

Alles Buch. Studien der Erlanger Buchwissenschaft III

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Screen typography. Technical and psychological determinants of the design of on-line-documents.

The Focal point of this thesis is the analytical study of the technical and psychological determinants of typographical design relating to digital online-documents. Furthermore, a catalogue of criteria regarding different typographical variables will be established on the basis of empirical psychological studies. The reason why this study is only concerned with online-documents is that digital offline-documents like CD-ROMs pose very limited navigational possibilities reducing analytical interpretation. In contrast readers of online-documents are easily distracted by links and other navigational possibilities inherent to the Internet. For this reason, web designers should be conscious of certain results not only of the *psychology of awareness* in their work, but also of the *psychology of reading*, as well as the principles of the *human apperception* and *memory*.

The theoretical part of this thesis initially presents basic terms of design like *Desktop Publishing* and aims at establishing a hierarchy amongst the newest typographical terms like Interface Design, *GUI-Design (Graphical User Interface-Design)*, *Site-, Page- and Web-Design*. Interface design is the broadest term encompassing the design of every surface that people interact with. The act of designing a surface, consisting entirely of a screen surface that has to be organized and designed to best suit the user's expectations, is called GUI-design. Site design primarily means the organization and appearance of linked, single pages within a web destination, while page design means the layout of a single page. Another very central point in this thesis is the subject of *usability*; generally this is not concerned with the content quality of a website, but asks for an example of the navigational ability of a site like link mapping or the design and position of buttons. Here the term usability is to be regarded from a psychological point of view, which means that this thesis explores the psychological qualities of the screen typography, for example the legibility of a screen font.

The second part, of this thesis, explains the technical implications of computer screens. This chapter focuses primarily on the effects of technical factors like the very limited resolution of the screen or the flickering of CRT-screens on the human perception of computer-emitted information. The difficulties in determining these factors are heavily influenced by the design as well as the human perception of digital documents. A web designer can only narrowly influence or modify those technical factors. The designer can never predict exactly what kind of screen an individual user possesses, so in response the designer has to carefully create a *minimal* layout that will potentially suit a broad range of computer screens.

This chapter leads to the largest element of this thesis, the explanation of psychological theories and fields of research that compose typographic design. Findings, for example regarding the visual pattern recognition and its influence on recognizing and distinguishing letters and words on the screen, have discovered the possibility that "jaggies / jagged edges", produced by screen fonts without anti-aliasing, deteriorate and downgrade the legibility of a text, particularly in smaller grades. Another area of

interest that is relevant to the theme of typographical design is the findings of the Gestalt psychology regarding the organizations and positions of layout-elements on the screen. The “Law of Resemblance” for example states that buttons of the same colour, form, size, etc are perceived as belonging together and forming a block of closely related information. Concerning the “Law of Good Continuation”, a very interesting study was carried out at Uppsala University in Sweden with the result that horizontally organized menu-bars are perceived 1.2-times slower than vertically organized menu-bars. The principles of *reading psychology* explain factors like the physical appearance of the text or the orientation in digital texts. Another very important topic is the *psychology of awareness*. Many websites use too many methods of emphasizing information that distracts and confounds the users. Lynch and Horton, authors of the Web Style Guide at Yale University, plead for using only one or two emphasizing-methods at a time. In print Italics, for example, are often used to give emphasis to a word within a block of regular Roman text. This emphasis is generally harder to read than Roman and the reader has to slow down, implying emphasis because it looks different from the upright stress of the Roman and also because the reader's flow is impeded. Instead of using bold or italic, many pages use coloured type for emphasis. The more colour type changes the more emphasis it creates. There is even a hierarchy of emphasis: yellow stands out more than green on a blue background; green dominates over pale blue; red even seems to “shout at the users”. Red is not only an intensive color, but also a biological stimulus that users can't evade from. Generally, the technique of colouring text for emphasis is overused.

This psychological part of the thesis is aimed at producing a “style-guide”; a catalogue of criteria for the typographic design of psychological, user-friendly websites.

The subsequent chapter summarizes the results of various empirical studies regarding different typographic variables. Factors analyzed in these studies are the design of singles letters, the choice of the best fonts for the screen and also the choice of appropriate fonts for a given user group. There were often unexpected results, for example the font Times New Roman, which is generally considered well suited to the screen, ranked worst in user preference and legibility studies. Also analyzed were factors like line length, leading, spacing and kerning. An ideal line length for the screen seems to be 55 cpl (characters per line), which produced the best reading rates and was read the fastest.

The three large sections of the thesis are finally summarized in a practical part that not only describes the online-version of the New York Times (www.nytimes.com) regarding the typographic design, but also treats and evaluates the psychological usability of the web site.

What this thesis primarily makes clear is that online-documents can be designed typographically and user-friendly by being considerate of the psychological basics combined with how technical factors of the screen can influence and will influence the appearance of digital online-documents in the near future.