetition.

All these important elements must be well contrasted with each other, but still it's important to remember to keep the harmony towards the design flowing. Often a visual hierarchy of importance is made in order to be able to reflect the relationship between the different elements. Colour management and typography also play an important role when creating exclusive design. An important aspect is also focusing on research and analysis of user requirement. This method is called User-Interface design. Some successful sites often reveal navigation and usability experience when they combine visual design with experience design.

Different web pages from different sectors will be introduced in the work. Examples of pages that have done mistakes in their design in some way will be presented as well as successful ones. The author will point out the main errors and give suggestions for improvement proposals.

The work will also focus on the content of a webpage, because this aspect plays an important role. The value of the content often differs. The displaying of the content will be prioritized depending on the value.

The research section will focus on e-commerce web design, more specific the clothing business. The aim is to study, compare and reflect thought on six different e-commerce web pages that sell clothing as their main product. The participant will be presented with different web pages and the idea is that small changes have been done to the pages; in order to find out with type of interface design is user-friendly.

Using a design methodology based on graphic design and usability principles often produce client-centric and user-centric experience.

An Eye-tracker machine will be used as a research tool when measuring the visual appearance of the six different e-commerce web pages. A conjoint analysis will introduce the empirical part.

1.1 Problem area

The problem area is to study the effect of using different website elements as well as finding out the best location for the elements. The intention is to examine with the eye-tracking machine how the gaze of the eye attaches themselves to the element in a web design. The focus is on getting qualitative measurement results by knowing where the eye moves on a webpage and what area is the best and most attractive for situating the main product that is being sold. As well as measuring the importance of specific elements.

1.2 Purpose

The exact purpose with this study is to find out if colour and picture elements have an effective pattern in the context of web page design. The consumers buying decision can depend on the colouring and the placement of the different design elements. The study can also be used as a guidebook for companies that are planning to start their e-commerce business online.

2 METHODOLOGY

The method of research includes both secondary research and primary research. The author has chosen to use both methods in order to gain a variety of facts and information.

Secondary research was used in order to find theoretical facts about the subject. Primary research was conducted in order discover similar pattern in the consumer behaviour.
The problem area will be resolved by performing an Eye-tracking study with Tobii eye-tracker (see technique p.) in order to investigate people's behaviour.
The study was started by reading previous studies in the same field and by examining corresponded behaviour. These earlier studies represent the frame of reference and are the theoretical background that the study is based on.

2.1 Approach

Quantitative method is the method that will be applied in this study. A conjoint analysis will be presented by the help of questionnaire data.

All together 13 persons were tested. The respondents were randomly chosen from the corridors at Arcada University of Applied Science. There were no limitations set for the respondents. When the respondents arrived to the test room, which was located in the school library, a small description of the overall test was done orally. The participants were asked to focus on the main product in the picture, which in this case meant the clothing. Six pictures of e-commerce webpages were shown and the participant could choose himself or herself how much time they needed to watch each picture. Buy pressing a button on the key board the picture changed. After showing the different images on the eye-tracker machine a short questionnaire was asked to be answered. Also images of the size A4 of the webpages were available looked at.
The questionnaire consisted pf the following questions of: point 1-100 question, rating 1-6 questions, gender, age and a question where the experience of buying clothes was asked.

2.2 Technology

The actual study was conducted with a Tobii eye-tracker model 7120. The machine records the eye movement by measuring the point of gaze, meaning where someone is

looking at. The program Tobii Studios was used to create the test and to analyse the collected data.

3 LITTERATURE REVIEW

The literature review involves different areas of web design. The main focus will be on the visual aspect of user interface. This chapter will show and describe different webpages. The literature review is mainly based on literature found on the web, such: web articles and blogs.

3.1 Explanation of the principles of web design

3.1.1 Balance

The visual interest of a webpage depends on what colours have been used, shapes and sizes. The pages should be designed so that the viewer's interest is held without causing distraction away from the main elements. Every single element should be considered in a layout and the "visual weight" should be thought about carefully. The "visual weight" depends on the size, shade and thickness of lines.

The elements of a design should be placed evenly in order to achieve symmetrical balance. Centring is the easiest way to achieve symmetrical balance.

According to the web article *Universal web design principles you should know* (Peep Laja 2012) balance is created as following:

"In order to achieve symmetrical balance, it's better to create the balance with the help of the different elements- an image on the left as well as a large block of text to the right, for example. Then again a symmetrical balance is an arrangement of different un-

like objects that have equal on both sides of the webpage. Different balance elements are: colour, value, texture and shape"

The book *Designing interface* (Tidwell, 2010 p.130) describes page layout as the art of manipulating the user's attention. The most important aspects of graphics according to the book are: layout of pages, screens, dialog boxes, visual hierarchy, visual flow and focal points. The book also enhances the importance of implementing a short and good visual hierarchy that gives immediate clues about the relative importance of page elements and the relationship amongst them. The most important part of a webpage can be pointed out by concentrating on the following: density, background colour, position and rhythm. The book also points out the most important gestalt principles, they are: proximity, similarity, continuity and closure. (Tidwell, 2010 p.130)

Jenny Kyrnin an experienced web design author explains balance well in her web article *Balance-basic principle of design*:

"Balance in design is the distribution of elements across the design. Balance is a visual interpretation of gravity in the design. Large, dense elements appear to be heavier while smaller elements appear to be lighter."

Web design blogger Stephanie Hamilton described the concept of balance as following in her web article *The concept of balance in web design* (2012):

"In design, balance is the notion that elements are symmetrical. This function creates harmony, order and cohesion to the webpage"

This picture below is an example of a webpage that uses asymmetrical layout. Balance is achieved in the navigational column by using border. This type of layout creates contrast from the main text, which is dominant.

Figure 1. The home page of: Biltmore Co.

As a conclusion the author would point out that the use of balance in design is a very powerful tool. It can also be used to help showcasing point of interest in design.

3.1.2 Rhythm

In design rhythm can also be known as repetition. Repetition is a pattern that is created by repeating different elements that are diverse. It allows your design to develop intern stability that makes the understanding process easier. Once a human brain understands patterns in a certain rhythm in can relax and understand the whole design. Repetition and variation are the most important aspects of visual rhythm. On order to achieve a smooth, even rhythm one should use consistent intervals when placing elements in a layout. Using sudden changes in the size as well as spacing of different elements can create are more exciting mood to the webpage.

The book *Communicating design* describes the importance of using site maps. According to the book sitemaps shows the hierarchy of information on a webpage, as well as the nature. It also increasingly represents page types of templates in addition to specific pages. The purpose of using sitemaps is to show how everything on a webpage fits well together. It also helps clarifying the hierarchy, establish a navigational backbone as well as facilitate content migrations. Sitemaps are very common artefacts in the design pro-

cess and often used by designers, developers, project managers and stakeholders. (Brown, 2011 p.94-122)

Below is an example of a sitemap. The picture shows three levels of hierarchy after the homepage. The emphasis in this sitemap is on different classifications. The reader gets a sense of how different products are categorized.

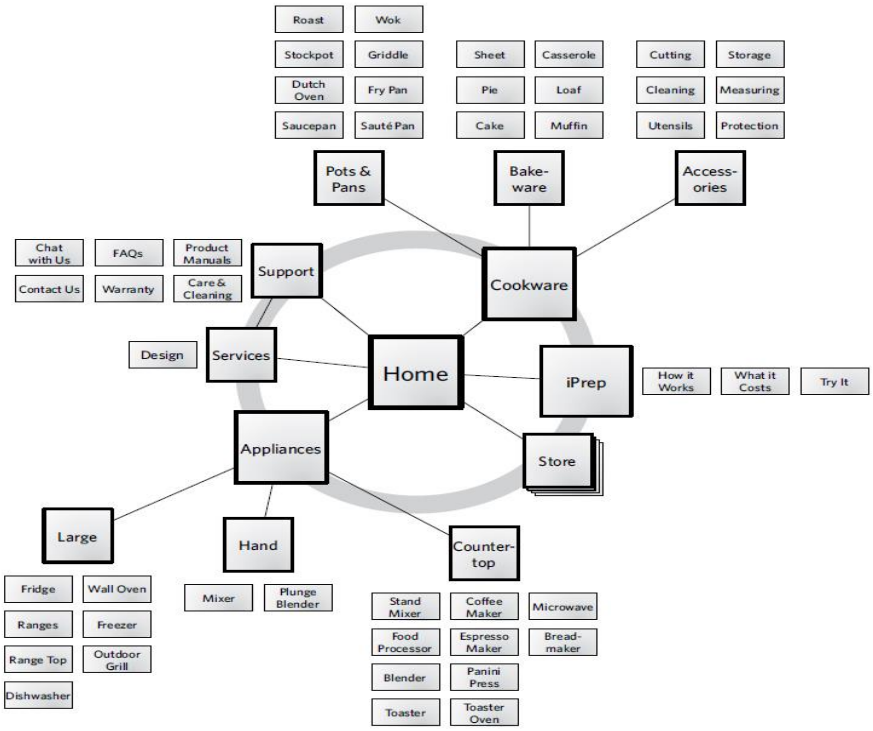

Figure 2. Sitemap, Brown, 2011 p. 97

Patrick Cox who is a famous UX designer describes in his web blog *Creating visual rhythm in web design* (2012) that there are many ways to create visual rhythm. He points out the three main points. These are: regular rhythm, progressive rhythm and flowing rhythm. Each of these patterns is a simple pattern. A regular pattern repeats elements that are timed or predictable by intervals. The progressive patterns repeat elements but can also change in size or colour in order to create progressive steps. Then again flowing patterns are often organic and have a feeling of nature and often they also create some kind of movement.

Many different variables can be used when creating regular rhythm. When the goal is to repeat elements it's good to change the distance between different elements. In this way the overall interval can become bigger or longer or the actual elements can become smaller or larger. (Cox, 2012. *Creating visual rhythm in design*)

The blog explains that progressive rhythm can be seen when an elements patterns change to some extant over time in order to create progressive sequence of different steps. There are a few ways to achieve visual progressivity: An example is to adjust the size and colour of the repeated elements as letting the visual hierarchy of the elements determines the focus of the design. Progressive rhythm can be a great tool when visual enjoyment is wanted as well as for directing the user to a specific location on a web design.

Below an example of a webpage that uses progressive rhythm in their web design.

Figure 3.Screen shot, Nizo

The book *Communication design* mentions the importance of using wireframes while designing web pages. This is a very common tool amongst the design culture. A wireframe describes the content of a web page and their relative priorities.

This method can be very helpful for envision the functionality and behaviour of different screens and different screen templates. The purpose of using wireframes is to help the web design project team to establish functionality. Also the behaviour of different screens and templates can be improved. (Brown, 2011, p.167)

This is an example of a simple wireframe that shows page regions. Using labels identifies the different regions.

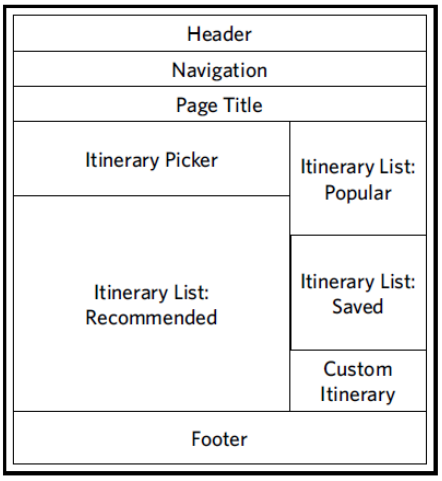

Figure 4. Wireframe, Brown 2011 p.172

3.1.3 Emphasis

Having emphasis in a design brings out the significant points of a piece. It also helps the most important element to stand out. Having focal points in each layout can create emphases. Letting one key element stand out from the others can create focal points. In or-

der to maximize the emphasis it's important to avoid using too many focal points. If all the elements have an equal emphasis than the design can easily be seen as busy and hectic. Emphasis can be achieved in many different ways; here are a few to mention: using mark-up, changing the size of different fonts or images, using bold or black type of heading as well as subheads and lighter text for the rest of the content in the design, using contrasting colours, placing the most significant of text on a curve or an angle and by using coloured type or unusual fonts for the most important part of the text.

Jennifer Kyrnin whose is a famous web design blogger explains in her web article *Emphasis in Web Design* that the biggest mistakes a designer can make is to try making everything in one design stand out. The design easily becomes boring if the emphasis is divided equal. Focusing in creating a visual hierarchy is very important.

Patrick Cox who has been introduced earlier already writes about dominance and subordination in the following way in the web article *Developing emphasises in web design* (2011). The dominant and the subordinate part of the design have to be figured out in order to achieve emphasizes successfully. The article describes dominance as the important part or in other word the point of view. Then again secondary elements function is to capture some of the user's attention and to guide the user to the dominant elements of the design. It's important that these two elements support the focal point of a design. Patrick explains that it often happens that designers get lost in their own designs and have a hard time figuring out how to create emphasis. The three main components according to Patrick are: proportion, contrast and physical relationship. (Kyrnin, *Emphasis in Web Design*)

Focusing on contrasting elements can be the key to create focal points as well. But then again using too much contrast can be distracting in the viewer's eye and can easily over shadow the subordinate elements altogether. So adding too much contrast between different elements should be avoided.

The book *UI is communicating* concentrates on visual design. According to the book common visual design elements should communicate the following aspects: layout, typography, icons and glyphs. The term layout means; the placements of the design, spacing and emphasis of the user interface elements and contents within a page. Having an effective layout is extremely important when helping users or viewers to find what they

are looking for on a specific webpage. It also makes the pages appear visually more appealing. Many designers consider the layout design being the most challenging par, specially the mechanical part. (McKay, 2013 p.130)

This inverted pyramid presentation style contracts users to stop reading once they have the information required.

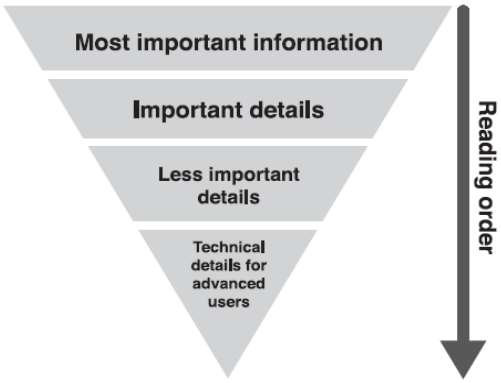

Figure 5. Inverted pyramid of the presentation style, McKay, 2013 p.140

The book also describes the attributes of an effective layout as following: focus, flow, termination, order, control sizing and spacing and emphasis. Also affordance is a vital tool in order to achieve consistency.

The same chapter points out that the colouring in a design play one of the biggest parts. Colouring is the most subjective visual interface elements that can create emotion and passion to a design.

An introduction of the most typical human perceptions of colour those are independent of status or cultural type.

