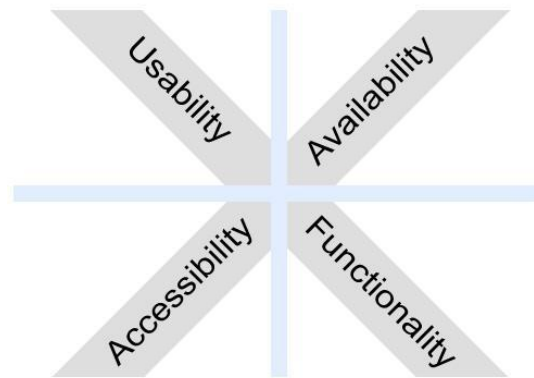


Experience a renewing view on UX - User eXperience, introduced to you as the



website eXperience model

a.k.a.
The WEM

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Abstract. Understanding the website experience of website users is highly complex. In this paper different methods and models are discussed, which all have the purpose to improve website experience as perceived by the website user. During the research website usability appeared to be a returning factor in the scrutinized works, though it was used in various ways. Because of the multiple meanings of usability, extra attention is paid to the concept and an attempt is made to redefine the word. Through analysing several methods and models a new model, existing of a compilation of four different groups of factors, is proposed; the Website eXperience Model (the WEM). As a corresponding method with the WEM the Website eXperience Review (the WER) has been developed. The WEM aspires to be an all-embracing and complete model for optimal website eXperience, which is outlined in this paper.

1. Introduction

Neither utopia nor dystopia, the Internet is the expression of ourselves (Castells, 2001: 6). When the internet would be an utopia though, websites would achieve their goals completely; they would be built in a way that navigation is obvious and that all website-users experience a good usability on the website. Users could find all the things they want easily and without unnecessary searching and clicking. In an internet utopia everyone would find the websites and online products and services they want without experiencing any discomforts.

On the existing internet multiple examples can be found of why the internet is not so perfect. Some of these exist of websites where users can not find what they are looking for, where they do not know how to get back to the homepage or where they are confronted with the lack of special features to overcome personal disabilities. These imperfect websites with questionable usability skills feed the need for an accurate method to improve and create websites. With the improved websites the website experience of website users will be improved.

In this research the main question is to find out by what approaches, or with what models, a website can be made (or can be improved) so that the website experience of the user is optimal. This question is about generating recommendations in order to improve website design, for what factors influence the website experience of website users? During the research it appeared that many researchers and experts focus on one specific item, like for

example optimising the usability of a website or increasing the consumer's intention to buy. It seemed a challenge to create an all-embracing model in which not just one kind of factor is included, but to create a model in which all the various factors that affect the website experience of a website user are included. In the chapters five, six and seven this will be scrutinized further, when the Website eXperience Model (chapter five) and the corresponding method the Website eXperience Review (chapter six) are being introduced.

In chapter three certain models and methods will be discussed. The focus will continuously be on the different factors that influence the website experience of the website user. For both the models and methods, the objective is to create a new, or improved website that is optimal on certain specific levels. In this the knowledge is taken into account that an optimal website experience will count for *most* website users, because defining 'a good website' is in part dependent on personal preferences as well.

Because of the continuously returning of the concept of usability it seemed useful to investigate the concept, in which many ideas appeared to hide. For this reason extra dedication is accomplished to website usability, as a central theme in chapter two as well as while discussing the models and methods in the third chapter. In the third chapter the various ways to approach the concept will be discussed. The conclusion on the meaning of website usability will be drawn in the fourth chapter.

2. (Probably-) the most important factor on website experience: usability

The concept of website usability is used by many researchers and often in different ways. In Dutch the word might be called a 'containerbegrip' with which is meant that the word, for it is so broad, can catch up almost everything (Knol, 2006: 7). This raises the question, what usability really is? And perhaps even more complex, what is usability not? As a beginning it is very interesting to see what certain experts have to say about it. In this chapter the view on usability by Nielsen, Krug and Flavián will be discussed. In the next chapter there will continuously be a feedback to usability as well, while discussing various methods and models.

For Nielsen website usability involves the ease with which the user can learn to manage the system and memorise the basic functions, the efficiency of design of the site, the degree of error avoidance and the general satisfaction of the user. Also, Nielsen suggested that website usability is a quality attribute that assesses how easy user interfaces are used. It seems that this definition does not give a method to acquire and or to measure this quality attribute (Nielsen, 1994).

Nielsen created the acronym Homerun to compile seven general factors that are of influence for a good website. These seven are High quality content, Often updated, Minimal download time, Ease of use, Relevance, Unique to the web and Netcentric organisational culture. Some factors are regarded to the content of a website ('high quality content,' 'often updated' and 'relevance') and some about usability ('ease of use') or technical factors ('minimal download time') (Hundepool, 2005: 32).

