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Overview

The book presents a theoretical look at software engineering and human-computer interaction. Through the review of numerous theories ranging from cognitive psychology to linguistics and the philosophy of language, the authors decompose the activity of design. The writing style is clear and the arguments are laid out in simple and comprehensible terms.

General comments

The title of the book, "designing with blends," might lead one to think that design (as an activity) is going to be the main topic. This is not the case. Instead, the book explores design from the semantic side. It describes how design can be approached as the use of metaphors and semantic constructs. As such, the book is very much an essay on the (suspected) manipulation of concepts that takes place during design. In this sense, the text from Imaz and Benyon does not fall into the category of manuals and might be of limited use to designers in their everyday activity.

Regarding contents, the book is theoretical and expresses opinions more than facts. The majority of the chapters contain a flat presentation of concepts and theories from which it is not easy to see how they are all going to be assembled into a helpful document. In places, this presentation feels lengthy and the aim of it can at times be difficult to discern. By the end the book, one gets the impression that the theories that have been reviewed, and the amount of work this represents are both underused. This is a bit disappointing since the (eroding) motivation to progress in the book only leads one to face the quasi absence of conclusion and concrete deliverable. Many sections of the text read like a literature review with a clear purpose missing.

The general opinion of the reviewer is that given the limited contribution it makes to the field of design (in terms of practical advice, for instance), the book could have been condensed into a much shorter document. The idea developed by the authors—that HCI is embodied and relies on metaphors and blends—might not require the level of exposure given here.

This is especially true if one considers:

- the general lack of guidelines on how blends can be used;
- the discussion on HCI that essentially limits itself to the behaviour (and interaction with) the trash
- can, the mouse and folders on computer desktops;
- the rather modest example of a blend-driven interface design given in Chapter 8.

Last, the graphics are sometimes not carrying a lot of useful information. One of them is made of two circles and an arrow. This type of diagram should have been excluded from the manuscript. The other graphics are generally perfectible, aesthetically speaking.

The review is now going to address each chapter except the final one (Chapter 9) which is a

compilation of reflections from the authors.

Comments on Chapter 1. Growing up in the digital age

This chapter rapidly addresses the topics of cognition, computing and programming, to finally arrive at HCI. Let alone the technical contents, this chapter is a concatenation of authors, years and concepts of the above-mentioned domains, with little explanation given as to why the section is needed for the book, nor how it serves the purpose of the book.
The authors take the example of the reaction of the captain of an aircraft to an annoying GPWS alarm. The captain got upset and "asked" the GPWS to shut up. This is treated by the authors as a case where a metaphor has been used; the metaphor being: The device is a stupid person. Going beyond this statement, the authors assert that this type of interaction reveals an important dimension: embodiment. Despite that the very existence of a metaphor in this case is arguable, and how useful this is going to be for a design method is left unanswered. This is an important point because there are many examples of so-called metaphors used throughout the book, with little hint as to how this can help design. Another under-explained concept is that of embodiment. Indeed the authors explain that missing the point that embodied cognition is an important feature of HCI is a problem, since embodied cognition is a key point of HCI. Not only is this a near-tautology, but it does not explain how embodiment can help make design better. More successful explanations of embodiment are attempted in the book, but they are five chapters away.
These points above are symptomatic of the flavour of the book. Indeed, concepts are used to label a situation without demonstrating the added value of doing so, without showing what extra understanding is gained with embodiment or metaphors that could not be gained without, and with little effort to make this theoretical exercise useful for design. We will come back on this point several times throughout this review.
"Digital technology has been very successful". There are many counter-examples to this in the literature of computer-based critical systems. Nancy Leveson's "Safeware" is a good place to look for some of them. This is not to say that the statement is wrong. But overlooking failures only presents the reader with a one-sided story.
The authors propose that there is a fundamental difficulty with the design of digital media in that this technology imposes inflexible demands whereas humans have nuanced activities. Although undeniable, this difference is not insurmountable. Indeed, normal methods are a branch of software engineering whose purpose is precisely to demonstrate mathematically that software specifications are correct. Cliff Jones for instance, has written extensively on the matter. It remains that formal methods are not intuitive, cost time, and are therefore not used when the safety of software need not be demonstrated formally. It then follows that an enormous amount of computer code will one day or another face the conditions that will cause it to fail.