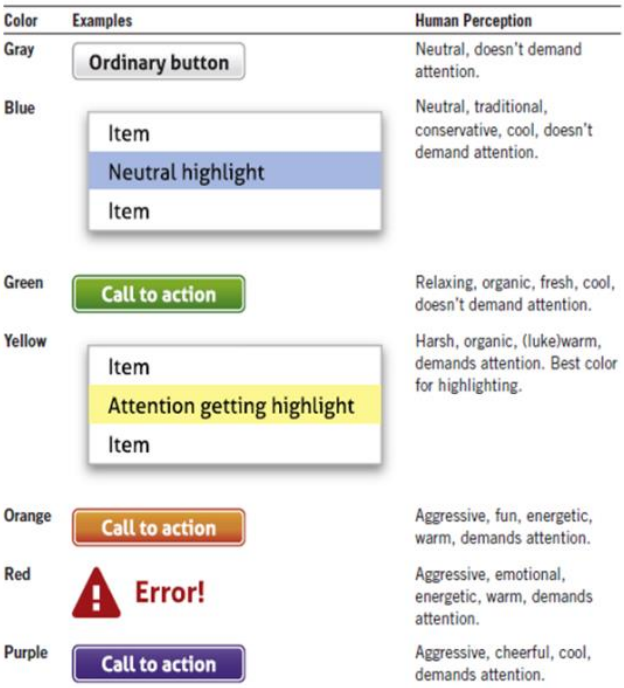

Figure 6. Human Perceptions of color, McKay p.19

3.1.4 Unity (proximity)

In order to get the entire element in a design to look alike there should be a focus on unity or in other word proximity.

The viewer of a webpage needs visual clues in order to understand that the layout is one unit. The text, the headline, photographs, graphic images and captions should all go well together. When elements are located close to each other they become related, and when they are further from each other the opposite.

Using the following methods can create unity. The font size, style and heading should always be steady. Concentrating on the positioning so that the elements that are close to each other are related, and elements that are farther are part have less relationship. Repeating colours, shapes and textures in different areas is recommended. Choosing visuals that share a similar colour, theme and shape should also be considered.

Jennifer Kyrnin, who has been introduces earlier describes the use of unity as following in her web article *Unity-Basic principles of design*. Unity in design is achieved primarily by placing objects in the layout. Focusing on the margin and padding of the design can also attain it. Kyrnins also mentions that by separating the text into groups using different headlines can approve the achievement of proximity. The headline often adds visual contrast to designs. By grouping the headline with the text below its clear to the viewer that everything is related to the content. (Kyrnin, *Unity-Basic principles of design*)

A blog called Pixelhaven.com explains the use of unity well in their writing (Harbaugh, 2010)

"Unity means that congruity or agreements exists among elements of a design"

When visual unity is wanted one should primarily concentrate on overlooking the whole pattern after that move towards smaller individual elements. Each item has a meaning and adds something to the total effect. (Harbaugh, 2010)

The technique of using proximity can be used well when working with the navigational elements of a web page. As mentioned before the elements should be placed near each other so that a hierarchy can be created, it helps the viewer digest and interact while looking at the webpage. Using proximity is a very effective method that is often used among web designers.

Our vision is optimized to see structure. Our visual system automatically imposes structure and visual inputs. The visual system is wired to observe shapes, figures and objec-

tives instead of disconnected edges, lines and certain areas. For webpage purpose the most important principles according to the book are: proximity, similarity, continuity, closure symmetry and common fate. (Johnson, 2010 p. 11)

This IMB logo uses the continuity principle to in order to form letters from disconnected patches.

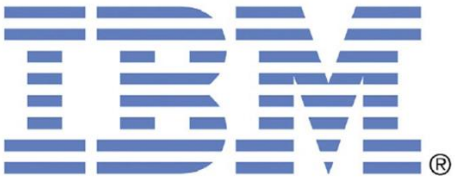

Figure 7. IMB logo, Johnson 2010 p. 16

The book *Designing with the mind in mind* discusses the matter how to seek and use visual structure. With the help of visual hierarchy people can focus on the most relevant information that a web page has to offer. It also helps to arrange the information that breaks the information into separate sections. Visual structure helps organizing and prioritizing what is the most relevant and important content of a page by the help of size, prominence and content relation. The book explains the key elements in a clear visual hierarchy, these are: size, content relationship and prominence. (Johnson, 2010 p.25-30)

The human eye is optimized detect contrast. Our ability to distinguish colours depends on how colours are presented. Also the viewer's display and the viewing conditions affect colour perception. A human eye has rods and three types of cones in their retinas. The rods are sensitive to overall brightness while the tree types of cones are sensitive to different frequencies o light. Each type of cones is sensitive to a wider range of light

frequencies. There are three types: low frequency, medium frequency and high frequency. Ability to discriminate colours depends on how colours are presented. Three presentation factors affect our ability to distinguish colours from each other: paleness, colour patch size, separation. (Johnson, 2010 p.53-54)

The picture below shows factors that will affect the ability to distinguish colours.

A (paleness), B (Size), C (separation)

Figure 8. Factors of distinguished colors, Johnson, 2010 p.57

External factors that influence the ability to distinguish colours are: variation among displays, greyscale displays, display angle and ambient illumination. The colours should be distinguished by saturation and brightness. It's recommended to use distinctive colours. Colour pairs should be avoided, because colour-blind people cannot recognize them. Colours should also be used redundantly with other cues meaning that there should be separation between strong opponent colours. (Johnson, 2010 p.60-61)

3.2 Main characteristics of a web page

A company that already has an existing website and that plan to develop it further in the future should understand what the main characteristics are. The changes should grow the effectiveness to the online investment. A webpage that is done unwell will do more harm to the business than benefits.

An article written on www.spritz.com s webpage introduces the five general components involved in making a website successful.

According to the article the five main elements are: *appearance, content, functionality, website usability, search engine optimization*. (www.spritzweb.com/resources/good-website-characteristics.html)

The most successfully web pages are able to reflect all these different elements in their design. Next the author will explain more in detail theses five elements mentioned before.

3.2.1 Appearance

A website should always be visually appealing and have a professional look to it. A company should always remember that the page reflects the business and can have a lot of visibility. A business in smaller and larger size should always try to populate the web. The challenge is to attract and keeps users attention. Often in business the PR professionals are the ones responsible over the web pages appearance. (Spritz web)

3.2.2 Webpage appearance guidelines

Good uses of colour: a well-suited colour scheme contains 2-3 primary colours that blends well together and also create a proper mood to the webpage. One should not overdo the colouring; otherwise it can easily distract the viewer from the written content of the page. (Spritz web)

Text should be easily read: the easiest combination of colouring and text is black text and white background. Other colour combinations can also be used as long as it's within a suitable range. A font that is easy to read and that can be used in most computer systems is recommended to use. The font size should be for paragraph text between 10 and 12 pts. (Spritz web)

Meaningful graphics: Graphics are always important. They provide the visual variety and can make an otherwise boring page look more attractive. Overusing them should be avoided, the graphics should always mean or context to the page. The maximum amount of images on page should be 3-4 images. (Spritz web)

Quality photography: using high quality photography can increase visual appearance. Especially online retailers should focus on this. (Spritz web)

Simplicity: The overall outlook should be simple and also have some white space. Uncluttered layouts allow the viewers to focus on the main message. The webpage should not be overloaded with designs, animations or other effects. (Spritz web)

3.2.3 Content

Even though the style is important one should not forget to focus on the essence. The viewers are looking for information that will help them make the decision. The information shown on the webpage should always be informative and relevant. Having a webpage gives a great opportunity to increase visitor's confidence in the company's knowledge and competence. (Spritz web)

3.2.4 Webpage content guidelines

The text should be divided into small paragraphs and clear label topics should be used. The viewer can easily be overwhelmed with text and then the viewer can be bored. The content should be updated regularly. So called dead or static text content will not bring visitors back to the site. It important to try to speak to the visitors, meaning that repeating the same word as much as possible is recommended. Using a professional writer or copywriter can be needed unless there's no one at the company that is a very gifted writer. (Spritz web)

3.2.5 Functionality

Each component of a webpage should work together quickly and correctly. The viewer will get frustrated if the components are poorly constructed. (Spritz web)

3.2.6 Usability

Usability is a critical and often overlooked component of a successful website. The page always needs to be easy to read, easy to navigate and easily understood.

The most important usability elements include the following.

Simplicity: The best way to keep the viewer's attractions is to have valuable content, good organization and attractive design. The site should be as simple and well organized as possible.

Fast loading pages: A well working webpage should load in 20 seconds or less. I the time is longer than the page will most probably lose more than half of its potential visitors.

Minimal scroll: This is particularly important on the homepage. Using links from the main page to read more about the particular topic is often done. Minimizing the scrolling will also be helpful when using a search engine.

Consistent layout: The layout plays the most important role in order to achieve usability. Consistent layout should be used and repetition throughout the site should be done.

Screen Resolution: By time the screen resolution for a typical computer monitor continues to increase. The average resolution of a web surfer is 1024 x 768 pixels. It's important to make sure that the webpage looks good in every setting. (Spritz web)

3.3 Webpage structure

Web pages are individual linked and share the same graphic, navigation an overall atmosphere. Most pages share a similar structure and the main elements are the same. There is an automatic unit of websites and everything that characterizes the webpage must appear in the page template. The web design field has developed rapidly during the past years. The text-driven information web pages have become more constant and predictable. Not all web pages share the exact same layout but still they incorporate the same basic mechanism. (Web style guide 3rd edition)

All the main webpage elements are shown in this figure. The type of design is called conical.

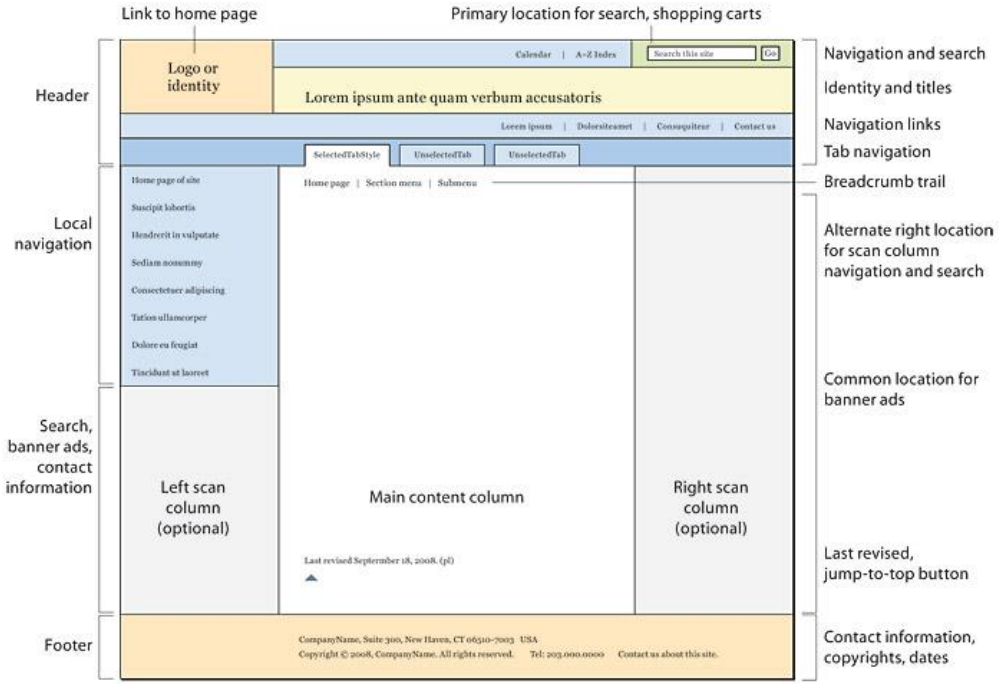

Figure 9. Web page elements, Web style guide 3rd edition

Page headers

Page headers are on top of each page and the function is similar to the homepages, the space is just more limited. Page headers deliver the identity as well as global navigation, such as searching and other similar tools. The placement of the location can vary even though the overall pattern has become constant. The page header is the most visible component of site identity structure. (Web style guide 3rd edition)

Home link

The most used format is placing the organization logo in the upper left corner of the page, as well linking the logo to the home page. If the webpage provider does not have a logo that can be used than placing home link near the upper left corner is recommended. The majority of webpage users expect to find the logo at his specific place. (Web style guide 3rd edition)

Global navigation

The header area is most often used for global navigation links. The most common and effective way is to use html list of links that are styled with css. This helps to spread horizontally across the whole section of the header. This technique improves the following aspects: usability, semantic logic, and accessibility and.

Also tabs are often used in order to improve global navigation. Tabs can easily be implemented by styling ordinary html list with a more decorative css treatment. (Web style guide 3rd edition)

This figure shows a canonical page layout. Horizontal bands dominate the headers. The overall placements of characteristics are consistent.

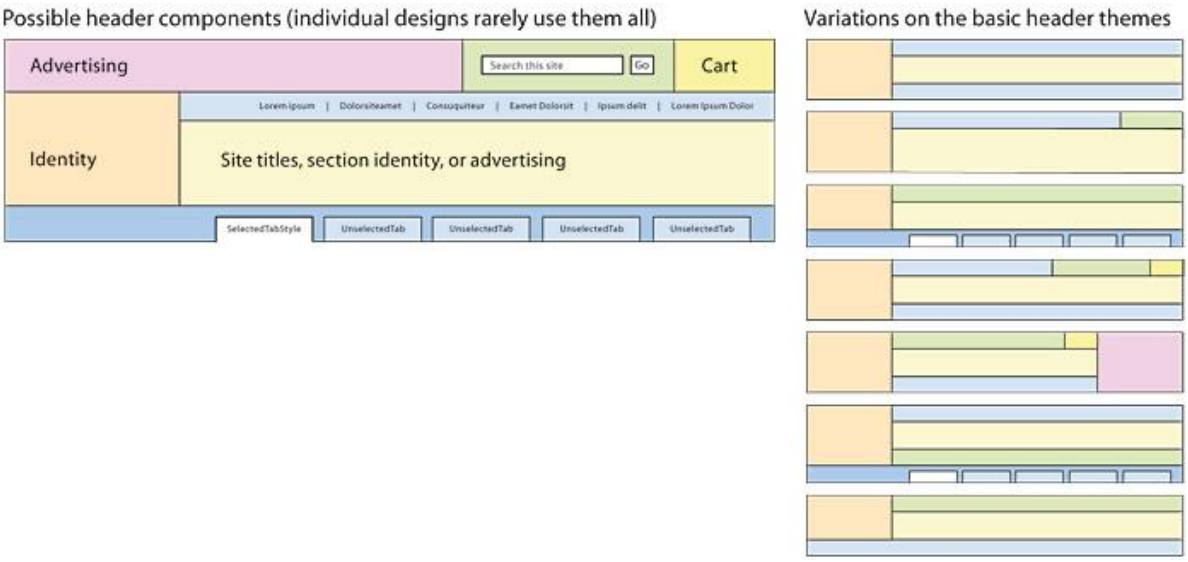

Figure 10. Canonical page layout, Web style guide 3rd edition

Breadcrumb navigation

This type of navigation is mostly used in larger sites with deeper level of content organization. Breadcrumbs are often integrated into the header and more specific at the top header. Also placing it above the main page content can sometimes appear. (Web style guide 3rd edition)

Search box

A search box should appear if the site includes a wide range of pages. It helps the viewer to find what they are looking for faster and easier. The most popular placement for the search box is the upper right area of the main header. The design of the search box if recommended to be simple so that it can fit in the area, it's not supposed to take plenty of space. (Web style guide 3rd edition)

Check out baskets and online shopping carts

This is a tool that is adapted to most the e-commerce related web pages. Amazon.com started this phenomenon by placing their cart in the upper right of the header and after Amazon.com did this, soon after all other similar pages started to do the same. And the same pattern is used nowadays as well. If a webpage is supported by advertisement,

than they often reserve a large area above the header for banners. It has been researched that viewers there is a phenomena called banner blindness meaning that the viewer often ignore this specific area, just because they are just to ads being places there. Avoiding graphic contents that have similarity to banner ads is recommended in order to avoid this. (Web style guide 3rd edition)

Scan columns

In modern wed design it's common to subdivide the page fields into more functional regions. This is a central characteristic of successful and up to date design. Research that has been done in order to study the effectiveness of scans columns placements shows common practice of navigational links is highly supported and recommended. Web design search boxes and contract information as well as other minor but necessary elements of page elements can also be placed in the scan column area. Studies have also shown that this specific area secondly most looked at feature that viewers tend to look at. The most looked at area is the right header area.