To Krug usability is about whether or not a website is easy enough to use and about solving problems that might cause website users grief (this he calls 'usability issues'). Also, Krug states: 'Usability really just means making sure that something works well: that a person with an average (or even below average) ability and experience can use the thing – whether it's a website, a fighter jet or a revolving door- for its intended purpose without getting hopelessly frustrated.' According to Krug, all the factors he examines and discusses in his book 'Don't make me think!' are part of website usability (Krug, 2006: 3).

As Flavián states, greater usability favours a better comprehension of the contents and tasks that the website user must realise to achieve an objective, like making an order. Also, usability is related to consumer ability to know where he or she is and what can be done where. The greater the self-confidence, the more trust the website users has in a website.

Flavián states that the degree of website usability perceived by the consumer has a direct and positive influence on the degree of trust shown in that same website (Flavián, 2005: par. 3.1).

Besides usability, according to Flavián, satisfaction is also of great importance on the website experience of a website user and the level of trust in a website. Greater perceived website usability has a direct and positive influence on the degree of satisfaction of the user of that same website. The level of satisfaction experienced by a website user depends on the difference between what the website user wants and what he or she obtains. The website user will feel satisfied when he or she perceives the fulfilment of the required level of honesty and competence in the website (Flavián, 2005: par. 3.2). Like Flavian, Kim and Eom also concluded that usability is of critical importance in achieving the satisfaction of the website user (Kim and Eom, 2002: 241-251).

Next to usability and satisfaction Flavián also focuses on loyalty. On loyalty, he states that greater perceived website usability has a direct and positive influence on the degree of user loyalty to that same website. Also, website consumer trust will leads to greater consumer loyalty to that same website. To conclude he states that greater consumer satisfaction of the services offered by a website will lead to a greater degree of loyalty towards that website.

For Flavián, sole usability considers the following factors: 1. The ease of understanding the structure of a system, its functions, interface and contents observed by the user 2. Simplicity of use of the website in its initial stages 3. The speed with which the users can find the item they are looking for 4. The perceived ease of site navigation in terms of the time required and action necessary to obtain the desired results and 5. The ability of the user to control what they are doing and where they are, at any moment (Flavián, 2005: par. 5).

3. Methods and models to analyse, advise and improve websites

Articles on website design and website experience offer many approaches to create and improve good, or better websites. Some articles are about methods to gather feedback on the website design and some are about specific models to optimise a group of specific factors. Together the accompanying researches give diverse information about website design, usability, access and other aspects that have an influence on website experience. In this chapter some important views are discussed, all with a focus on one or more specific (groups of) factors.

Ting, Kimble and Kudenko developed a method of visualizing the clickstream-data with which also recommendations for the examined website could be made. They found out that with clickstream-data, visualised by their footstep graph method, specific categories of patterns could be identified. These patterns contain information about weaknesses (and strengths) in website design. As a result the weaknesses can be identified and improved. For example the next picture of the *finger pattern* and how to transform it into an *upstairs pattern*:

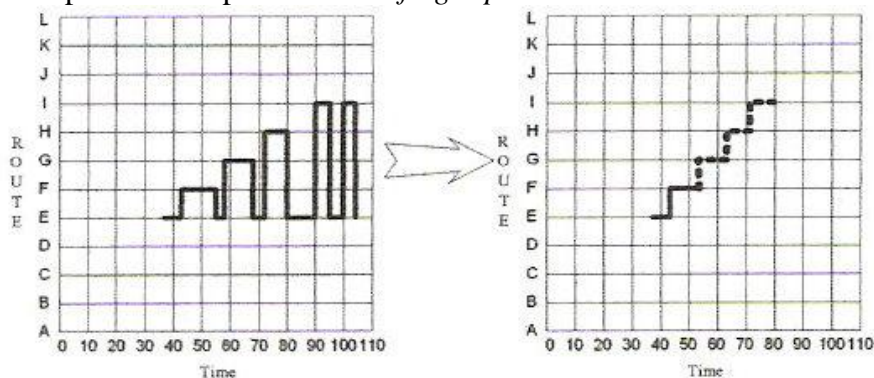


Figure 1. Visualisation within a footstep graph of the need to create an upstairs pattern from a finger patter (Ting, Kimble and Kudenko, 2004: 9)

With the help of the *upstairs, downstairs, mountain, valley and finger patterns* Ting, Kimble and Kudenko provide improvements for websites about for example navigation (add more links, improve (link-) terminology) and technical improvements (improve downloading time, improve the speed of the search function). They argue that with the shortest way to the destination for the website user and with the least number of annoyances that come up and when a user finds his or her destination on a website easily, the perceived website experience by the website user will be good or even optimal.