Comments on Chapter 2. Cognition and the body

This chapter reviews a large number of cognition-related concepts. Topics addressed include mental models, image schemata, and frames. Categories, their formation and use are also considered. It would have been useful to understand at the beginning of the section (and reminded at the end) why reviewing all these concepts was needed.
Some explanations are a bit disappointing. For instance, the container schema is described as an important one but all that is said is that it helps us understand that some things are containers and others are contained. There might be something useful for design beyond the statement itself but that is not in the book. Also, the idea of source-path-goal is supposed to encompass the concept of directionality in the description of event transition. This so-called image schema is only described in a general way, with no hint as to what can be done with it, or how it can help design. The same applies to the concept of above schema.

Comments on Chapter 3. Metaphors and blends

This chapter addresses metaphors and blends and explains, in the view of the authors, how they relate to one another. The text touches on the foundations of the book and the very roots of the authors' views. The main argument that is explained at length is that ideas and concepts can be transposed from one semantic domain to another and used to transpose a given meaning in a new environment. One example that authors take is the computer desktop, the latter being a mixture (a blend) of a physical desktop (surface, objects, etc.) and that of computing commands (find, print, delete, etc.), as described in page 51. As an example of how metaphors can lead to misunderstanding when used inappropriately is the (now apparently revoked) Macintosh use of the trash can to eject floppies. The authors explain that users get confused because of the conflict between two objects: the trash can (an item that generally contains unwanted items) is used to eject a media, the contents of which have to be preserved.
Following Ericsson (1990) the authors assert that using metaphors at the interface can lead users to develop an erroneous mental model of what happens e.g. to a file when they move it from one folder to another. It would have been useful at this point to remind the reader that following the work of Neville Moray, one does not need to hold a perfect mental model of the situation at hand to exhibit an acceptable level of performance. This is true of many situations, an example being driving a car without being a professional mechanic, or recording a film on a VCR without having a degree in electronics.

Comments on Chapter 4. Blends in human-computer interaction and software engineering

This chapter revisits some of the constructs of computing science under the light of blends. The main argument is that many concepts in software engineering have been borrowed from other fields of activity (e.g. architecture, pipeline, client, folders, etc.). Similarly, the Java programming language can use brokers and sandboxes to represent and act on objects from the real world.
It would have been useful to see if there is anything new in this practice, if lessons from the past can help towards a better use of this transfer of concepts across domains. Also, and this is the main remark, two questions remain without an answer:

- why is it important to formally understand transfers across domains?
- how can design be improved by this understanding?

The authors give the impression that they only aim at "looking at things" from the blends perspective without distilling advice or useful analysis regarding design. Although a mock-up is presented in Chapter 8 that is supposed to contain the message of the book (how to design with blends), the example taken is rather shallow, does not seem to have been tested and goes against a certain number of HCI principles. We will come back on this point.

Comments on Chapter 5. Software engineering

It is difficult to see what point the authors are trying to make in this chapter. An example is the decomposition of the sentence "Peter threw the ball into the basket" into its components (who performs the action, what is the action, etc.). Such a decomposition could be useful for grammatical purposes or maybe automated speech capture but the authors give little information as to what can be done with such an analysis. For instance, the authors assert that when we read "threw", the meaning that is contained in the word is both about Peter's action and the ball's motion. This, in the authors' opinion, is an instance of integration; a characteristic of blends. It is not explained to the reader why it is important to understand the above not how it informs design.
There is a lot of material presented on such topics as UML, state-transition diagrams, data-flow

diagrams, the object oriented paradigm but the chapter is essentially a flat description of these tools from the blends point of view with no practical advice. For instance, the authors explain how diagrams can convey different types of meaning. The point is made that entities (such as classes in programming) linked together by arrows or lines exhibit different properties, and therefore can be interpreted differently. This would deserve a little bit more explanation if it were to be useful for human-computer interaction designers.