The article also tells that a large eye tracking and user research has shown that it does not actually matter whether the left or right navigations columns is being used. Viewers are used to using both sides as long as the overall appearance is consistent. The most common place for the navigations columns is the left side. (Web style guide 3rd edition)

Contact information

It's important for the viewer to easily find the contact information on the webpage. Often well-designed pages have hidden this information, so that the viewer can find it frustrating to find what they are looking for. Especially if the main function of the page is to sell products, then the contact information should be easily found. The display of the contact information should be on a logical location. For example the scan column is a recommended place for the contact information. (Web style guide 3rd edition)

The content area

In this area general rules and principals do not apply. The reason for this is that the content area is very complex. The following common practices can make the content area more useful and practical.

It's important to use visible names for each page. This will help the users to know that the contents of the page are about.

If breadcrumb navigation is used than the top of the context is the most recommended placement are.

If a page is long than jump- to-top links can be used in order to help the navigation. This are placed on top of the page. (Web style guide 3rd edition)

To help the page navigation overall it's recommended to have simple text links at the top and bottom of each page. This will help the viewer to move easily to the previous or next page in the right order. Also providing information about the exact location of the whole sequence is help. (Web style guide 3rd edition)

3.4 How to make successful e-commerce images

It's very important to present the products in the best way possible; it has a significant impact on the overall sales. First of all a proper professional camera is needed in order to avoid pictures looking like an amateur would have done them. Next up comes the lightening which plays a crucial part of a successful picture. Lights that operate in continuous mode are preferable. The background colour should always be continuous as well, meaning that the same pattern is used in order to prevent a messy look. It's important to avoid strict backlighting and similar setups that cast shadows on the surface.

The clothing presented should always be realistic and without any wrinkles and other malformations. If real models are used in the images than at least a small text saying the actual size of the model should be included. Also an introduction text of the actual material and its contents should be mentioned.

3.4.1 Background colouring and theme

E-commerce companies often put the main focus on their products and the styling, meaning that they forget about the overall framework such as background colour. These aspects are as important as the ones mentioned before; they serve as the final push. It's recommended to do research in order to get the best theme possible, the theme can often be the key to success. Designers are all the time trying to find the most eye-catching designs. The trick is to make a beautiful design that is still usability friendly. A combination of elegant and innovative design is the most wanted theme. (Evans, 2012)

According to an article written a web design article *What your w-commerce colours say to you* written by Clare Evans the colour scheme of the website can make a big difference looking at sales volume as well as the image of the company. Specially focusing on the outlook is important, when making profit and sales is the main function. Colours often have the power to induce certain emotions in humans. Behind each colour there's a psychology and also in different cultures colours symbolize different things. The same applies to ecommerce website design. Colour is one of the most important elements in web design. Colouring is categorized as even more important than usability, content and even the product itself. (Evans, 2012)

3.4.2 Introducing primary and secondary colours

The primary and secondary colours will be presented according to Clare Evans. An explanation of colours meanings to the Western world's web users will be included.

- **Red** reflects danger, anger and romance. The color is also high in energy and can reflect urgency.
- **Orange** can evoke different emotion in humans. Often used to create "buy it now" reaction.

- **Yellow** can be seen as an optimistic and youthful. Does not translate very well in web. Can be seen as a deceitful color in the field of e-commerce.

- **Green** has plenty of different meanings in web design. Reflect nature (where selling beauty products). One of the easiest colors for the eye to process.

- **Blue** is seen as cool and calm. Often used in e-commerce in order to create sensation of trust and brad loyalty.

- **Purple** is often related with royalty wealth. Commonly used in retail and beauty business.

- **Pink** can be described as fun, exciting and fun looking. In e-commerce it is often used in commercials aimed for younger people. Expresses romantic and feminine emotions

- **White** is a very neutral color. Not often used in e-commerce. Expresses purity and cleanliness. Seen as fresh, open and ad friendly.

- **Black** is a very common color and symbolizes plenty of things.

- **Grey** is seen as a neutral color and often considered formal and conservative. High standard of products can be shown by the help of the color.

- **Brown** is trustworthy, stable and natural. Can portray a company as wholesome and reliable.

3.4.3 What do we know about consumer behaviour and the use of colours?

The company should put focus on the colouring on their e-commerce site; depending on the products that are being sold in the ecommerce business, the colours used can make a big difference looking at the consumer behaviour aspect. As an example an ecommerce site can appeal to the customers as more attractive when using colours. Reds and oranges as well as royal blues and blacks are recommended. It is the sales aim is to target budget shoppers than then green could be the choice of colour. Green is the same colour as money and for the viewer it can reflect a feeling that the company is valuable. Same kind of buyers can also be attracted my using colours dark and navy blue. Retailers that

sell clothing often choose paler and softer colours. Traditional colours used are: different shades of pink and blue. These colours give a sense of calm and serenity. (Evans, 2012)

3.5 Introducing good webpages

First impression can only be done once, that's why it's so important to focus on a good homepage. The homepage is the most important page of a website and can be looked as a virtual front door. If the viewer's do not like what they see then they will leave the page immediately. The look of the webpage is the most important element, and secondly comes the functionality.

Next up I will introduce some elements that can be used in order to achieve an attractive webpage. A blog written by Nate Archer reflects on Steven Krugs bestselling book "Don't make me think," mentions good and functional points. The homepage should clearly give and answer to the viewer regarding the service and the brand that is represented. A well-known company or brand does not have to focus that much on describing what they actually do. But in reality most businesses still needs to answer these questions so that each visitor knows that they are in the right place. If the visitor will not immediately in a few seconds time identify the meaning of the webpage they will leave. The web pages should always resonate with the target audience. The page needs to be closely focused, meaning that it speaks the same language as the target audience. Compelling value-positions is also important. When the visitor arrives to the homepage, it needs to be compelling enough so that they will not leave the page. For a company to get the best possible value position the website is an excellent channel to do so. Usability and mobility makes the webpage more usable and makes the navigation better. It recommended, avoiding flashy objects that can get in the way of the browsing, as well as banners and animation should be limited, they are often unnecessary elements. In today's world it's also important that the webpage is mobile-optimized, meaning that the viewer can open the page on the phone with a more suited view. Mobile phones that have good Internet functionality are becoming more common, so these aspects should

be considered. In the end the most important things is a great overall design. A well-designed pages function is to build trust to the viewer, communicating value and navigating the visitors to the next step. (Web release, Archer 2012)

Next up a few well designed web pages will be introduces. A motivation why the webpage is good will also be attached.

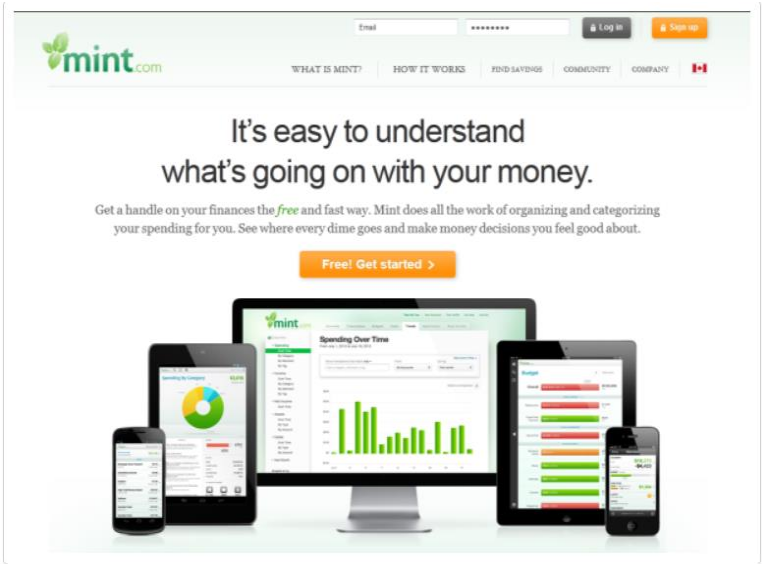

Figure 11. Screen shot, Mint 2013

The webpage has a very simple design that uses strong headline and sub-headline. The webpage has a very safe and sound atmosphere but also its gives the viewer the feeling that it is easy going. This is an important function for a company that handles financial information. The page also has a good call-to-action function, as well as a very clear supporting image. The viewer can immediately recognize that that the page is also mobile optimized and that is an online software solution.

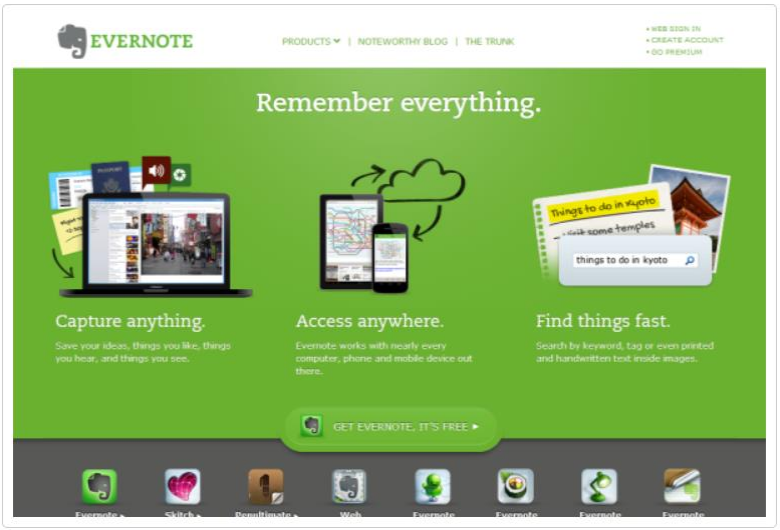

Figure 12. Screen shot, Evernote 2013

Evernote uses a very simple headline "Remember everything". The homepage is divided into three simple benefits. The green background helps the sections to be shown. All the different menus are well situated and logos are being used that give a lead. Overall a very simple layout with all the important information needed. The product sold on this page IT related, and this type of layout is often seen in this field.

Figure 13. Screen shot Apple 2013

Apples webpage is a great example of a page that uses remarkable balance of simplicity by using white space and strong type. Apple has applied a very simple design that its imagery sensitively –applied. Apples webpage is a very varied site with plenty of content that always feels easy and enjoyable for the viewer to navigate

3.6 How to makeover a bad webpage into a good one?

The author will introduce a few change suggestions that will update a web pages visual look. The following information is taken from a webpage called: Alta Web Works

Confine and centre

It's not possible to know what size monitor the viewer will have. The most common monitors are large and wide in size. In order to increase readability and to make sure that the webpage look good the webpage should be confined to a uniform (900-960 pixels in average) and after that centre all the text. (www.altawebworks, 2009)

Drop the top

Good web pages are often confined. This is a technique used during the previous years and by using it gives a message to the viewer that the website is up to date. To drop the top is not a requirement in web design but it definitely recommended. The majority of web designers use this method in their design. (www.altawebworks.com, 2009)

Round the corners

Before web designs layouts used to have more corners, now a day it's a trend to use a more curvy shape in all kinds' designs involving in web design. The same applies to objects that we use on a daily base, for example computer, furniture etc. All popular websites used round corners in their design. For example rounding the header corners and content box is very popular in order to add some curves. (www.altawebworks.com, 2009)

Glassy look

The latest and coolest graphic in web design has a glassy look added. To add some glass to the webpage is an easy way to update the page a bit. Simply adding glassy looking buttons can add glassiness; some pages even have a service where they do this for free. If a horizontal navigation bar is used then a glassy looking background can give an immediate feeling of freshness. (www.altawebworks.com, 2009)

Busting out backgrounds

Designers often don't give focus and improvement on the background, even though it is an important design element. A great background can make a huge difference to the overall appearance. Colours can be made bolder and adding background images is also possible. It's recommended to add the same background colour to the entire webpage so that the confined and cantered contents stand out. Background colours can also be added to extra menus, columns and blocked text. (www.altawebworks.com, 2009)

3.7 Example of a before and after webpage

In this comparison of a web page that have been reconstructed the focus will be on the landing page or in other words homepage. The main aspects being analysed are: clarity, value preposition, page design and friction. The source for this comparison is taken from a web article written by Jessica Meher.

The landing page in the example is the web page of a company called Health dialog. The company provides analytics, and health care programs.

