

Inattentive Use of Electronic Equipment – Evaluation and Design Principles

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0.1 COPYRIGHT

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0.2 PUBLISHING TOOLS USED

This book is written in Microsoft Word version 5.1a for Macintosh. The drawings are all made in Aldus Freehand version 3.1 for Macintosh and inserted in the text.

The following other programs were used for experiments or for the processing of results:

- Aldus Pagemaker version 5.0 for Macintosh
- Excel version 4.0 for Macintosh
- Hypercard version 2.3 (that incredibly useful program is available only for Macintosh)
- MacLink Plus version 8 (that program makes it possible to read more PC formats on a Macintosh than most PC users can on their own PC)
- Microsoft Word version 6.0 for Windows

0.3 ABSTRACT

This book describes how *electronic equipment*—including *telecommunication equipment, computer hardware and software*—should be designed for operation by users who cannot pay continuous attention to the equipment while they operate it.

The work is based on the framework established by William James and demonstrates why the information processing and neurophysiological approaches are not sufficient as basis for the description of the inattentive user.

Three types of inattentive use are described: *Reduced conception, shifting attention* and *automatic processes*. The consequences of each type of inattention are described for the users perception of the equipment, for the actions he associates to and for his decisions. In addition, it is described which physical actions the user can complete successfully while being inattentive.

The requirements for equipment for inattentive use is then described: How the equipment should present elements for the user, draw the attention of the user and be structured, such that the user can operate the equipment with minimal attention and a low error rate, and how the actuators on the equipment should be designed to increase working speed and reduce the risk of work related injuries.

The special requirements for communication equipment as compared to information processing equipment is then described together with four pieces of communication equipment, of which the two are designed by the author and adapted for inattentive use.

The book describes finally quantitative and qualitative methods for evaluating the suitability of a piece of equipment for inattentive use, and a design methodology that makes it possible to design the user interface for inattentive use in a thorough and effective manner.

0.4 STRUCTURE OF THE THESIS

This book is written as the thesis for a Ph.D.. However, the titles of the different chapters are slightly different from the ones normally used for the parts of a Ph.D. thesis. The relation between the chapters and the different parts of the normal structure of a thesis are therefore given here:

- Chapters **1** to **3** and **5** is a general introduction to the topic.
- Chapter **4** contains the hypothesis.
- Chapter **6** describes the selection of methods.
- Chapters **7** to **11** consists primarily of an overview over the existing relevant literature and the results that can be deduced from it.
- Chapters **12** to **15** can be described as the experimental part, where the results from chapters **7** to **11** are tested through the analysis and design of five pieces of electronic equipment.
- Chapters **16** and **17** contains the general discussion and conclusion.

The book is in general written with English, not American, spelling. However, the original spelling is used in all quotes—in particular the spelling in the quotes from William James is different from the one currently used today.

All references are given in the following format: < *author name(s)* > [*year of first publication: page number in used edition*]. In many cases it has not been possible to quote from the first edition: The publisher and year of publication of the used edition is then given in the list over literature.

When there is more than one reference to the same author in the same year, the references are marked with *a*, *b* or *c*, and the marking is shown in the list over literature.

In a number of cases there is a reference to [own observation] indicating that the next part refers to an observation directly made by the present author.

A number of specific pieces of equipment and software described in the book are anonymised in order to avoid any legal problems when parts of a product receive an unfavourable evaluation.

0.5 TABLE OF CONTENTS

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However, I am solely responsible for all parts of this book, and no parts of it can be taken as viewpoints of any of the persons or companies listed above.

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