DESIGNERS, WILL THEY EVER USE GOOGLE AGAIN?

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1. Introduction

Industrial Design Engineers have problems finding relevant and reliable information on the Internet in a short amount of time. For example, if you use the search engine at www.google.com you get easily 5000 hits within a second. The problem is that, if you have bad luck you need to take a look at all the 5000 sites to find the answer you need. Most of the hits do not contain the information you were looking for.

To help Industrial Design Engineers a Conceptual Design Engineering Toolbox (C-DET) is being set up. The idea of C-DET is that designers are supported by a system that provides them with a knowledge portal on one hand, and a system to store their current work on the other. The knowledge portal is to help the designer to find the most appropriate sites, books, experts, tools etc. in a short time [Vroom 2003]. Four different search categories are developed: Design Aspects, Design Phases, Education and Product Domains. Each search category provides the designer with a navigation tree to support him finding useful information. In a previous study, a program for dead links has been found (Web Link Validator) that is useful for C-DET, but there is not a solution yet for finding new links and keeping them up to date [Jonge & Legerstee 2004].

The four search categories of C-DET can be filled with information in different kind of ways. All categories have different properties so it is important to find a way of filling that suits the category. In this paper we will discuss a solution for the category Product Domains. This study might also be fruitful for the category Design Aspects.

The development of the search category Product Domains is described in [Vroom 2005]. We suggest that finding information in the Product Domains could be supported by using start pages. This brings us to our hypothesis: "Finding relevant and reliable information in the category Product Domains by start pages in C-DET is a good solution for and appreciated by Industrial Design Engineers". For designers it sometimes is important to get relevant and reliable information about products, at other moments they just need to get ideas (browsing). The information that can be found on start pages is almost always reliable. The links are checked every day.

For idea-exploration, the tree-structure of C-DET can be followed or you can browse on different topics of the product you had in mind and use the particular start page of this product.

For this study we defined a "good solution" as a solution in which you can find your first hit of relevant and reliable information within 6 minutes. We have tested this hypothesis on a group of Industrial Design Engineers. We have tested whether designers prefer their own way of searching or one of the C-DET options using start pages. Behind a computer with Internet we let them do several exercises, with and without C-DET. We also asked them some questions about searching on the Internet for information and pictures. With the help of these questions we could find interesting things about differences between more or less experienced designers.

We think that using start pages for the category Product Domains of C-DET is a good option. The quality of pictures and information obtained with the C-DET method is much more relevant and reliable than what our test persons used to use.

2. Start pages

2.1 Dutch start page; www.startpagina.nl

www.startpagina.nl is a kind of search engine developed by a Dutch man called Durk Jan de Bruin. When you start searching on www.startpagina.nl, you fill in your search term. Then you get the daughter page about that subject. This daughter page is divided in different categories about the subject; every category has a lot of hits. On April 22 2005 there were 4228 daughter pages, you can always check the amount of daughter pages on www.startpagina.nl.

The Dutch start page concept is very recognizable, although the colours and contents are different, the shape of the sites are always the same. Every week, robots check if every link is still connected with a web site. The daughter administrators can see how often a link is used and in this way they can improve the daughter sites for their visitors. Visitors can send their favourite links by a very clever system. Before you know, the site is updated with your link. You can save your personal links on every start page in the header 'personal links'. If you reset your computer, the links will still be there [Meulen 2000].

2.2 International start pages

The site www.startpage.com is managed by Ixquick. Ixquick is a meta search engine, which means that you are not searching with one search engine, but with at least ten popular search engines. The first owner of www.startpage.com came also from the Netherlands, Surfboard Holding from Haarlem [Tijdnet: T-Zine 2004]. The difference of this page with the Dutch www.startpagina.nl concept is that the lay out is equal for every language. This is usual for all international search engines. The lay out of www.startpagina.nl differs for every language in colour. On the information site of Ixquick, we can find that they think that the results they give are relevant. They judge the hits with stars. For every search engine that chooses a hit as one of the ten best results for your search it is rewarded with one star. So a five star result means that five search engines agreed on the result. They conclude that this is significant because search engines choose results in different ways, and each approach works well in some cases and poorly in others. A result with many stars was chosen for many different reasons, and is a consensus choice of many search engines. Also, while irrelevant web pages can be 'optimised' to fool a single search engine's algorithm, it is much harder for a page to fool multiple search engines.