With clickstream-methods the focus is also on the factors that have an influence on the website testers experience. These are described in chapter 4 ‘Some interesting patterns.’ When the task is completed with the corresponding *upstairs pattern*, (like in the picture above on the right) it usually means the task was completed successfully and that the testers real experience is that they feel that they have moved smoothly through the website.

In certain situations during the *upstairs pattern* the time spent between two webpages was too long. One reason for that was that ‘an ambiguous link or page content makes the user confused and a long time is needed to make a decision.’ Another reason for the long time spent on one page could be ‘slow page downloading speed.’ So advise would be to improve these problems by using clear (link-) terminology and to improve the download speed (Ting, Kimble and Kudenko, 2004).

A popular approach to gather feedback on website design and/or usability testing is to use think-aloud methods, as seen by Ting, Kimble and Kudenko, Tan & Wei and Krug (Ting, Kimble and Kudenko, 2004; Tan and Wei, 2006; Krug, 2006). George used this method to research the website of the Carnegie Mellon University Libraries. The think-aloud protocols were used to evaluate the functionality, usability, strengths and weaknesses of the site and to make recommendations for revisions. Like in the paper of Ting, Kimble and Kudenko George offers adjustments and improvements to overcome the found imperfections (George, 2005).

Some findings of Georges research were ‘many students had difficulty navigating the website due to disorganized categorization: lists were sometimes unrelated items thus contributing to the confusion’ and ‘many students reported that the labels used on the front page did not make sense: only 40 percent of the students could correctly identify all 50 links with the content they provided.’ As a result the research focused (for a significant part) on re-labeling and categorization, persistent navigation using global headers and footers, site consistency and a clutter-free home page (George, 2005, 169).

The scrutinized factors that have an influence on website design and usability, as addressed in Georges research, are navigation, visual elements, search options, databases, usability and functionality. The exact meaning of these terms as used in this context were not explained in the paper, for the focus was not on the meaning of the used terms but on the process of user-testing, the results of this testing and the concrete improvements that can be made based on the research (George, 2005: 168).

One way to create a greater user experience is discussed by Hundepool and Marketingfacts, although they use different terms for it. They discuss dynamic content, or, as introduced by Research Corporation Forrester also known as ‘*transactive content*’ (Dolberg, 1997). It is a vision on software applications for websites to combine website *content, transactions* and *interactivity*. With acquired information parts of a website can be personalised, like advertisements or information blocks. This increases the personal approach and thus it will increase the website experience of the website users (Hundepool, 2005: 32).

Marketingfacts speaks in this context of a dynamic content, which is data driven. Every consumer is different, regard to preferences, plans, behaviour and/or demographics. Some websites are static and provide the same information to everybody who visits the

website, but increasingly it is possible to create websites that are data driven. Based on the characteristics of consumers, the website can get dynamic content. So when for example somebody looks for iPod's first, the homepage can be adjust to that with, for example, more electronics than 'normally.' This way the consumer gets more interesting information offered and that way both the provider of the content and the consumer will be more satisfied, so it might create a win-win situation (Marketingfacts, 2005: 21).

A well known and often used method is about trial and error; this method is based on trying, learning and than doing it better next time. One method like this is discussed in Marketingfacts and it is about A/B testing. This is a concrete way to optimise a segment of a website, such as a banner, button or a landingpage. To apply A/B testing, two versions (A and B) have to be created of the researched subject. Half of the visitors see the A version and the other half sees the B version. For both versions all kind of information, like the sales, time spent on the website, come-back visits, can be registered. Than there is information to choose for the best working version (Marketingfacts, 2005:19).

With A/B testing it is possible to select the best working version with the best characteristics. For example, one has a banner that consists of seven characteristics and each characteristic consists of two versions, there will be 256 options to choose from. Only one version can be the best, which makes this way of testing interesting.

The trial and error method also corresponds to the working method of Jarek Solowski, a business sales man who works on the websites of his clients. Solowski works with selection: he tries and keeps the versions with the best results (Solowski, 2007). This method can also be seen at Ting, Kimble and Kudenko, Hundepool and Marketingfacts (see figure 2, below) (Ting, Kimble and Kudenko, 2004:2; Hundepool, 2005:18; Marketingfacts, 2005:4).