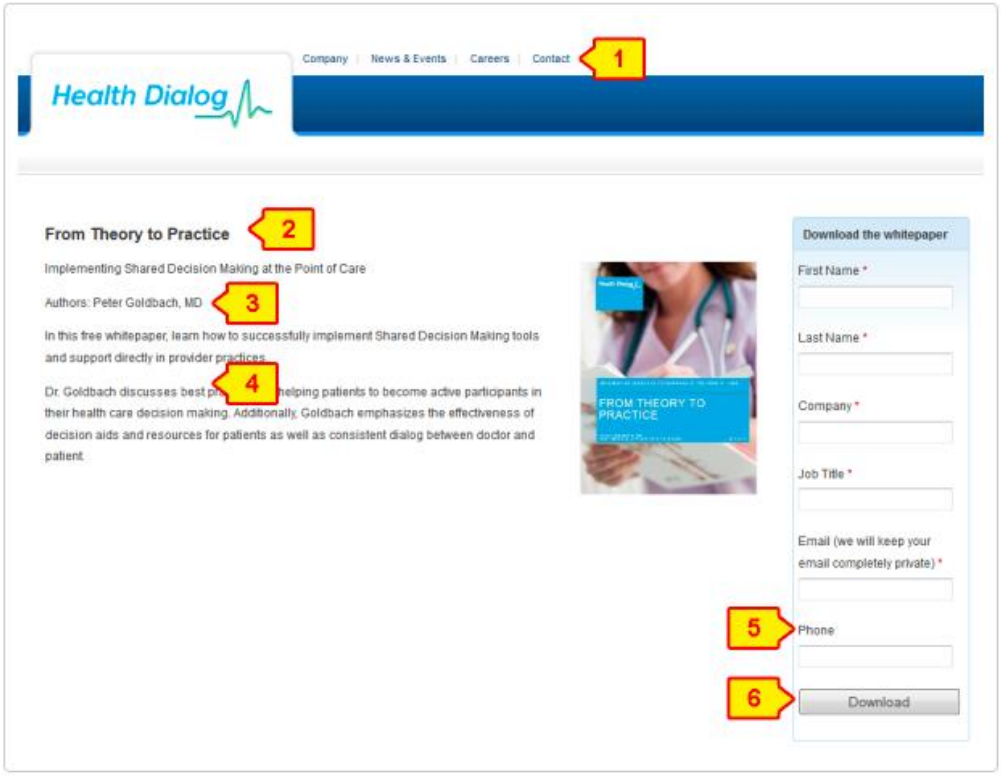

Figure 14. Blog Hubspot: Before and after 2012

The homepage is very simple and clear, with is a good. The content text is situated well in the middle section. The main characteristics of a successful webpage are included, such as: headline, body content, a supporting image and a lead-capture form.

3.7.1 Suggestions for improvement

Below is a list of suggestions that's could be changed in order to achieve a better visual appearance.

- *Removing the top navigation*. On order to increase conversion rates it's better to any other site navigation from the homepage. It helps the visitor from being distracted.

- *Highlighting the value in the headline.* Helps the homepage headline to stand out and improvers the strength of the title.
- *Using bullet points in order to highlight the benefits of the offer.* Using short a simple bullet points in order to highlight the best qualities would be recommended. Its helps the viewer to quickly scan the page and understand why they should adapt the service.
- *When a field is not required is should be extra clear.* This is a tip that the homepage can benefit from a lot. Adding a small text saying, "not required" would be recommended in order to reduce friction.
- *The download button should be more appealing.* Making the button graphically more appealing as well as changing the colour and size could improve the conversion rates. A bigger and more colourful button would be recommended. (Meher, 2012)

Now the changes have been done to the Health dialog web page. The screen shot is an example of a redesign.

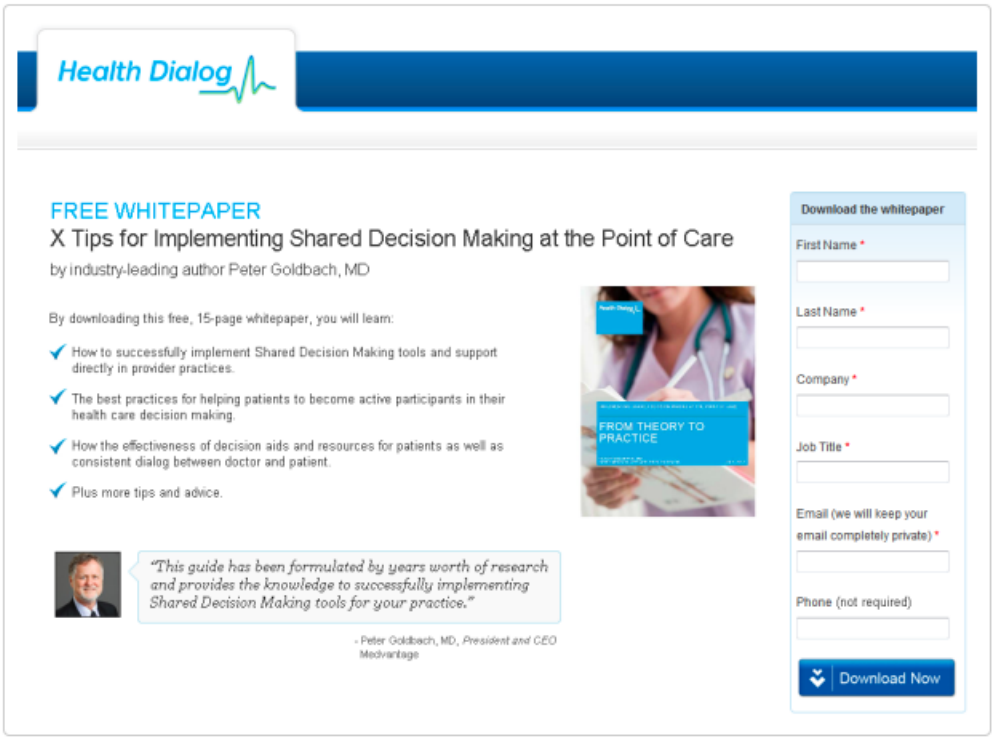

Figure 15. Blog Hubspot: Before and After 2012

3.7.2 Introducing the changes

Below is a list of changes that have been done to the web page.

- *Removed the top navigation*
- *Added clear headline.* In order to make the title of the homepage more strong. Also makes the titles and headlines more attractive.
- *Added a sub-head that adds creditability to the author.* If an author is used as a selling point, than there should be motivation for this included in the text.
- *Short bullet points have been added.* So that the main benefits gets more highlighted.
- *Reduced friction in the form.* A text saying, "not required" was added next to the phone label. Now the viewer knows that the phone number section is not compulsory.
- *Added a bigger and more colourful button.* Some studies have shown that using more colourful colours in the buttons increases the visibility. The colour blues was used in this case because it matches the Health dialog branding. (Meher, 2012)

3.7.3 Redesign summary

Companies often have plenty of information that they want to be seen on their webpage. It's important to avoid a messy outcome. In my previous chapters I concentrate on different elements that should be focused on in order to avoid having a webpage that can be seen as distractive.

It's a common misconception to think that the webpage is the first impression a visitor will have of your business. The visitor has often heard about the company in some way or another. It's more likely that a visitor will end up on a site based upon a search.

It’s important to subdivide the content of a webpage into individual pages. The designers should keep on mind what’s the easiest way for the viewer to get around looking for the right information. Also understanding the logic of the viewer’s mind is important, meaning understanding how the visitor can easiest find what they are looking for. It’s often alluring to add to much information on the homepage. It’s better to use the homepage for high lightening other areas of content within the site, and to drive the traffic to them. The homepage should have a similar pattern with the other subpages, it should give an overview or introduction to the viewer if the company. Webpage’s also need some form on navigation to other areas of the site, and also branding is an important aspect.

The most important and crucial aspect looking at implementation is the navigation of a page. It’s important to identify the common destinations of the site and to use these in the main navigation. It’s often said that every site in a webpage should be three clicks away. This rule is also a misconception. If every page would follow this rule then the Internet would be full of bad and very complex designed web pages. As long as they are in a deceptive progress from the link to the next then the viewer will get a feeling that there are on the right track. The most important aspect of navigation is consistency.

There also many other parts that should appear repeatedly such as branding, logo or masthead to show whom the webpage belongs to. The header of the page can have more than one logo. The header can also be attached to the main navigation. The footer again should contain some extra information such as copyright notice and links to useful related pages.

It’s important to have a consistency amongst the colour, layout, use of shapes and colour and typography. The use of regular appearances and placement helps the viewer to keep oriented and gives the feeling of familiarity. All the different pages should still be unique even though common elements are being used. Establishing significant content is a main factor when wanting to achieve a successful webpage.

Looking at the text content on a webpage, each section should always have an own heading which indicated the importance of text.

With usability we mean the function that makes a page behave in rational and expected way. Web pages that do not consider the need of the user often are lacking in usability. By knowing the viewer's needs and prioritizing these right you will achieve a webpage that is satisfying and meets up to the viewer's expectations. It's not easy to establish a webpage that consist the right amount of usability. Often the most successful sites are built up by experience and knowledge. It's always recommended to test a site with real people before releasing in on the Internet. The following question should be answered in order to know if the page is a success: Can the viewer's find the pages that they are looking for; does the search give them the right result for the search term used? Do viewers get annoyed at anything? Are viewers pleased by anything?

There are companies that are specialized on usability testing and consulting. If budget is an issue, taking to account that it is very expensive to outsource this type of service, than having people you know tested is also a possibility. In this way the webpage can get a quick and informal test result.

All these before mentioned broad terms are helping factors in order to achieve a well-functioning webpage that is user friendly.

3.8 Summary of literature

According to the literature review, the visual elements are of great significance.
The placement of the main elements follows a standard pattern (see. 25).
The most typical model of design is called conical.
The author has built up the empirical research on the bases of the literature used in the study. The following design elements will be used in the research.

- **Colour**
    1. White (neutral colour)
    2. Black
    3. Purple (popular colour in the fashion field)

- **Product pictures**
    1. Pictures with people
    2. Pictures without people

4 EMPIRICAL RESEARCH: EYE-TRACKING STUDY

The research included 6 different templates. The test pictures were done Photoshop, by changing the background colour and pictures. The test was done with the eye-tracking machine at Arcada University of Applied Science. 13 respondents participated and they were selected randomly without any limitations. The showing time of each picture was chosen by the respondent themselves, the test picture changed by pressing a button.
The eye-tracking test lasted for approximately 5 min and in the beginning a small introduction was told. A short questionnaire was asked to be filled after the eye-tracking test was successfully completed. The empirical research was built up by information collected from the
The result of the test will be shown as heat maps. Statistics of the mean time will be shown in seconds. In each picture five main areas have been selected. And the statistics shows how much time the participants have spent watching each area.
The heat map shows the result of all test participants on each picture. If the area is red, it means that many obsessions have been done, yellow colour means fewer and green even less. Small changes were done to each picture. The background colour, menu colour and product presentation was changed. The author has customized each test picture. Each test picture will be analysed and discussed separately.

The tested pictures had to be divided into 5 sections in order to produce the average duration table and graph. The different sections can be seen in figure 19. The same figure also shows a typical structure of a web page

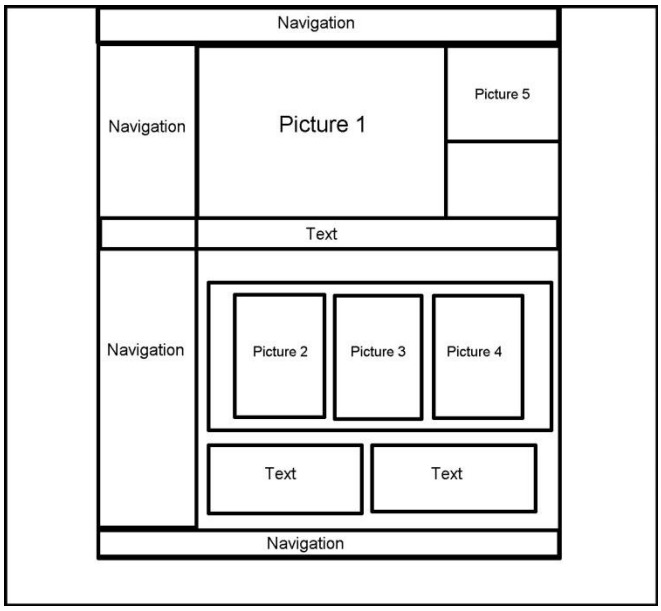

Figure 16. The sections used in the average duration measurement

4.1 Presentation of the 6 tested pictures

Below are the 6 tested web pages, especially constructed for the test with Photoshop. The colour (background) and pictures are changed.

Figure 17. Test picture A

A purple background and menu colors is used, that matches the clothing. The products are presented without using models.

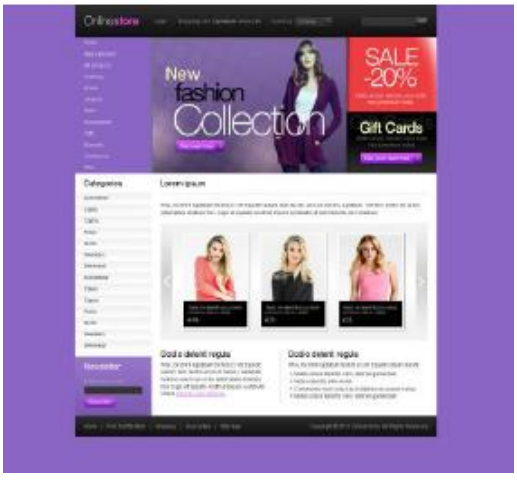

Figure 18. Test picture B

A purple background and menu colour is used, that matches the clothing. Models are used to present the clothing.

Figure 19. Test picture C

A black background and menu colour is used.
Models are used to present the clothing.

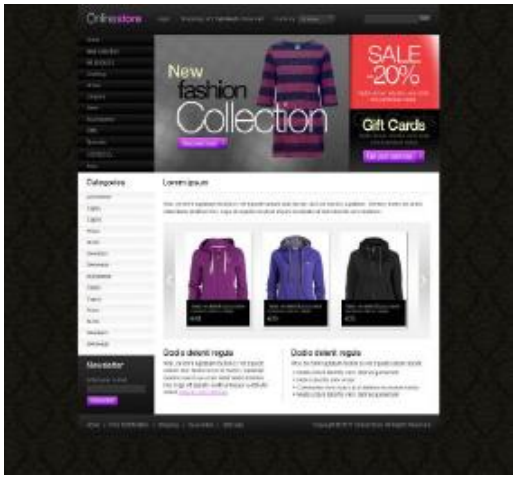

Figure 20. Test picture D

A black background and menu colour is used.
No models are used to present the clothing.

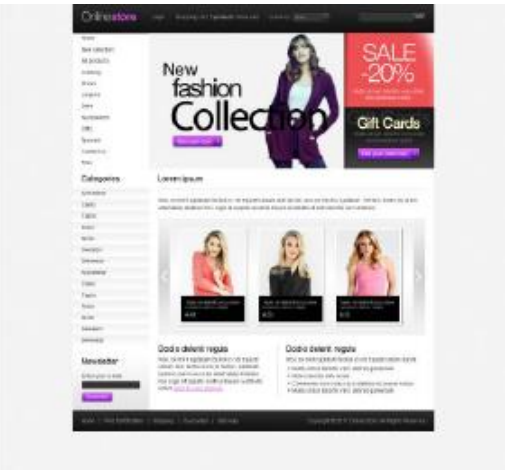

Figure 21. Test picture E

A white background and menu colour is used.
Models are used to present the clothing.