On the Internet, there are also pages with the same lay out as www.startpagina.nl, but most of them are not divided in daughter pages. If you go to www.start4all.com, you can choose a topic on the alphabetic list, but if you go to www.category.start4all.com at the start of your search, they send you to a page that is almost equal to a daughter site of www.startpagina.nl. The inventive search-help which misses on this site, is the possibility to let start4all search for your topic in the categories, you have to find your topic somewhere in the list (alphabetic or categories). At www.mystart.co.uk you can also find topics divided in categories. The problem is that the amount of categories they offer is not very big. Most of the topics that could be of interest for Industrial Design Engineers can not be found on this site. MyStart works under copyright of Startpagina B.V.

Although there are some English start pages, we did not found an equal concept of the Dutch start pages in the English language.

3. Objectives

3.1 Goal

The goal of the study is to find out whether or not start pages with Product Domains in C-DET are a good solution in order to enable the users of C-DET (Industrial Design Engineers) to easily find the knowledge and information on a subject in Product Domains. We first need to find existing start pages

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on the web. In the cases where we can not find a start page for a Product Domain, it's important that we find (new) links about this Product Domain. With these links, we can create a start page. We want to achieve that C-DET is useful for and appreciated by designers, so that they can find easily relevant and reliable information about the Product Domains they are working on. We would also like to know if the solution of start pages within C-DET, is appreciated for the category Product Domains.

3.2 Assumptions

For this study we have assumed the following. The user will choose the category of Product Domains when he wants to explore the design subject and gather information on the design context and gain insight into the product environment and relevant topics concerning the product he is searching for. When the user is searching for a specific product or a specific detail, he will use the search engine because that will be faster for that purpose. The user will choose the entrance category of Product Domains mainly during the first phases of his design process (exploratory phase). That is why it is important to include orientating moments for the search process. Start pages are broadly based, so we assume that the user will be satisfied for the exploratory phase. The daughter pages are more specific, so in further phases of the design process start pages are also satisfying for the user. Another assumption is that start pages give more relevant and reliable hits (information) than for example a search engine like Google because start pages have filtered the information on the different subjects in daughter pages. Google has a lot of rubbish along the hits.

4. Method

First we started with a literature study to gain more insight into Dutch and international start pages. We wanted to explore the structure, relevance and reliability of the different start pages. After a literature study we will try to find answers on questions by executing user tests. This test contains questions for the test persons. Before we could begin the actual filling of C-DET with start pages, we started with selecting a part of the Product Domains list that is set up by Blomaard & Ten Herkel [Blomaard & Herkel 2004] Because we were first going to test whether the idea of start pages was going to work, we would start with filling a small part of C-DET's Product Domains. The list consists of the following main Product Domains: Electronics, Tools, Household Goods, Office, Children, Medical/care, Means of transport, Safety, Packing, Interfaces and Remaining. All these main Product Domains are further divided into sub Product Domains, subsub product domains, etc. Because there is no difference between these domains for this study, we chose to do the first part of the list, "Electronics".

"Electronics" is divided into Audio, Communication, Computers, Electronic Parts, Gadgets, Enlightenment and Visual. Each of these sub Product Domains is further subdivided up until the level of product types. For this single main Product Domain "Electronics", 67 product types are identified such as speakers, buzzers, monitors, relays, ceiling lamps and digital cameras [Vroom 2005].

For every product (type) we needed to find a start page. We started with the Dutch start pages, because these are the most extended. To find the right start page for each product, we have searched for the products on the daughter pages. Within a short amount of time we have found for the major part of the list one or two start pages.