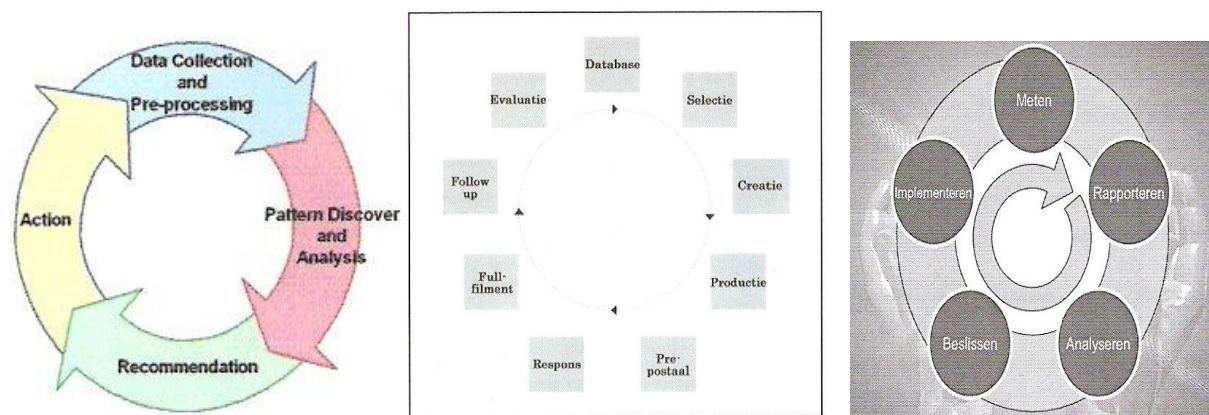


Figure 2. Models as presented by Ting, Kimble and Kudenko (left), Hundepool (middle) and Marketingfacts (right).

The Landscape Model, as introduced by Verhagen, is focussed on the pre-transaction stage in the selling/buying process on websites. It reviews the factors the customer and the supplier may need during the pre-transaction process, to optimise the purchase circumstances. Verhagen's model is built up of fourteen factors that are or can be of importance for both the customer and the supplier on a website. When these factors are optimal and as clear as possible, customers will experience a good website environment and both the customer and the supplier will be satisfied about the visit (Verhagen, 1999).

According to Hundepool, the model of Verhagen can be seen as an expert review model. This because of the huge influence on the transaction process that the model, with the fourteen dimensions, can have (Hundepool, 2005:32). Because of that the Landscape Model mainly focuses on the factor functionality, there is almost no attention paid to other factors. In

the discussion Verhagen states shortly that *usability* has to do with the clarity of the pre-transaction process. According to Verhagen it contains aspects like website navigation, download time, layout and graphics.

Steve Krug is an usability consultant and writer of the book 'Don't make me think!' Krug's focus in his book is on design principles that influence website usability. In twelve chapters principles are reviewed that, according to Krug, form the basics for web usability. Krug outlines that his book is written from 'a common sense approach.' The book can be seen as a model for website usability and as a method for reviewing website usability (Krug, 2005).

In short, some examples of Krug's work will be outlined here. The most important guideline, according to Krug, is 'don't make me (/ the website user) think.' A website is best when it is self-evident, obvious and self-explanatory. This way a website user will not have (too many) questions when looking at a website and he/she will directly know what he/she can find where and how to get (to) that. This principle counts for terminology as well as for lay-out. Some other 'rules' of Krug are 'Create a clear visual hierarchy,' 'conventions are your friends' and 'website users don't read pages, they scan them.'

From Krug's point of view, usability exists of clear web pages (don't make me think when reading the menus, and more important, do not make me have to search for the menus), navigation (street signs and breadcrumbs) and design (create pages for scanning and not for reading). Accessibility and for example cascading style sheets, the presence of a website ID and fast loading pages are also part of Krug's approach to usability.

The World Wide Web Consortium, in short the W3C, is an international consortium that has the mission 'to lead the World Wide Web to it's full potential by developing protocols and guidelines that ensure long-term growth for the Web' (<http://www.w3.org/Consortium>). One substantial item W3C focuses on is website accessibility. By introducing the Web Accessibility Initiative, which offers guidelines for website accessibility, the W3C tries to improve websites to 'create an accessible Web which is essential for equal opportunities for people with disabilities.' Many of the guidelines are of great value for people without disabilities as well, for they offer web benefits that are applicable on many website aspects (<http://www.w3.org/WAI/>).

4. Concluding on website usability and the appeared other groups of factors

What usability is, or 'at least is,' is often rather clear. It is about navigation, design and clear interfaces within the website. It is about making sure the website is easy and user friendly for all website users and about making sure that website users can complete an action without experiencing discomforts. These examples show that the concept of website usability can be approached very broadly. This creates a challenge to refine the concept of usability.

To clarify the meaning of usability it might be helpful to identify certain groups of factors that are on the one hand maybe also part of usability, but on the other hand at least for an important part also different and unique. As it seemed in the previous chapters, from the various authors and researchers, a few groups of specific factors that are used by one or more researchers, can be identified. With the help of these groups of specific factors, an appropriate way to approach the group of 'usability factors' can be found as well.