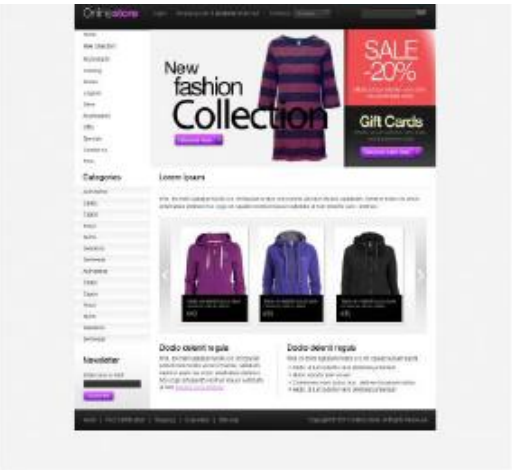

Figure 22. Test picture F

A white background and menu colour is used.
No models are used to present the clothing.

4.2 Results of the eye-tracking study

Each test picture will be presented and discussed separately. The pictures are named from letters A-F (see section 10.1 Presentation of the tested pictures). A total duration fixation graph will be shown and explained. The table shows the mean of the time to each recording.

A table with the total duration time of each selected main areas will be presented. Heat maps will be presented for some of the tested pictures; all heat maps can be found in the appendix. Not all tables and graphs are presented for each test picture, the missing ones can be found in the appendix section.

According to the Encyclopaedia heat maps are the best-known visualization techniques for eye tracking studies. Each heat maps shows the result for all respondents participating.

4.2.1 Test picture A

Figure 23. Heat map picture A (Tobii Studios 2014)

It's very clear that the main focus is on the products that are being sold, meaning the clothing. Relatively little focus is put on the main menu, situated to the left. Also the red box with the sales text gets a small bit of attention. The picture located in the center gets the most attention; same result can be seen on the other test pictures as well.

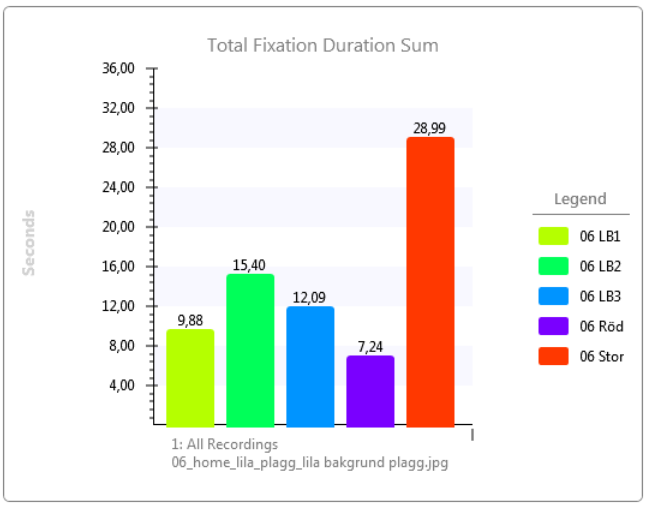

Figure 24. Graph picture A (Tobii Studios 2014)

The biggest picture up in the middle that presents the clothing gets clearly the longest time duration, looking at the result of all the test participants. All together the time spent on the picture was 29 seconds. The smaller picture down left gets least attention, only 7.24 seconds.

Even though the heat map shows plenty of activity on the middle picture that I smaller, the time duration table number is not that high, it is only 12, 09 seconds, meaning that it is the third longest time. There were no radical differences times wise between the thirteen different recordings. Recordings 04-07 spent more time analyzing the tested pictures than the other recordings.

Total Fixation Duration Duration of all fixations within an AOI, or within all AOIs belonging to an AOI Group (seconds).

	Total Fixation Duration														
	06_home_lila_plagg_lila bakgrund plagg.jpg														
	06 LB1			06 LB2			06 LB3			06 Röd			06 Stor		
Recordings	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Seconds
Rec 01	-	-	-	0,32	0,32	-	-	-	-	-	-	-	1,27	1,27	-
Rec 02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rec 03	-	-	-	-	-	-	0,20	0,20	-	0,22	0,22	-	0,81	0,81	-
Rec 04	3,33	3,33	-	4,92	4,92	-	5,85	5,85	-	-	-	-	2,81	2,81	-
Rec 05	1,38	1,38	-	4,35	4,35	-	2,31	2,31	-	0,52	0,52	-	6,93	6,93	-
Rec 06	3,41	3,41	-	2,41	2,41	-	2,85	2,85	-	2,81	2,81	-	6,94	6,94	-
Rec 07	0,25	0,25	-	-	-	-	-	-	-	0,35	0,35	-	0,23	0,23	-
Rec 08	0,25	0,25	-	0,37	0,37	-	0,57	0,57	-	-	-	-	0,17	0,17	-
Rec 09	0,22	0,22	-	0,48	0,48	-	-	-	-	1,17	1,17	-	0,64	0,64	-
Rec 10	0,13	0,13	-	1,30	1,30	-	0,22	0,22	-	0,43	0,43	-	1,70	1,70	-
Rec 11	0,17	0,17	-	0,18	0,18	-	-	-	-	-	-	-	1,67	1,67	-
Rec 12	0,48	0,48	-	0,30	0,30	-	-	-	-	0,32	0,32	-	2,86	2,86	-
Rec 13	0,25	0,25	-	0,77	0,77	-	0,10	0,10	-	1,43	1,43	-	2,96	2,96	-
All Recordings	0,99	9,88	1,31	1,54	15,40	1,77	1,73	12,09	2,13	0,91	7,24	0,89	2,42	28,99	2,32

Figure 25. Average duration table; picture A (Tobii Studios 2014)

4.2.2 Test picture B

The heat maps results do not differ much from test picture A, the heat map can be found in the appendix (chapter 15). A tiny bit more focus was given to the menu, situated to the left.

Also the time duration was similar to test pictures A. The longest focus was on the biggest picture, in this case 25, 25 seconds all together. The time duration table and graph can be found in the appendix (chapter 15)

4.2.3 Test picture C

The heat map did now show any differences compared to the previous tested pictures. The small picture down left got a slightly more attention. The bigger picture in this case got the longest duration time looking at all the tested pictures; the result was 33, 19 seconds. The small picture down to the left got slightly more attention compared to the other tested pictures.

The heat map and time duration can be found in the appendix (chapter 15)

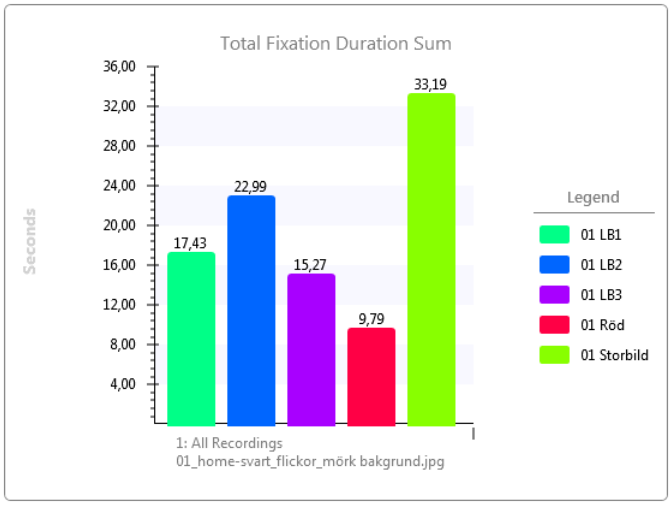

Figure 26. Graph picture C (Tobii Studios 2014)

4.2.4 Test picture D, E and F

Same test result occurred in these cases than the previous ones. No radical changes could be seen on the heat maps. Also the duration times were very similar on each selected area compared with the other tested pictures. The heat maps, duration graphs and duration tables for each test can be found in the appendix (chapter 15)

4.2.5 Gaze plots

Gaze plots display the movement sequence, in order and duration of gaze fixation. The gaze emotion can be presented sedately for each respondent.

Two of the tested pictures will be presented. Test picture D has the clearest pattern; each respondent follows the same pattern systematically looking at the main pictures. There's no focus on the other aspects of the page. When again test picture D has the most unorganized pattern of gaze plots. Some movement can be seen in main menu area and also upper menu. Surprisingly the red ad did not get any attention. The bright red colour was expected to draw attention. And also text in the red box could have been very tempting to look at. The beginning point of the gaze plots has no similar pattern.

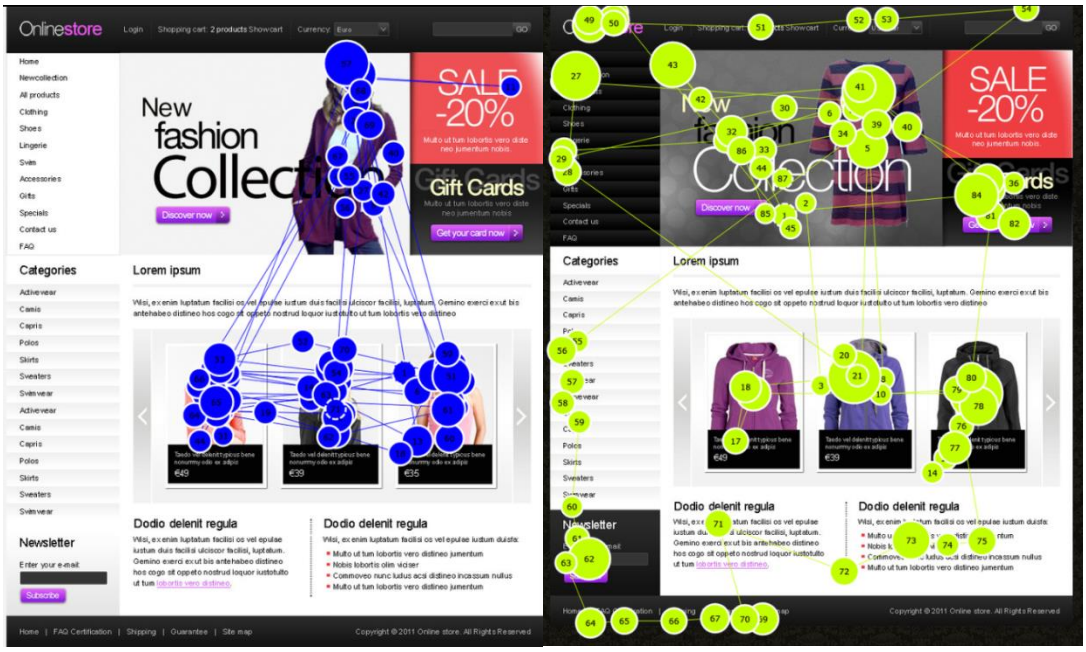

Figure 27. Gaze plots test pictures E & D (Tobii Studios 2014)

4.2.6 Summary of the test pictures

The results were very similar. Especially the heat maps were following a very similar pattern looking at the eye movement. Even though the participants were asked to focus on the products being sold, some eye movement could also bee see on other areas, such as menu area and advertisement section. Especially the red box with a sales text caught the viewer's eye; the reason for this might be the distractive color red.

Picture B got the most attention time wise. The time was almost double more compared with the other tested pictures. The time was 8, 06 seconds when the others had between 3-5 seconds. The duration table below shows the time for all the tested pictures.

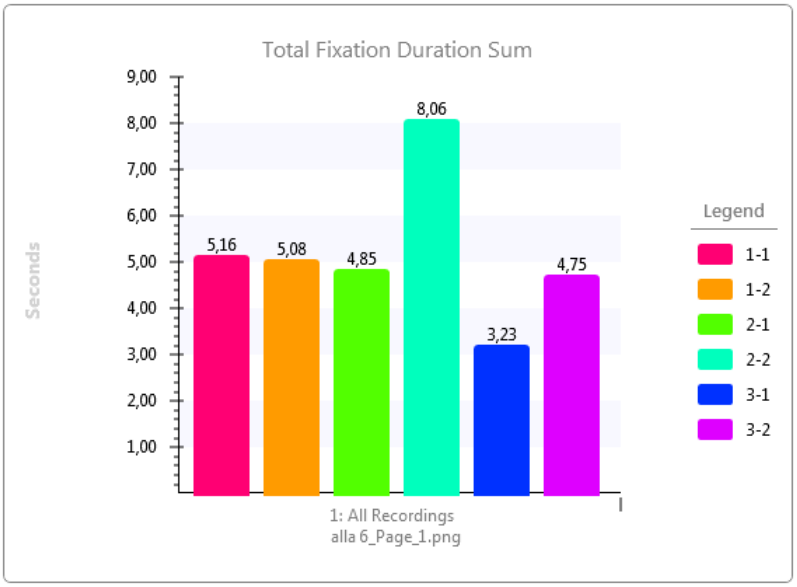

Figure 28. Average duration table of all test pictures (Tobii Studios 2014)

5 CONJOINT ANALYSIS

The conjoint analyse was adapted to the research in order to get relevant qualitative information about the webpages. The design of the webpage was done using SPSS module. With the help if the conjoint analysis it's possible to differentiate groups of respondents. The data used on the conjoint analyse is based on the data collected from the questionnaire. Both individual and group statistics can be created. In this study group results will be presented. The respondents were chosen randomly and the sample included a mix of males and females between the ages 20-60.

According to the Encyclopaedia a conjoint analyses is s statistical technique used in market research. The objective if this kind of analyse is to determine what combination of limited number of attributed is most influential on respondent's choice or decision-making.

5.1 Planning of the analyse

The respondents were given a questionnaire with the following questions and tasks:

- Point 1-100 (of the six tested pictures)
- Rating 1-6 (of the six tested pictures)
- Gender (female/male)
- Age
- Experience of buying clothes online
    - I buy most of my clothes online
    - I buy half of my clothes online
    - I sometimes buy clothes online
    - I rarely buy clothes online
    - I never buy clothes online

The questionnaire can be found in the appendix (chapter 15)

The statistical software SPSS (conjoint module) was used on order to produce the most relevant combination of the different questionnaire results.

5.2 Presentation of the conjoint analyse

5.2.1 Sample - Defining the average respondent

The questionnaire was presented to the following group of respondents (see table 1). Gender and age difference can be seen (table and 2). The youngest respondent was 21 years old and the oldest 60 years old. The mean of the age was 32 years. Almost 54 percent of the respondents were male and about 42 percent were female. Totally 13 respondents participated in the test

Table 1. Sex of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	6	46.2	46.2	46.2
	Male	7	53.8	53.8	100.0
	Total	13	100.0	100.0	

Table 2. Mean, minimum, and maximum age of the sample

	N	Minimum	Maximum	Mean	Std. Deviation
Age	13	21.00	60.00	32.5385	12.90100

5.2.2 Buying experience

The respondents were not very familiar with buying clothing on the internet. Only one respondent answered that they buy half of their clothing from e-commerce shops. Four people answered that they never buy clothing online. None of the responded buys most of their clothing online.

