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# Being Orientated in the Cyberspace, Could it Be a Problem?

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**Abstract:** This paper intends to discuss some metaphors used to promote navigation and to prevent disorientation in the cyberspace. We analyze two of the most common familiar contexts to the new space: the book and the physical space. These are often used to help users to understand the purpose and function of the information access structures and to help the user to easily build an internal model of the cyberspace (for example, of the World Wide Web). To adapt these familiar cues to promote orientation in the cyberspace is not an easy or a consensual task and there is some controversy in relation this theme.

## The Cyberspace

The cyberspace is a new kind of "space" and it can be described as a new electronic territory, as an information space. It emerges mainly from the Internet and its associated environments (World Wide Web, gophers). [Staple 1995] defines cyberspace as "an imaginary world, an artifact of computer software whose form may be as varied as the human imagination". In this new world the challenge for the cybernaut is similar to the one the first Portuguese navigators who discovered the New World had to face: they have to know what they are looking for, how to find it and which is the shortest/easiest path to get to it. For instance, navigating in the WWW can be confusing specially when the users are novices or do not have a clear objective to drive them during the browsing process. Navigation tools as "previous" and "next" buttons are basic forms but there are more tools such as maps, book/ landmarks and history lists. The most sophisticated mechanisms to navigate through the Web are, as described in [Barlow 1998] the Web search engines such as Alta Vista, Infoseek, Excite, Webcrawler, Lycos, HotBot and the Yahoo Directory. They all aim at orienting whoever is browsing in the information in order to help them find what they need, so that they can move on to their next task.

The non-linear principle, which is the most important feature of the hypertext, is the basis for WWW. One breakthrough in this new medium is the linking together of information nodes as a true hypertext. However hypertext creates a contradiction: links to other sources add depth to a Web site, but it can also send the readers away mid-sentence and mid-thought by encouraging them to click somewhere else and thus creating a great confusion in their minds. On the contrary, when we read a book we can hold it and touch it and we also have several visual and tactile cues about the information it offers us. They are called discourse cues and consist in [Kim & Hirtle 1995] aspects such as: organization into chapters and sections, conventions concerning the placement of topic sentences, and typographical conventions that help the reader decide which parts to read in detail, and which parts to skim over. Such conventions have not been established in hypermedia environments yet. This situation grows worse in the cyberspace where the quantity of information and the number of links among the nodes of information can be almost uncountable. Feeling lost, not knowing where to go, not knowing where we are, and finding difficult to select the next node of information, these are some of the problems the users must face each time they interact with a hypermedia system. This "disorientation feeling" [Dias, Gomes & Correia, in press] is bound to cause frustration, since decisions about the node or sequence of nodes to be explored are difficult to make in complex environments.

To this scenario we can add, if we are referring to the cyberspace, the absence of physical context, the increasing need for graphical context cues and the variety of ways a user can arrive to any page of the Web.

## How to Use Familiar Contexts to the New Space

The use of a navigation metaphor may be a way of helping the novice user to understand the purpose and function of the information access structures and to help the user to easily build an internal model of the system. The *book metaphor* has often been used to design hypermedia environments, called electronic books. An electronic book [Barker 1995, p.2] is "essentially a collection of pages of electronic information that is organized (conceptually) just like the pages of a conventional book". According to this author most electronic books use some form of graphical user interface and the quality and bandwidth of visual display within such interfaces depends enormously on the spectrum of delivery platforms available. But in almost all computer screens (until now) users read about 25% slower than on a printed book, as [Nielsen 1998] referred. Even when electronic books gain the same reading speed as printed ones, Nielsen claims that the book metaphor will still be a bad idea and justifies this statement saying that: the basic problem is that the book is too strong as a metaphor because it tends to lead designers and writers astray. "Electronic text should be based on interaction, hypertext linking, navigation, search, and connections to online services and continuous update. This new-media capabilities allow for much more powerful user experiences than a linear flow of text" [Nielsen 1998]. However some of the terminology (for example, "page") related to the WWW reminds us of similar elements in a "book". The use of titles, headings, sentences, paragraphs, table of contents and bookmarks in the design of Web pages is very common. But we need to consider that the WWW alters the way we perceive a book or a magazine. Therefore since the computer limits the amount of information visible at any given time on a screen and as this screen depends on the individual WWW browser used as well as on the resolution of the screen, the traditional concept of page has changed. This constraint does not normally occur in text-based print media that allow the reader to leaf through a lengthy reading, and commonly two pages of text are simultaneously on view.

There is also some controversy involving the hypertext discussing whether navigation should or should not be conceived as spatial. [Stanton 1994] classifies the *spatial metaphor* as dangerous. He bases his opinion on the electronic space definition. According to Stanton, majority of the studies done in relation to the hypermedia environment, seems to use the word "space" with the same meaning it is used by everyday-sense where it corresponds to a physical relationship between objects. In this perspective, the electronic space would be equivalent to the physical space. [Stanton 1994, p.288] supports that starting from the concept of hypertext as a multidimensional space, which can be explored in various ways, "space", in this context, must be defined as "the collection of objects and activities contained within a specific domain". [Dias & Sousa 1997] claim that the electronic environments present intrinsic characteristics that do not permit a linear transfer and appropriateness of the geographical environments characteristics'. They suggest that the use of a navigation map in an electronic environment is not as efficient as the use of a map in a geographical environment. The cyberspace has another interesting feature that makes it hard to map. It is infinitely mutable. All maps begin to lose their accuracy as soon as they are printed, as [Staple 1995] referred. However some attempts to design the geography of the cyberspace have been made as we can see on the Web site entitled "An Atlas of Cyberspaces" (URL: <http://www.cybergeography/atlas/> ). This site [Dodge 1999] intends "to help us to visualize and comprehend the new digital landscapes". Some maps we can see in this site use the cartographic conventions of real-world maps, but they are much more abstract representations of electronic spaces, using new metrics and grids to create the so called cybermaps.

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