While surfing the internet on the subject of website usability a diverse attention was paid to website accessibility. With the help of (often small) modifications many website aspects can be bend in a way that is much more user-friendly. This can bring significant improvements for both disabled and 'normal' website users. Examples of factors are 'every non-textual element has also an alt-text,' 'when pop-ups arise, let the user know' and 'give every frame a title, this

makes the identification and navigation easier.’ Because of the deviate character of this group of factors and their specific focus on accessibility, the group of factors has been recognized as a group of factors on their own. They will be called *accessibility factors*.

One group of factors is of a technical approach while influencing the website experience of website users. The factors in this group make sure that the website is available on different platforms, with various screen resolutions and that, if possible, the website is for example browser independent. These factors are about certain preconditions that create a website where the website user can experience a form of availability, continuity. It is useful to separate this group of factors from the big ‘usability group’ of factors for they differ from this group because of the technical aspect which creates the availability of surfing. Examples for these factors could be ‘the website has high loading speed,’ ‘most information is available without the need to scroll’ and ‘photographs can be seen enlarged.’ In the next chapter these factors will be called *availability factors*.

While reading Verhagen it became clear that there is also a group of factors that serve another specific goal on their own. These factors contribute to the optimisation of a specific aim, like for example selling products as in the research of Verhagen. Verhagen calls these factors ‘functionality factors,’ for they help to make sure something (like selling products) works well (Verhagen, 1999). In this research the group of factors keeps the same name, although the content is slightly different than the way Verhagen uses it. In this research the *functionality factors* stand for factors that contribute to optimising one of the many different aims a website can have, like for example selling products, bringing over information or creating an environment where people can communicate with each other.

One last group of factors is about the ease of how to use a website and how to navigate on the pages so the website user can find what he or she needs. It is about the lay-out, links, buttons, texts and menus. But also about consistency on many areas, about the use of icons and about the availability of site-maps and search options. These are the factors that directly influence the usability, or the website-user-friendliness, of a website. They are about navigation, visual aspects and about clarifying the website in general. The factors that have an influence on these areas, will be called *usability factors*.

5. An integral Website eXperience Model

This research will introduce the Website eXperience Model (the WEM), accompanied with a corresponding method; the Website eXperience Review (the WER). In the WEM groups of factors that have an influence on website experience have been combined. These factors find their origin in prior research on website experience and website usability. They are about plain usability, about technical and user-friendliness, about accessibility and about factors that support certain special aims of websites. The WEM tries to be all-inclusive for all possible factors that are of influence on website experience are taken into account.

The Website eXperience Model is built up of four groups of factors that are of influence on website experience; usability, accessibility, functionality and availability. Every group of factors exists of many specific ‘factors’ that together form the basics of how to optimise one group of factors on a website. When these single factors (like for example ‘breadcrumbs are available’ and ‘a sitemap is available’) are listed and written out together, they can form the character X (see the picture below on the right).

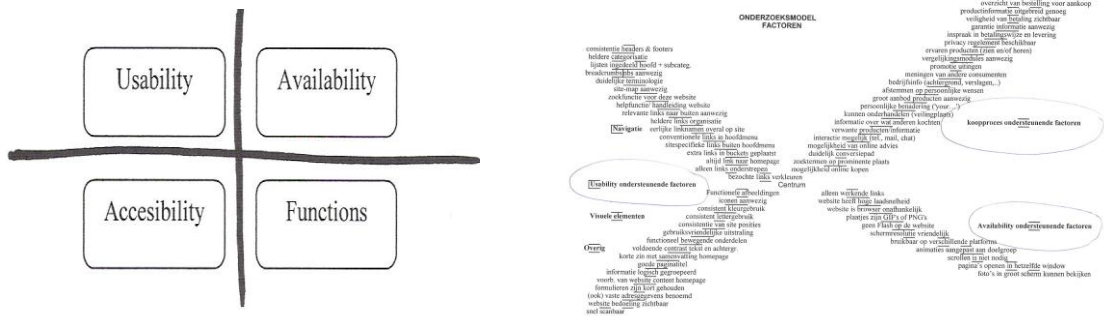


Figure 3. A schedule about four groups of factors (left) and the same factors written out (right)

This written out ‘X model’ makes it difficult to work with the different factors (they have become unreadable). Also, can be seen that the shape does not form a good recognizable X, for every group of factors has another amount of factors. Therefore it was chosen to overwrite these factors in an abstract way (see the picture below on the left). The horizontal lines stand for the many individual factors that can be added in on those positions. That way the model can be expelled easily as well. In the picture on the right, the names of the four groups of factors are filled in, to show which four groups of factors together form the X.