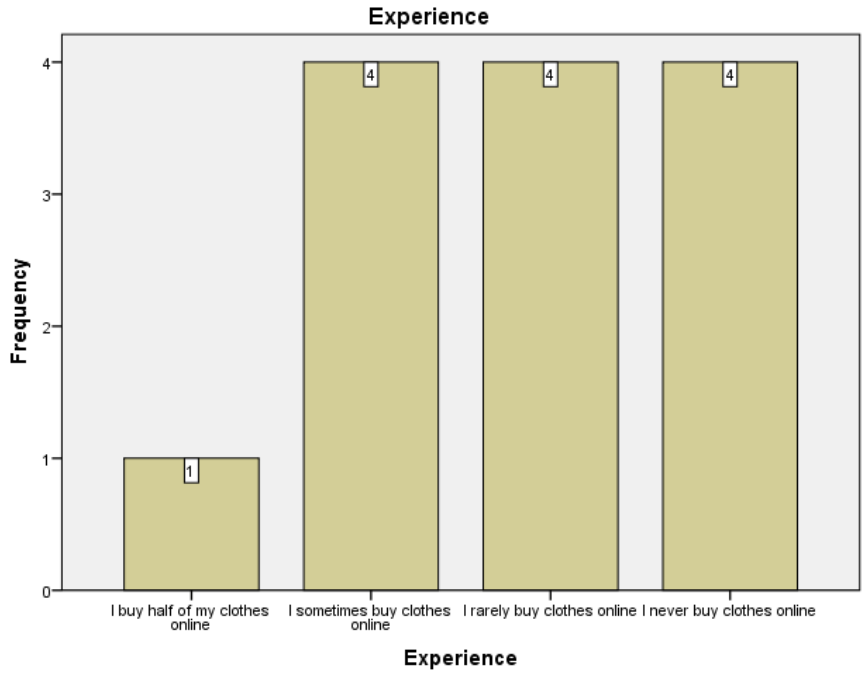

Figure 29. Classification of respondents buying experience

5.2.3 Ranking (1-6)

Both female and male respondents gave the highest utility for picture E (models and white background). Both D (without model and black) and A (without model and purple) got the lowest utility rate. Test pictures with models and neutral colours are clearly the most popular by the respondents. The importance summary (figures 32 and 35) shows that both genders preferred colours to pictures. Having models showing the clothing also got a higher utility (figures 31 and 34).

Female

Table 3. Utility: ranking 1-6 (female)

		Utility Estimate	Std. Error
Färg	Svart	-.250	.039
	Vit	.250	.039
	Lila	1.003E-013	.039
Bild	Människor	1.056	.028
	Plagg	-1.056	.028
(Constant)		3.500	.028

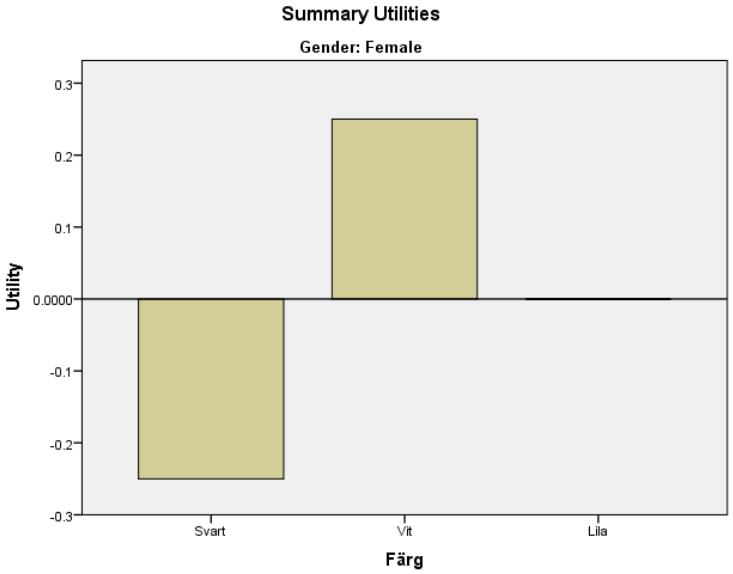

Figure 30 . Utility: colors (female)

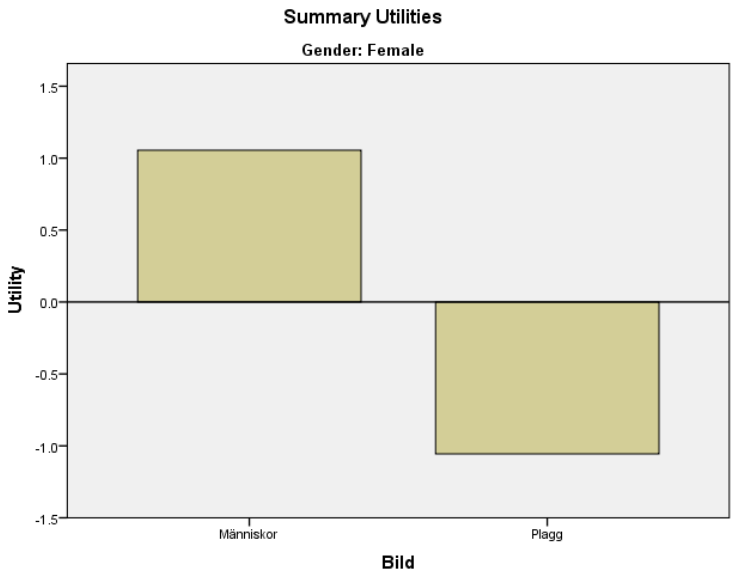

Figure 31 . Utility: pictures with models vs. without (female)

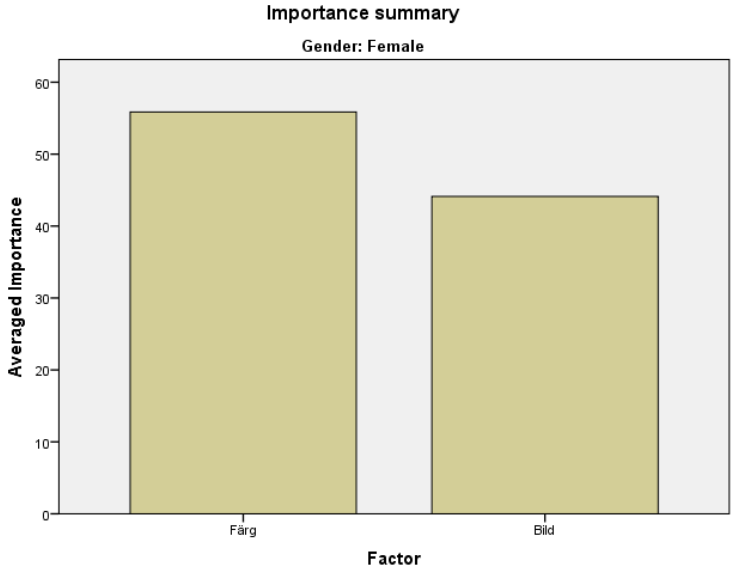

Figure 32 . Utility: color vs. pictures (female)

Male

Table 3. Utility: ranking 1-6 (female)

		Utility Estimate	Std. Error
Färg	Svart	-.357	.121
	Vit	1.286	.121
	Lila	-.929	.121
Bild	Människor	.452	.086
	Plagg	-.452	.086
(Constant)		3.500	.086

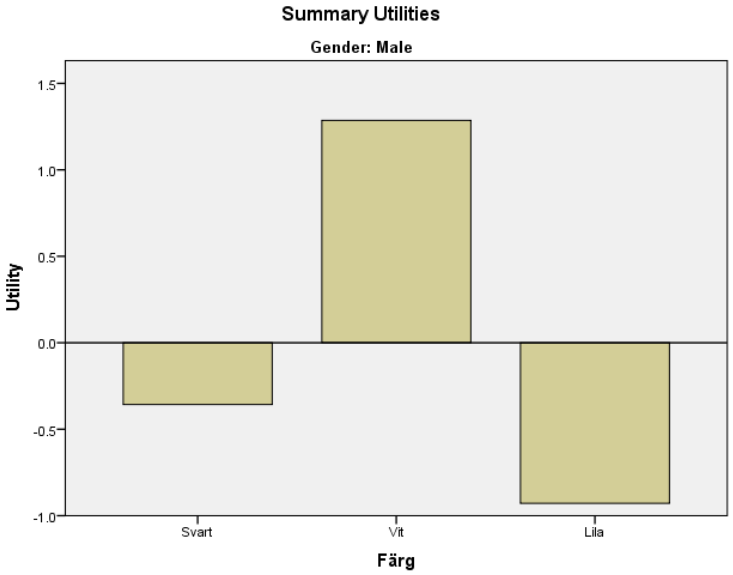

Figure 33. Utility: colors (male)

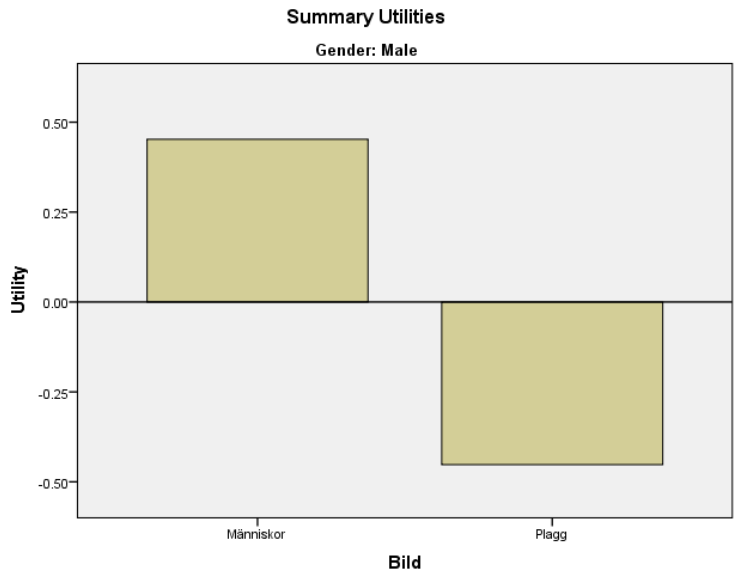

Figure 34. Utility: pictures with models vs. without (male)

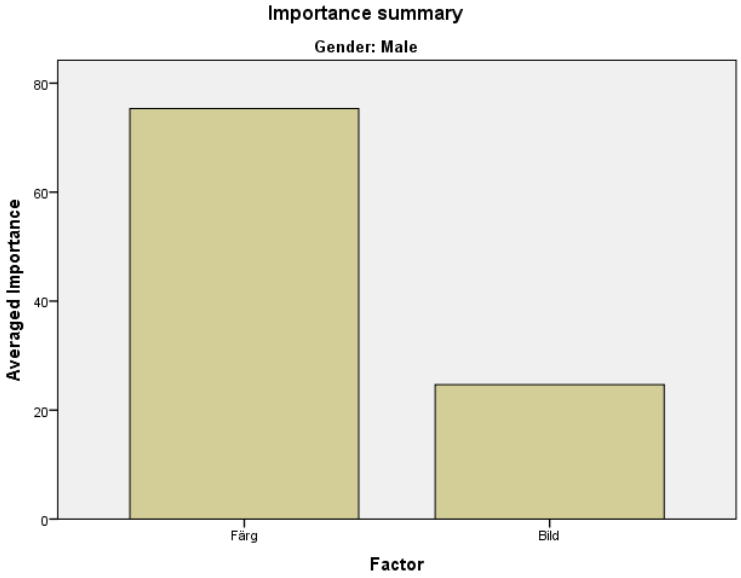

Figure 35. Utility: color vs. picture (male)

5.2.4 Points (1-100)

The female respondents had the highest utility for test picture C (models and black background) when again the male respondents preferred test picture E (models and white background). Both genders had the lowest utility for colour purple as background. The importance summary shows that female gave equal utility for pictures and colours (figure 38) when again male respondents clearly gave a higher utility for colours. Both genders agreed that models have the higher utility than without (figures 36 and 40)

Females

Table 4. Utility: points 1-100 (female)

		Utility Estimate	Std. Error
Färg	Svart	1.944	.802
	Vit	-1.139	.802
	Lila	-.806	.802
Bild	Människor	7.917	.567
	Plagg	-7.917	.567
(Constant)		55.139	.567

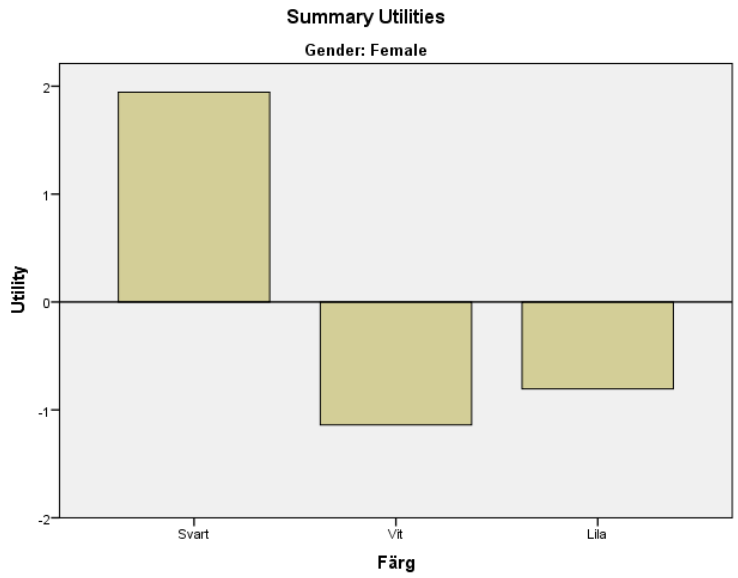

Figure 36 . Utility: colors (female)

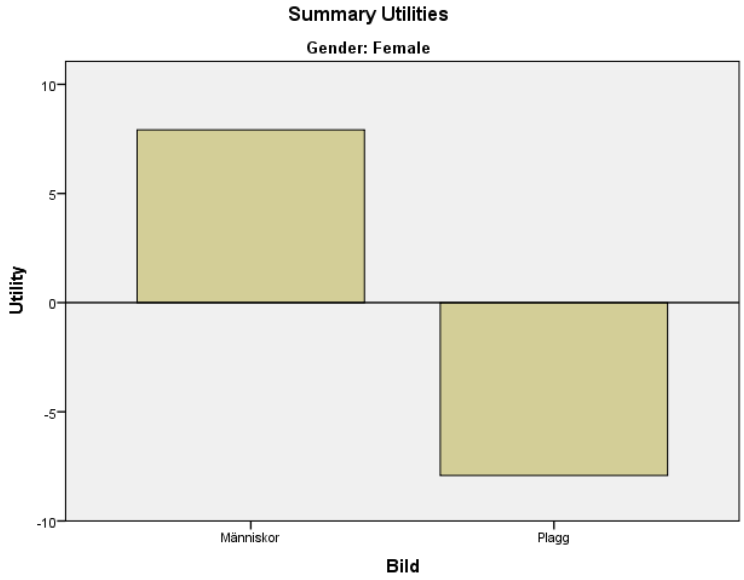

Figure 37. Utility points 1-10, models vs. without (female)