We have been searching on the same way on the international pages for daughter pages. We discovered that it was difficult to search on most of the international start pages. The reason is that

almost none of these web pages have the same set-up with daughter pages as www.startpagina.nl. Only the Australian start pages have been useful for us.

After searching the web we still could not find a start page for some of the Product Domains. If our concept succeeds, in the future we will make for these products a start page ourselves or we will ask Startpagina BV to create and maintain a new daughter page. Startpagina BV is creating new daughter pages every day. Another possibility is to create our own start pages and to give our pages to Startpagina BV to let them maintain the new site. For the user test we have made one start page to see if we were able to make a start page of good quality.

We have made a start page for the buzzer (Dutch: semafoon). To make this start page we have searched Google for the most useful web pages. With these web pages we have made a web site that has the same lay out as www.startpagina.nl. Using Google to find information for our own start pages is not the ideal way. Obvious, this is the same problem we are trying to tackle with C-DET. We still think the only way to fill the start page is to search with search engines. Important is that these sites are being checked once or twice a week, to keep the start page up-to-date. Now we have all the links for the test. The final step is to link the right start page to the right product in C-DET. This did not take much time to do. C-DET is user friendly for up dating. What we did here is attainable.

5. User research

With this test we want to find out whether start pages in the category Product Domains is a good solution for and appreciated by designers. For this first check, 12 test persons give us enough insight information.

The test person is asked to sit down behind the computer. After a short explanation of the project, the test person can start with the given questions. We let him use the computer, which is logged in to C-DET. C-DET is loaded with the start pages on the category Product Domains. We are going to split the test on two angles, pictures and product information, because these are both very important for an Industrial Design Engineer. The test person is supposed to search in two ways, its own way, and the C-DET way. We want him to use his own way, because then we can ask him at the end of the test which way he prefers. We want to know this because then we can draw the conclusion if the start page was a good solution or not. If the idea of start pages fails, we might use a search strategy of a test person. We want him to find pictures and information about a minidisk and a buzzer. We have chosen these two subjects, because the minidisk is a product that has the attention of our test group. The buzzer is chosen because there was no start page yet. Before the official testing, we are going to do a pilot.

Table 1. Order of exercise

	Picture, own way	Product info, own way	Picture, C-DET	Product info, C-DET
Minidisk	1	2	5	6
Buzzer	3	4	7	8

In the table above you can see horizontally what the test person needs to search, on their own way or with C-DET. Vertically you can see the product. The numbers are the order of exercises. The product info we will ask of the minidisk is find the moulding process. About the buzzer we want to know the way it works. We choose this order of exercise because we do not want to introduce the idea of start pages in the first place. We want the test persons to use their own imagination. We want them to do the first research on the minidisk because this subject already has a start page and for the buzzer we need to make one ourselves.

We judge by the following points: Five pictures are enough. When the test person is not searching on C-DET, we only want to know what the site is they use most. Within C-DET we want to see if they understand the tree-structure [Vroom 2003]. The information they need to find is ok if it has a reliable source and is correct. If they can not find the answer to the asked information in 6 minutes, we let them stop. We assume a designer must be capable enough to find a first reliable hit in 6 minutes.

During the test we are going to clock and observe the test persons. We will clock them because we want to know which way of searching is quicker, their own way or the C-DET way. During the

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observation we are going to write down which method they use while searching on their own way. After exercise 4 and 8 we are going to ask the test person whether he or she is pleased with the results. We are going to use our first test person as a pilot.

6. Results

The way we have found new links is to use search engines. This is very time consuming, but a lot of people have advantage of this work if the links found are made easily available through C-DET. Finding daughter pages on www.startpagina.nl was very easy because you only have to fill in your topic. On the international pages it was more difficult; sometimes you even clicked in circles. But for example, the Australian site www.startinaustralia.com was very good. The start pages of Startpagina BV are reliable because volunteers check them every day and keep them up-to-date. We have not found a start page for every topic of the domain list, but we could find one for about 90% of the product types. This is quite a lot. The test persons were quite capable to find the information they needed on the start pages of C-DET.