The X is the central theme of the Website eXperience Model. This is because the four groups of factors form an X together and exclusively when all four groups of factors are optimised, they form the X and only than the website eXperience can be optimal. All factors have an specific influence on the eXperience of the website users so only combined the optimal eXperience is obtained. Besides, the X refers to the word ‘eXperience’ which is the core of the Website eXperience Model for the WEM stands for (optimal-) website experience.

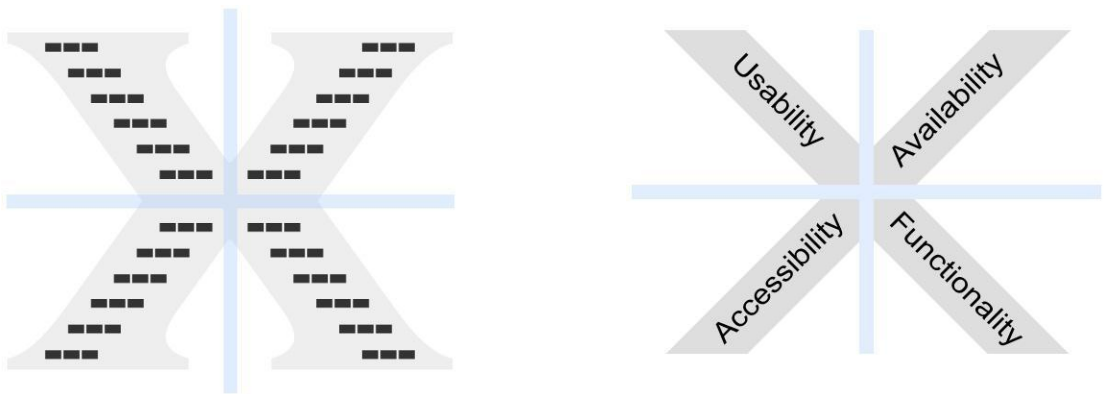


Figure 4. On the left the X-Model with abstract factors; on the right the X-Model filled in with the names of the groups of factors.

6. The Website eXperience Review

As a corresponding method with the Website eXperience Model the Website eXperience Review has been developed. The WER is a method to help achieving the goals for which the WEM stands for; an optimal website experience for all, or most, website visitors. The WER founds its origin in the four groups of factors as used in the WEM. In the WER, these four groups have been filled in with factors that form the basics for a pleasant and positive website experience for the website user (Groeneveld, 2007: 24).

The Website eXperience Review exists of a list of (at the moment) 136 factors, divided into the four groups of factors as denominated in the Website eXperience Model. For each factor the WER-examiner can verify whether the scrutinized website suffices to the criterion and define this in a accompanying formulary with a ‘yes,’ ‘±’, ‘no’ or ‘not applicable.’ At the end, in a special, easy to use formulary an estimation can be made with all

the ‘scores’ on the different reviewed factors. With this information graphics can be made which describe the percentages of good, neutral and not good examined factors. This way the state of the website eXperience can be outlined, visible in one easy glance and in one clear figure. It is important to make it this clear for often a picture is more attractive to look at than reading a text or a list of numbers. This is one of the powerful features of the WER.

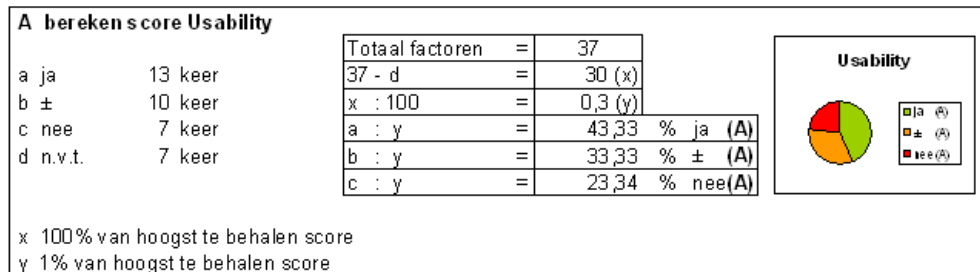


Figure 5. One example of a calculation (in Dutch) for one of the four factors (here: the factor usability).

Below the four groups of factors will be discussed solely. For every group the meaning of the group will be described in the context of this research. Also the origins of the factors, both in relation to the groups of factors as well as in relation to the specific unique factors, will be outlined.

Usability

To obtain information on *usability factors* different sources and researches were explored. It appeared that usability factors are about the lay-out, links, buttons, texts, menus, navigation, visual aspects and about clarifying a website in general. They directly influence the website user-friendliness as experienced by the website user.