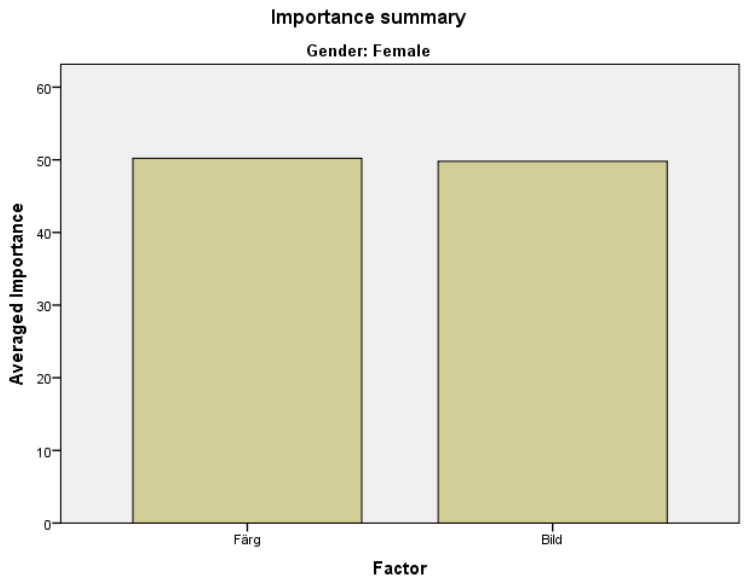

Figure 38. Utility: points 1-100, colors vs. pictures (female)

Males

Table 5. Utility: points 1-100 (male)

		Utility Estimate	Std. Error
Färg	Svart	-6.286	.599
	Vit	14.714	.599
	Lila	-8.429	.599
Bild	Människor	3.619	.423
	Plagg	-3.619	.423
(Constant)		66.143	.423

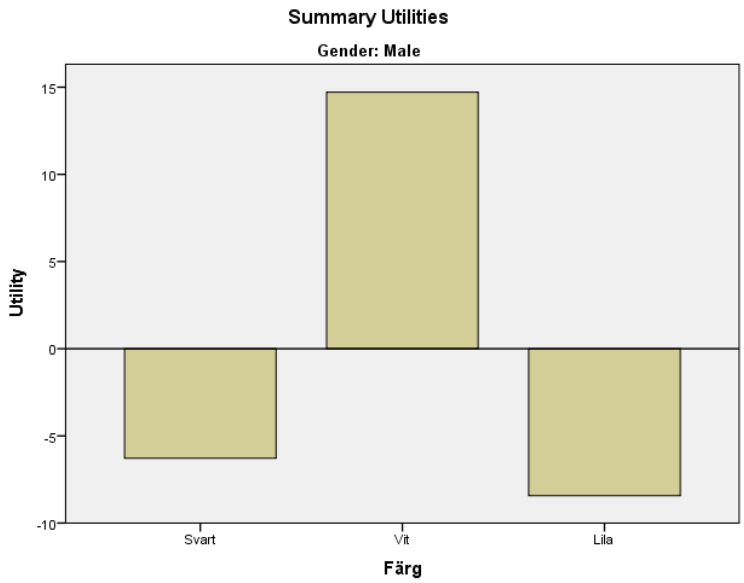

Figure 39. Utility: point 1-100, colors (male)

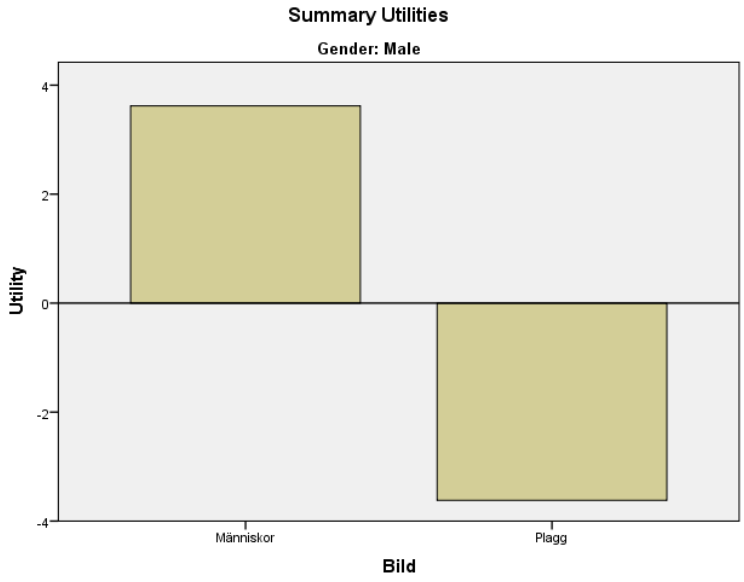

Figure 40. Utility: points 1-100, models vs. without (male)

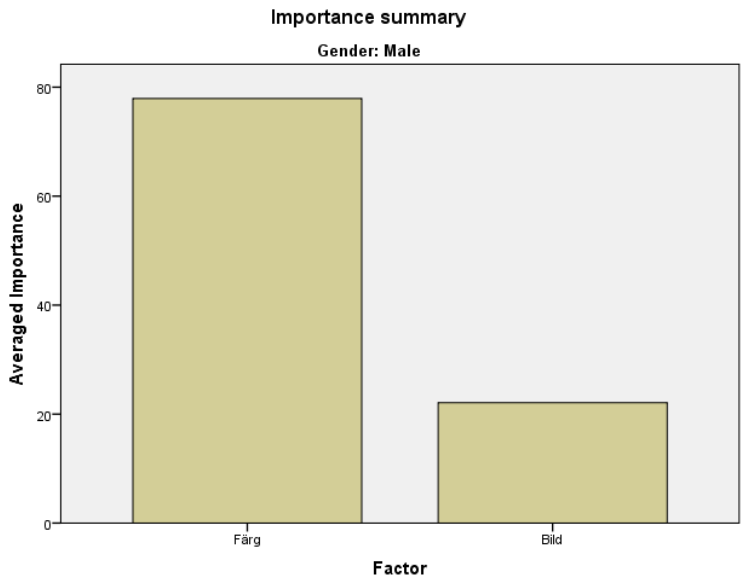

Figure 41. Utility: points 1-100, colors vs. pictures (male)

5.2.5 Comparing female and male results

Based on the overall comparison utility result (figure 42) both genders have a very similar way of thinking and approaching the tested pictures, only minor differences could be observed.

Male respondents preferred black background and having models presenting the clothing when again female respondents preferred purple background without models presenting the clothing. The overall result of the utility was surprising since purple was not showing a high utility rate individually.

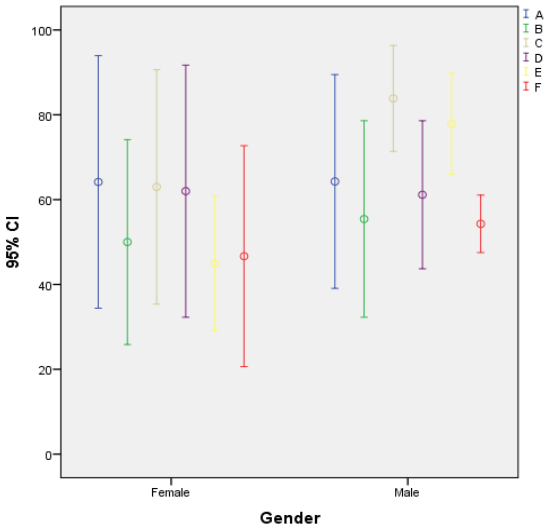

Figure 42. Overall comparison female vs. male

6 DISCUSSION

The theoretical part gave useful qualitative information that contributed to the Eye-tracking test. The author did not find difficulties in finding theoretical information regarding the subject. The information used in the theory part contributed well with the empirical part.

The aim of the study was to find out the value of using certain colour in the background as well as finding out how the overall visual appearance is recommended to look like.

From the tree different colours used in test, white was most popular amongst both genders. A less popular colour amongst both genders was the colour purple. White is considered neutral colour and the colour can easily be adapted to any kind of webpage background. According to the colour theory part (chapter 5.4.2) white is not often seen in the ecommerce web design world. The colour purple is more common in the retail and beauty business according to the colour introduction.

In view of the fact that most of the respondents were not experiences e-commerce shoppers in the field of retail, and more specific clothing, it's understandable and expected that the colour of interest would be white.

When again the trendy colour purple according to the studies did not achieve popularity amongst the respondents.

The tested web pages were selling women clothing, which resulted men to put more focus and value the colouring of the layout instead of choosing the clothing as the most important aspect.

The largest picture on each test picture got the most focus looking at all respondents.

This is a logical pattern of behaviour, since the gaze of the eye is used to moving towards the central of the layout at first, and from there moving towards the sides. Also bigger pictures and graphics get more attention than smaller ones.

7 CONCLUSION

The method of Web design nowadays I following a standard pattern. The field of design is changing rapidly and becoming more modernized as time go bye. Web design developers all over the world use the same structure and similar overall appearance.
E-commerce is becoming more popular since the use on internet all the time rapidly grows. Buying clothing is easy and time-saving. The consumers are used to a certain kind of structure and want the buying experience to be as easy as possible.
A well-suited colour scheme is recommended to use 2-3 primary colours that blend well together in order to create the proper mood to the webpage.

The visual aspects are nowadays as important as the usability. Using the right background and text colour for example is necessary in order for the viewer to stay on the page. The competition on the e-commerce market is great, so having distractive element might result to losing the potential customer.

The test result where not surprising. Since the majority of the respondents were inexperienced e-commerce users. The respondents found the most natural background colour most appealing. Also looking at the overall appearance colours had a bigger importance than the actual product pictures. This result was confusing, since the clothing should have plays the most important role in the authors view of point. The result also shows that the most central area of the layout is the most attractive. When comparing the results between genders, there were only small differences.

The author reflects on the study process as a challenging and interesting journey. Due to lack of time, the amount of respondents participating was narrowed down. The result could have been more accurate if more data could have been collected.

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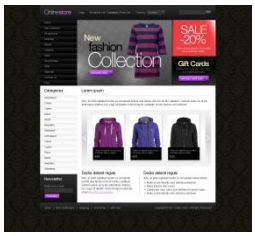
9 APPENDIX

This appendix includes Heat maps, graphs and time duration tables taken from the eye-tracking test. The Questionnaire related to the eye-tracking test will also be shown.

Questionnaire

Web page	Points 1-100	Rating 1 to 6
A 		
B 		
C 		

D  		
E  		
F  		

About myself:

Gender:

1. Female
2. Male

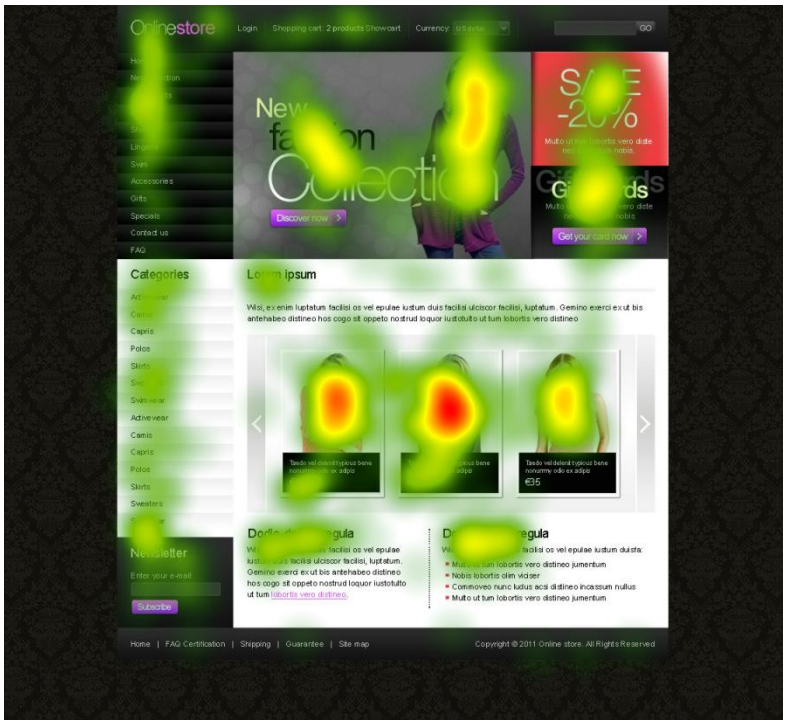
Age:_____

Experience of buying clothes online:

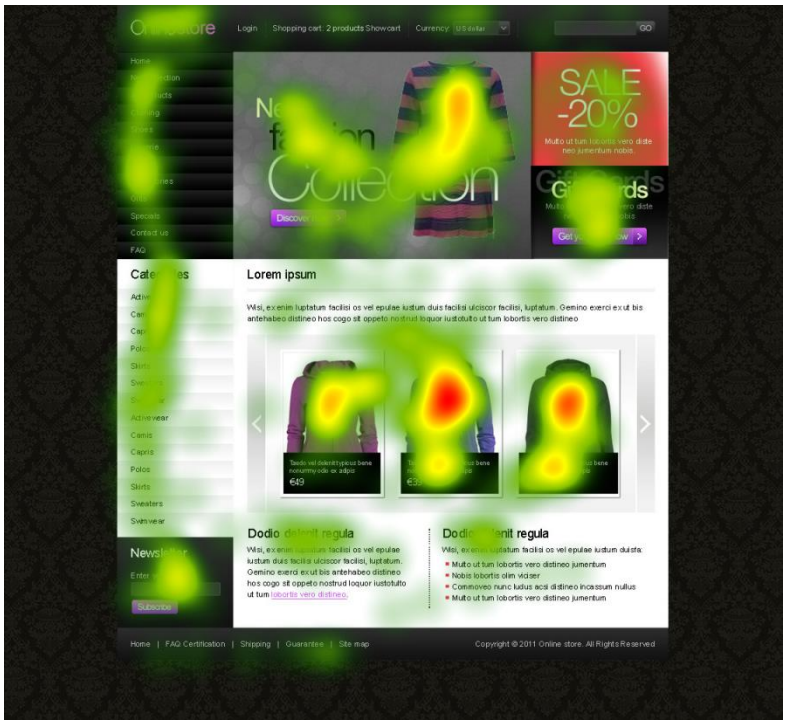
1. I buy most of my clothes online
2. I buy half of my clothes online
3. I sometimes buy clothes online
4. I rarely buy clothes online
5. I never buy clothes online