All the persons we have tested have experience with using the computer for making a collage and for other design work.

Most of the test persons answered average when we asked them if it was difficult to find the pictures and information for exercises 1 to 4 (the exercises without C-DET), because it was easy for them to find the pictures and not so easy to find the information. The younger designers used Google. Google is an easy search engine for finding pictures and some of them used www.gettyimages.com. The more experienced designers used Getty images more for finding pictures and they also searched on brands like Sony and JVC. The pictures on Google are often of bad quality. Only the younger designers do not realize that. In every start page you can find a heading with producers of that product. So they are easy to find. But most of the test persons had difficulties with finding the moulding process and the way buzzers work. Most of the test persons started again with Google to find the information and the more experienced designers also used www.howstuffworks.com and www.wikipedia.org. Nobody used start pages. It was quite difficult to find the information we asked on Google because they got so many hits on one word. That is also why not all the test persons were satisfied about their work.

It took the test persons more time to do the exercises than what they thought was quick to find the kind of information we asked them to find, but most of them thought that they had spent more time on the exercises then they actually did.

The test persons did not know if they could find pictures quicker on a different way than their own. Both the less and more experienced designers think that there is a quicker way to find information than their own way. More test persons thought it was easier to find the answers on the exercises with C-DET than on their own way. And the test persons were more satisfied with C-DET than when they searched on their own way. Only some of the test persons had difficulty with the ´clicking´ through the tree-structure of the category Product Domains.
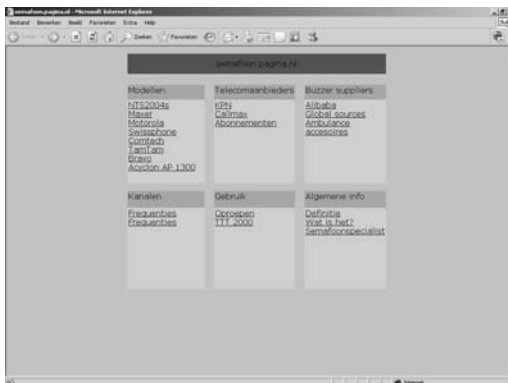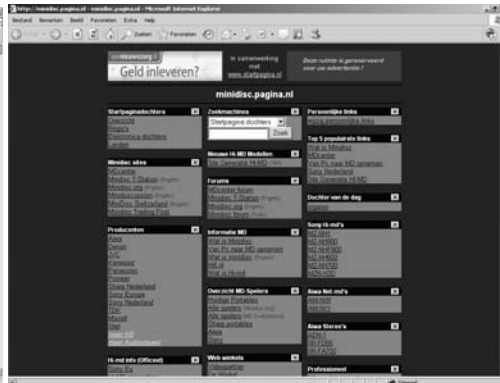

Figure 1. Start page of buzzer   Figure 2. Start page of minidisk

With C-DET, more test persons were satisfied with the time they spend on the exercises. The opinion about using C-DET in the future is divided, more than half of the test persons think they can use C-DET better after some practice, but also half of the test persons prefer their own way of searching above C-DET. The fact that C-DET is not finished as a knowledge portal contributes to the mixed and contradicted opinions, because some of the test persons did not understand C-DET very well.

The view of the test persons about the quality difference between the start page of the minidisk and the start page of the buzzer is also divided. Some of the test persons prefer the start page of the minidisk, because it has more links. Some of the test persons prefer the start page of the buzzer, because it has not so many links and looks well organized in this way. The start page of the buzzer has also no advertisements; advertisements irritate some of the test persons.

7. Conclusions

It is quicker to find pictures with Google, but for pictures of better quality, C-DET combined with start pages is the better solution. For finding information about a product, C-DET and start pages are also a good solution, because all the relevant and reliable information about a product is on one page. You do not have to scroll through the thousands of hits you get with Google. If we go back to the hypothesis we can conclude that the concept of start pages in the category Product Domains is a fruitful solution for C-DET.

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