Of great guidance in the usability research was the book ‘Don’t make me think!’ of Steve Krug. In his work Krug is often quite broad in his advise on usability. A good example of this is that he states that the main rule is that people should not have to think when visiting a website. He could also have been more specific, like ‘use clear tags for the links in the main menu on a site’ but often he does not reach this specific level (Krug, 2006).

The usability factors as implemented in the Website eXperience Review find their origins, besides in the work of Krug, also in the work of George. In her research George scrutinizes the website design of a university library website and by doing so many recommendations are made, which were greatly applicable in the Website eXperience Review (George, 2005). Also the work of Nielsen, the research of Ting, Kimble and Kudenko and the work of Hotchkiss have been inspirations for some of the factors on usability (Hundepool, 2005: 32; Ting, Kimble and Kudenko, 2004; Hotchkiss, 2004).

Accessibility

Accessibility is a part of the website experience for all website users; although for some users it can be of greater importance than for others. The accessibility guidelines of the World Wide Web Consortium (the W3C) form the basics for the compilation of the *accessibility factors*. This group of accessibility factors meets the shortcomings of some of the website users and this way they help to minimise the problems these website users might struggle with while using a website. Therefore it is of great importance that this group of factors is taken into account as much as possible within every website. Optimal website accessibility will contribute to improve or create the best possible website eXperience for the website users.

Because of the very broad, extensive and seriously composed list offered by the World Wide Web Consortium, in the Website eXperience Review the ‘accessibility guidelines’ of the World Wide Web Consortium form the basics for this group of factors

(<http://www.w3.org/WAI/>). The Dutch website www.drempelsweg.nl referred to the W3C website as well and gave useful explanations by the various factors (unfortunately this website has been dissolved recently).

Availability

For the composition of the group of *availability factors* the approach of Galloway has been of great importance. Galloway states that despite the fact that the internet is a decentralised network composed of many different data fragments, it is able to use the application layer to create a compelling, intuitive experience for the user. According to Galloway, the explanation for this lies in availability, continuity. Galloway speaks about this for the whole web and the surfing between and within websites (Galloway, 2004:64-72). In the context of this research the same concept is used as applicable on single websites and webpages as well.

The origins of the availability factors are on a technical level but besides that, also on a level where the factors have a direct influence on the website user's website experience. Examples of factors are 'pictures can be seen enlarged as well', 'most website information is also visible without scrolling' and 'the website has a high loading speed.' This way availability can be guaranteed as much as possible so the website user can surf and use the internet and the websites in a less bothered way. The more natural this is, without discontinuities, the greater the website experience will be for the user.

The availability factors as implemented in the Website eXperience Review find their origins in the work of Galloway with for example with 'avoid dead links' and 'make sure the website is browser independent,' Van den Elzen with for example 'when using pictures use .GIF's in stead of .JPEG' and Nielsen's acronym Homerun with for example with 'minimal download time' (Galloway, 2004: 64-72; Van den Elzen, 2003: 297; Hundepool, 2005: 32).

Functionality

The *functionality factors* are significantly different from the other three groups of factors, for this group of factors can be specified for different website aims. Therefore there has not been one indisputable list of absolute functionality factors. Every website will have different aims or goals to reach, like for example creating a nice environment to bring people together (forums, blogs, chatrooms) or selling products (commercial internet shops). These different aims ask for different approaches for they depend on many various factors. For every aim, a different list of functionality factors can be composed.

Hundepool provides five types of website contents that can have an example function for the different website aims, which fit in appropriately in the WEM and will therefore be mentioned here. The first type is information (-providing/ exchange), the second is (a form of) amusement. The third type is transaction (the exchange of values, like buying and receiving something) and the fourth type is communication (the exchange of messages or another form of interactive communication). The fifth and last type is the tele-service; the on distance operating/steering of an instrument, machine et cetera (Hundepool, 2005:31).

When applying the Website eXperience Review the functionality factors have to be filled in containing the specific content of a website in mind. The factors therefore are not applicable on every website, but only on the group of websites that they are specifically compiled for. Research has already been done for one kind of functionality factors; the factors that influence the website experience during the (pre-)transaction stage. These factors are applicable on all retail websites where products are sold (Verhagen, 1999).

On four of the five types of website contents, as proposed above by Hundepool, research still has to be done. These factors are not scrutinized yet. The functionality factors as implemented in the Website eXperience Review can possibly be filled in with the factors for websites with in their core content transaction (the third type). In the Website eXperience

Review these factors find their origin in the research of Verhagen, for he supplies a thoroughly researched list of fourteen factors that are of great influence on the website experience during the transaction process (Verhagen and Broere, 2005).