Heat maps

Test picture B



Test picture C

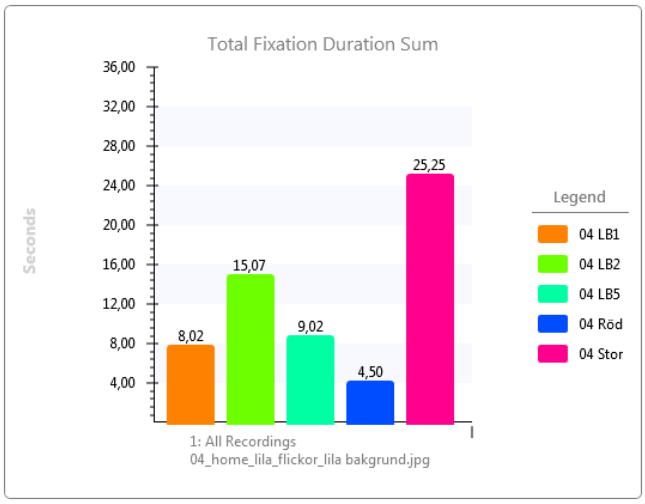


Test picture D

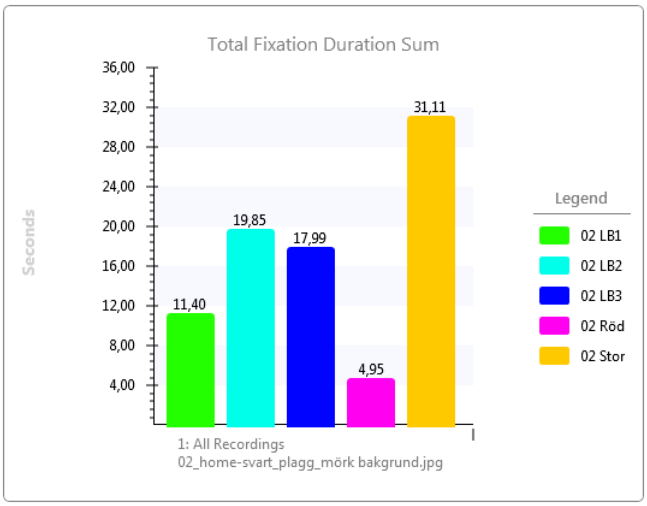
Tested picture E

Tested picture F

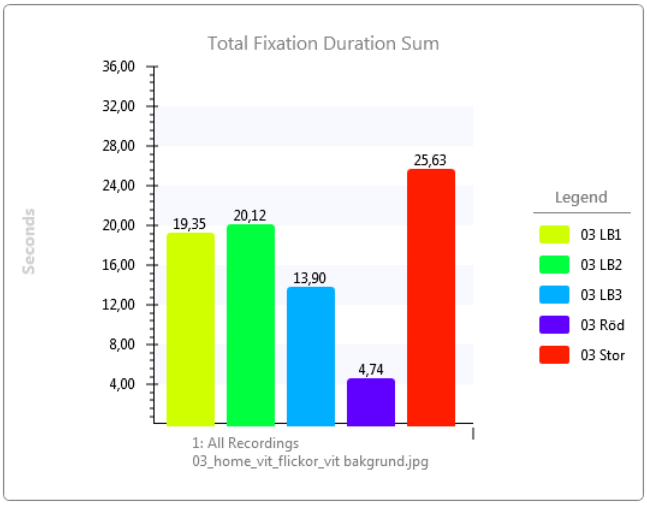
Average duration graph



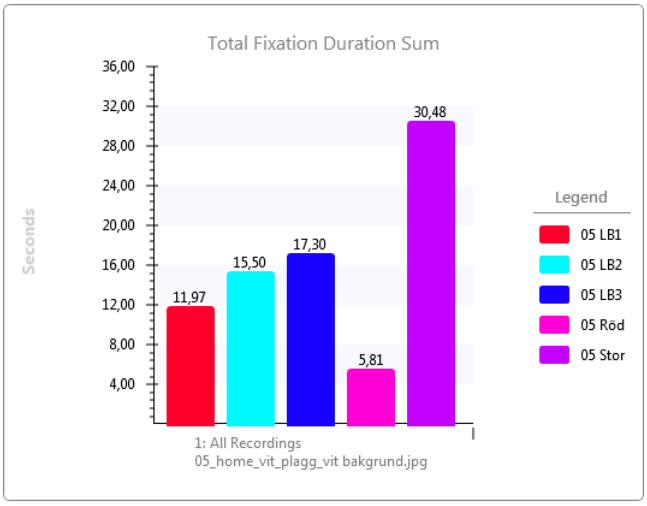
Test picture B



Test picture D



Test picture E



Test picture F

Average duration tables

Total Fixation Duration Duration of all fixations within an AOI, or within all AOIs belonging to an AOI Group (seconds).

	Total Fixation Duration														
	04_home_lila_flickor_lila bakgrund.jpg														
	04 LB1			04 LB2			04 LB5			04 Röd			04 Stor		
Recordings	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Seconds
Rec 01	-	-	-	0,34	0,34	-	0,13	0,13	-	-	-	-	0,65	0,65	-
Rec 02	0,22	0,22	-	0,57	0,57	-	1,01	1,01	-	0,37	0,37	-	0,33	0,33	-
Rec 03	0,17	0,17	-	0,58	0,58	-	-	-	-	0,47	0,47	-	0,87	0,87	-
Rec 04	1,95	1,95	-	3,75	3,75	-	1,38	1,38	-	-	-	-	2,28	2,28	-
Rec 05	1,00	1,00	-	2,37	2,37	-	1,07	1,07	-	0,73	0,73	-	3,91	3,91	-
Rec 06	0,80	0,80	-	2,87	2,87	-	2,17	2,17	-	1,05	1,05	-	6,51	6,51	-
Rec 07	0,57	0,57	-	-	-	-	0,43	0,43	-	0,30	0,30	-	1,46	1,46	-
Rec 08	1,13	1,13	-	0,97	0,97	-	0,57	0,57	-	-	-	-	0,82	0,82	-
Rec 09	-	-	-	0,55	0,55	-	-	-	-	0,68	0,68	-	0,92	0,92	-
Rec 10	0,62	0,62	-	2,30	2,30	-	1,10	1,10	-	0,20	0,20	-	2,32	2,32	-
Rec 11	0,37	0,37	-	0,22	0,22	-	0,40	0,40	-	-	-	-	0,95	0,95	-
Rec 12	0,63	0,63	-	0,18	0,18	-	0,18	0,18	-	0,18	0,18	-	2,13	2,13	-
Rec 13	0,58	0,58	-	0,38	0,38	-	0,58	0,58	-	0,52	0,52	-	2,10	2,10	-
All Recordings	0,73	8,02	0,50	1,26	15,07	1,22	0,82	9,02	0,60	0,50	4,50	0,28	1,94	25,25	1,68

Test picture B

Total Fixation Duration Duration of all fixations within an AOI, or within all AOIs belonging to an AOI Group (seconds).

	Total Fixation Duration														
	01_home-svart_flickor_mörk bakgrund.jpg														
	01 LB1			01 LB2			01 LB3			01 Röd			01 Storbild		
Recordings	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Seconds
Rec 01	0,15	0,15	-	0,71	0,71	-	0,12	0,12	-	-	-	-	1,67	1,67	-
Rec 02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rec 03	0,08	0,08	-	0,27	0,27	-	0,15	0,15	-	0,28	0,28	-	0,90	0,90	-
Rec 04	1,78	1,78	-	1,52	1,52	-	2,18	2,18	-	0,18	0,18	-	3,68	3,68	-
Rec 05	2,05	2,05	-	4,76	4,76	-	2,45	2,45	-	0,47	0,47	-	4,68	4,68	-
Rec 06	5,25	5,25	-	5,76	5,76	-	5,18	5,18	-	3,85	3,85	-	4,19	4,19	-
Rec 07	1,13	1,13	-	1,52	1,52	-	0,28	0,28	-	0,67	0,67	-	1,78	1,78	-
Rec 08	1,40	1,40	-	1,90	1,90	-	1,35	1,35	-	-	-	-	2,50	2,50	-
Rec 09	0,30	0,30	-	0,48	0,48	-	-	-	-	0,40	0,40	-	1,63	1,63	-
Rec 10	1,32	1,32	-	1,87	1,87	-	0,97	0,97	-	3,00	3,00	-	6,13	6,13	-
Rec 11	0,48	0,48	-	0,83	0,83	-	0,45	0,45	-	0,35	0,35	-	2,02	2,02	-
Rec 12	3,13	3,13	-	2,71	2,71	-	0,63	0,63	-	-	-	-	1,50	1,50	-
Rec 13	0,35	0,35	-	0,67	0,67	-	1,52	1,52	-	0,60	0,60	-	2,51	2,51	-
All Recordings	1,45	17,43	1,50	1,92	22,99	1,73	1,39	15,27	1,49	1,09	9,79	1,35	2,77	33,19	1,57

Test picture C

Total Fixation Duration Duration of all fixations within an AOI, or within all AOIs belonging to an AOI Group (seconds).

	Total Fixation Duration														
	02_home-svart_plagg_mörk bakgrund.jpg														
	02 LB1			02 LB2			02 LB3			02 Röd			02 Stor		
Recordings	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Seconds
Rec 01	0,27	0,27	-	0,33	0,33	-	0,85	0,85	-	0,38	0,38	-	0,60	0,60	-
Rec 02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rec 03	0,08	0,08	-	0,53	0,53	-	-	-	-	1,33	1,33	-	1,94	1,94	-
Rec 04	2,15	2,15	-	2,65	2,65	-	3,30	3,30	-	-	-	-	2,47	2,47	-
Rec 05	1,35	1,35	-	3,36	3,36	-	4,28	4,28	-	0,82	0,82	-	6,15	6,15	-
Rec 06	1,35	1,35	-	3,28	3,28	-	4,31	4,31	-	-	-	-	8,44	8,44	-
Rec 07	0,62	0,62	-	0,18	0,18	-	-	-	-	0,25	0,25	-	1,28	1,28	-
Rec 08	0,67	0,67	-	0,70	0,70	-	1,27	1,27	-	0,15	0,15	-	3,00	3,00	-
Rec 09	-	-	-	0,60	0,60	-	-	-	-	-	-	-	0,78	0,78	-
Rec 10	0,77	0,77	-	3,03	3,03	-	0,35	0,35	-	0,55	0,55	-	1,42	1,42	-
Rec 11	0,51	0,51	-	0,52	0,52	-	0,47	0,47	-	0,25	0,25	-	0,84	0,84	-
Rec 12	0,78	0,78	-	1,75	1,75	-	0,62	0,62	-	0,60	0,60	-	2,35	2,35	-
Rec 13	2,86	2,86	-	2,91	2,91	-	2,55	2,55	-	0,62	0,62	-	1,84	1,84	-
All Recordings	1,04	11,40	0,84	1,65	19,85	1,30	2,00	17,99	1,64	0,55	4,95	0,36	2,59	31,11	2,36

Test picture D

Total Fixation Duration Duration of all fixations within an AOI, or within all AOIs belonging to an AOI Group (seconds).

	Total Fixation Duration														
	03_home_vit_flickor_vit bakgrund.jpg														
	03 LB1			03 LB2			03 LB3			03 Röd			03 Stor		
Recordings	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Seconds
Rec 01	0,28	0,28	-	0,43	0,43	-	-	-	-	0,42	0,42	-	0,74	0,74	-
Rec 02	0,45	0,45	-	0,32	0,32	-	0,93	0,93	-	-	-	-	0,10	0,10	-
Rec 03	0,18	0,18	-	0,32	0,32	-	-	-	-	0,60	0,60	-	0,35	0,35	-
Rec 04	5,45	5,45	-	4,80	4,80	-	5,37	5,37	-	0,08	0,08	-	5,15	5,15	-
Rec 05	1,33	1,33	-	2,83	2,83	-	3,11	3,11	-	0,42	0,42	-	2,20	2,20	-
Rec 06	6,69	6,69	-	3,65	3,65	-	1,85	1,85	-	1,55	1,55	-	4,94	4,94	-
Rec 07	0,75	0,75	-	1,58	1,58	-	0,13	0,13	-	-	-	-	0,97	0,97	-
Rec 08	0,50	0,50	-	0,57	0,57	-	0,48	0,48	-	-	-	-	1,47	1,47	-
Rec 09	0,52	0,52	-	-	-	-	-	-	-	-	-	-	0,94	0,94	-
Rec 10	0,92	0,92	-	2,65	2,65	-	-	-	-	0,28	0,28	-	3,33	3,33	-
Rec 11	0,90	0,90	-	1,08	1,08	-	0,45	0,45	-	-	-	-	2,31	2,31	-
Rec 12	0,90	0,90	-	1,09	1,09	-	0,93	0,93	-	0,48	0,48	-	1,22	1,22	-
Rec 13	0,48	0,48	-	0,82	0,82	-	0,63	0,63	-	0,92	0,92	-	1,92	1,92	-
All Recordings	1,49	19,35	2,07	1,68	20,12	1,47	1,54	13,90	1,70	0,59	4,74	0,45	1,97	25,63	1,62

Test picture E

Total Fixation Duration Duration of all fixations within an AOI, or within all AOIs belonging to an AOI Group (seconds).

	Total Fixation Duration														
	05_home_vit_plagg_vit bakgrund.jpg														
	05 LB1			05 LB2			05 LB3			05 Röd			05 Stor		
Recordings	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Secor	Mean (.Secor	Sum (.Secor	Stdev (.Seconds
Rec 01	-	-	-	0,73	0,73	-	0,13	0,13	-	0,38	0,38	-	0,97	0,97	-
Rec 02	0,40	0,40	-	1,07	1,07	-	0,46	0,46	-	0,48	0,48	-	1,10	1,10	-
Rec 03	-	-	-	0,12	0,12	-	-	-	-	0,65	0,65	-	1,10	1,10	-
Rec 04	2,72	2,72	-	2,28	2,28	-	3,31	3,31	-	0,23	0,23	-	4,33	4,33	-
Rec 05	1,30	1,30	-	3,73	3,73	-	2,07	2,07	-	0,43	0,43	-	5,35	5,35	-
Rec 06	3,90	3,90	-	3,11	3,11	-	9,61	9,61	-	2,31	2,31	-	10,07	10,07	-
Rec 07	1,27	1,27	-	0,50	0,50	-	0,42	0,42	-	0,35	0,35	-	1,22	1,22	-
Rec 08	0,33	0,33	-	0,68	0,68	-	0,57	0,57	-	-	-	-	0,75	0,75	-
Rec 09	0,18	0,18	-	0,35	0,35	-	-	-	-	0,27	0,27	-	0,72	0,72	-
Rec 10	0,38	0,38	-	1,16	1,16	-	-	-	-	0,18	0,18	-	0,96	0,96	-
Rec 11	0,47	0,47	-	0,78	0,78	-	0,15	0,15	-	-	-	-	1,70	1,70	-
Rec 12	0,49	0,49	-	0,38	0,38	-	0,37	0,37	-	0,17	0,17	-	0,73	0,73	-
Rec 13	0,53	0,53	-	0,60	0,60	-	0,22	0,22	-	0,35	0,35	-	1,50	1,50	-
All Recordings	1,09	11,97	1,18	1,19	15,50	1,13	1,73	17,30	2,96	0,53	5,81	0,61	2,34	30,48	2,73

Test picture F