Comments on Chapter 6. Human-computer interaction

This long chapter is supposed to be about human-computer interaction (HCI) but does not say much about it. A significant amount of the chapter is spent on symbols and metaphors. The only HCI-related issues addressed are about the use of folders, the mouse, and the trash can. Pages 111–120 address nothing but these last two topics. These issues are relatively basic in HCI and do not really bear a design challenge. It is hard to understand why the authors chose them when there are much more complex and scientifically relevant interfaces to study than that of emptying a trash can.
One possibility could have been to assess the usability of webmail interfaces, an issue that is more and more paramount given the pervasiveness of emails. Other home-related interfaces examples could have included DVD recorders interfaces, cell phones menus, PDAs interaction tools, etc. The focus could also have been widened to GPS and car radio interfaces, etc. The chapter does not contain much in terms of inputs to this sort of design issues. Also, if we are to read a chapter on HCI and the problems that imperfect design might cause, it is surprising not to find tips to diminish the error rate, facilitate error recovery, guide the implementation of undo functions, improve usability, tackle cognitive workload issues, etc.

Comments on Chapter 7. Understanding requirements

This chapter reviews scenarios, use cases, patterns and some of the authors' work. The review is written in a rather flat style, with lengthy explanations and little in the way of a message or a clear line of arguments. The examples used are described beyond what is really needed. Once more, the overall impression is that the section lists one idea after the other, with no particular message. Also, the diagrams are not of the highest standard and there is no conclusion.

Comments on Chapter 8. Designing with blends

This chapter is the one that is supposed to merge the contributions of all the chapters and come out with substantial contents. Instead, no method is presented and no substantial contribution to design is made. Again, a number of points are made by the authors but they fall short of any sort of helpful advice or method for designers. The arguments developed stay at a theoretical level without identifying design shortcomings and attempting to progress towards a solution. More worrying is the fact that design is discussed on the basis of the behaviour of folders and trash cans. As already said, it is hard to believe that these are representative of the challenges faced by designers, or that they encapsulate the most difficult human-computer interaction issues.
This limitation can also be found in the mock-up that the authors propose of what they call a Home Information Center. The latter is supposed to address a number of requirements (listed in the chapter) but the final interface is puzzling. In terms of limitations, this interface shows menu bars where menus do not seem to be able to highlight, where important task items are aligned close to, and in the same way as others that are very different in nature. Also, it is hard to understand the choice of colours for this mock-up (white icons against black background). The information content about one item (a festival, used as an example in the description of the interface by the authors) unfolds into four separate sub-sections split alphabetically and filling a large surface of the desktop area. This goes against modern design standards since it adds an undue step into the information retrieval process. If

the principle of a Rolodex set of cards were to be the driving force of this design, this could easily be replicated with a vertically-tabbed window (one tab per letter of the alphabet) or a drop-down list. Also, the desktop space is surrounded by a list of icons on its left hand side, a menu bar on top, and another set of vertical icons (shortcuts to content providers on the Internet) on the right-hand side. The rationale behind this design is difficult to understand. Avoiding cluttering the desktop space and "putting everything in one place" is probably what led today's computer desktops to have unfolding start menus. Not following this principle might have advantages but these are not listed.
Little of the behaviour of this Home Information Center is described and nothing is said about a usability study. No mention is made of a test user group and no results (quantitative or qualitative) are reported. Last, it is not clear whether this mock-up has been implemented at all. Finally, it is disappointing to see that only one page has been dedicated to what should have been the central piece of the book.

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