7. About the fine lines between the groups of factors

Sometimes the factors of the four groups of factors seem to overlap or seem to belong to more than one group of factors. To visualize this the figure below on the left is created; it is a picture of a website which is built up of the four groups of factors, only the distinction between these groups is not a straight line but a line as the lines in a jigsaw puzzle. The figure below on the right shows, on the contrary, the strict lines between the four fields of factors.

Examples of possibly overlapping factors are ‘you are here indicators are available’ and ‘pictures can be seen enlarged’. The first factor could belong within *usability factors* and within *accessibility factors*. Chosen is to place this factor in the usability factors because of the high importance for most website users to know where they are, although it is also of great importance to for example blind persons to know on what page of a website they are. The second factor could be part of the *availability factors* as well as of the *functionality factors* (when these are created for the transaction process). Chosen is to place the factor in the *availability factors* group, for the factor is of importance on every picture and not just on pictures that are for example about products that are sold.

Within the figure of the four jigsaw puzzle-pieces the main proclamation of the Website eXperience Model is visible; when all the four groups of factors are optimised, all the factors form an optimal website experience. It is like how jigsaw puzzle-pieces form a complete picture when placed at the right place. Translated to the WEM this is an optimal website experience for the website user and all pieces of the puzzle are needed to achieve this.

One comment must be made as well, and that is that the positions of the four groups of factors in the X Model are chosen at random. It is not like that the overlaps are, like in the puzzle figure, especially for two certain groups of factors, they all could be switched. The figure of the puzzle therefore is symbolic and not absolute.

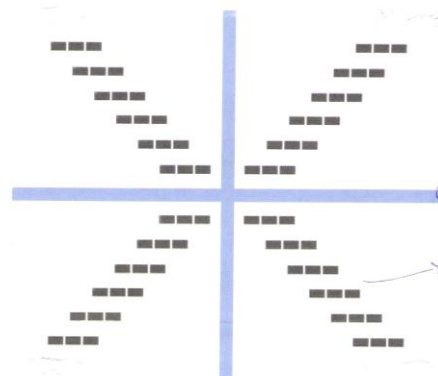
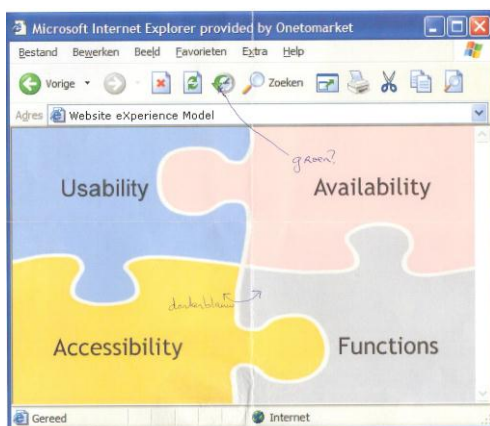


Figure 6. Left: The X-Model filled in with abstract factors. Right: the four groups of factors, filled in like as a puzzle, as situated in an internet-screen (for it is about website experience).

8. Discussion, Research Framework and Implications

After applying the Website eXperience Review websites will be far more user-friendly on several levels; think of usability, accessibility, availability and functionality. When these groups of factors are established the website experience of website users will be optimal. When reaching this, the main goals of what the Website eXperience Model stands for are

achieved: the website user experienced a comfortable website where he or she could find and do what he or she wanted without experiencing any discomforts and, because of this optimal experience, the goals of the website have been reached as well.

A powerful aspect of the Website eXperience Review is that the factors can be expanded easily. New factors can be added almost effortlessly. This way, when updated regularly, the Review will remain relevant. This expanding is, because of the fast developing technical changes, especially interesting for the availability and accessibility factors.

The group of functionality factors can be filled in with at least five different groups of factors (as identified in this research) that all have a specific website aim they focus on. At present only one group of factors is scrutinized. It is strongly recommended that further research should be done on this area, to accomplish the completion of the Website eXperience Review. Eventually, this research can be done by (the orders of) the institutions that require the missing information.

Another recommendation for further research is that it will be useful to pay more attention to the website usability as perceived by the website user. Research has shown that the perceived website usability is a very important part of the store's image and that it can therefore influence shopping behaviour tremendously (Flavián, 2005: par. 2). Due to the influence of perceived website usability on online shopping, it can be assumed that this also counts for other types of websites. This strengthens the need for further research.

Besides reviewing website experience and optimise website design, it can be useful, when the opportunities are present, to also optimise a website with the approach of trial and error. This is a long term method that happens within the process of creating a website, analyse the results and improve the website. Also, with the assistance of a/b testing, certain specific parts of a website can be improved. Both of these methods can be relevant and interesting for websites with the focus on a (highly-) specific target group, for in those cases the general factors for optimal website experience might be slightly different. When the circumstances admit further website testing, this can always provide useful feedback, which should undoubtedly be encouraged.

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