

A CORPUS OF DESIGN GUIDELINES FOR ELECTRONIC COMMERCE WEB SITES

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ABSTRACT

Designing and evaluating the usability of electronic commerce web sites is a rather complex activity that involves design knowledge. One particular form of this knowledge consists of design guidelines, which can ensure some minimal form of usability. However, these guidelines are widespread throughout the literature and expressed in various forms. This paper attempts to provide a framework for structuring guidelines, exemplifying it for electronic commerce web sites.

1. INTRODUCTION

A design guideline for an interactive system consists of a widely accepted principle that ensures some form of usability of the user interface (UI) of this system. For more than fifteen years, guidelines helped designers to improve the UIs by relying on the statement of these guidelines. However, guidelines suffer from drawbacks such as (Bastien & Scapin, 1993): widespread throughout literature, inconsistent vocabularies, homogeneousness of sources and disciplines, potential conflict, and lack of structure. In this paper, we attempt to improve the structure of design guidelines by reporting on a template for structuring guidelines and by exemplifying it on electronic commerce web sites. It is expected that guidelines structured according to this approach will be more easily communicated to designers, understood by developers, and propagated throughout the interested organizations.

2. TEMPLATE FOR STRUCTURING GUIDELINES

The proposed template for structuring guidelines consists of a list of attributes (table 1) based on a general guideline model refined by trial and error (Vanderdonckt, 1999) and expanded to consider modern guidelines. In this table, the rows in gray are not implemented in our current database, but are encoded in the field Comment. Fields marked with an asterisk means the following: in order to ensure some consistency over the guideline collection some explanations, procedures and a list of possible values (where appropriate) are given in this guide. A subset of these attributes is defined afterwards. An entity-relationship model was defined in order to implement a guidelines base (figure 1).

The guideline identifier is an alphanumeric identifier denoting the position of the guideline in the section guide. It is not known at the moment when guidelines are collected. However, if the collection is structured in sections, the number of the guideline within the section should be provided.

The guideline title is a brief and representative sentence using an active verb. It is strongly recommended to be as short as possible provided that the guideline meaning is preserved. Examples of titles are: *Provide on-line shopping carts*.

The statement describes the principle that should be followed when designing the interface, for instance: *Provide means to create on-line shopping carts that help users to keep track of what they already bought*.

For each guideline a list of bibliographic references quoting the guideline should be provided. The reference specifies the author name and the year, for instance: [IBM00-2] IBM ease of use: “Web design guidelines” section: e-commerce topics. Product information. http://www-3.ibm.com/ibm/easy/eou_ext.nsf/Publish/615

No	Attribute name	Definition	Status
1	ID_Guideline	an alphanumeric identifier denoting the position of the guideline in the all library; is an AutoNumber	simple mandatory
2	Title	a brief and representative sentence written in a simple sentence style: {[condition(s)], {imperative verb {subject, active verb}, object complement}}; must appear on one screen line	simple mandatory
3	Statement	a complete statement written in a natural language (preferentially in the same title sentence style) describing the guideline, in particular how to apply it	simple mandatory
4	Rationale	one or many sentences explaining why the guideline is important	simple facultative
5	Exception	one or many sentences explaining possible exception cases with reference to negative or positive examples	multiple facultative
6	Comment	in his field can appear any other information about the guideline, which is not covered by the template fields, in particular information from the entire ERA schema; temporally the information in grey from this template might appear	simple facultative
7	Reference	a list of bibliographic references quoting the guideline (author(s), year, title)	multiple facultative
8	Criteria	criteria respected by the guideline; use elementary criteria's; preferentially one ergonomic criteria might be chose	multiple facultative*
9	Linguistic Level	linguistic level in which is situated the guideline	simple facultative*
10	Example	example depicting a UI violating the guideline: textual explanation; picture; reference; original web address; local directory / file the example is positive or negative (Ill_type), normal or exceptional (Ill_Statut)	Multiple facultative
11	Relationship	relationship established with other guideline according to a link typology to be specified: the guideline source and the guideline destination of the relationship	multiple facultative
13	GlossaryWord	words defined for the indexation of the guideline; supertype of Eval_Method, Criteria and Ling_Level	multiple facultative
14	EvalMethod	methods for the evaluation of the guideline	multiple facultative
15	UI type	the user interface type for which the guideline is valid: web, textual, graphical, vocal, tactile, virtual; can be more than one	---
16	Development phase	a set of phases to whom it might concern: requirements specification, design, implementation, evaluation, training (education) ; can be more than one	---
17	Activity domain	the activity domains the interface are targeted to and which may benefit from the guideline; can be more than one	---
18	Task	User's tasks that benefit from the guideline; tasks are meaningful in the activity domain; can be more than one	---

Table 1. Template for structuring design guidelines.

- the reference where the example was found;
- original web address;
- a local directory / file name where the example is saved for a future use.

Both the original location and the saved page should be kept because the original site could change in time thus leaving the web address and/or the example obsolete.

Guideline statement: Preserve previous attribute values as selected by the user

Negative example: The Bluefly e-store does not preserve the size setting when choosing a product to examine it in more detail. Original address:

<http://www.bluefly.com/list/catg.asp?zone=mens&sort=fresh&brand=&catg=ls&min=0&max=0&color=&listview=rand&sid=V0U9VC68P1S92LTA00A3HJBDN59B2EBA&mapsz=M>

Local address:

<D:\Guidelines\Examples\bluefly\list\catg.asp>



1) The size as previously selected by the user

2) The user selects this products to examine it



3) The selection is lost so the user has to redo it. It might not observe !

Positive example. Each image must have alternative text.



This invitation web page related to the linguistic choice has got alternative text One ore more cases when the guideline does not apply, with negative and positive examples.

A set of relationships established with other guidelines according to a link topology. It can be one or many of the following: related-to, is the inverse of, inherits from, is inherited by, generalises, specialises, precedes, follows, updates, precises, is a, is comprised in, belongs to, includes, is included in, is a user of, is the owner of, has property, is an example of, is provided by, uses, is used by, is a requirement for, is alternative to, is contrary with, is conflicting with, updates / is outdated by,...

The user interface type for which the guideline is valid. It can be one or many of the following: Graphical User Interface, Character User Interfaces, web, virtual reality, tactile, audio,...

A set of phases to whom it might concern. It can be one or more of the following: requirements specification, design, implementation, evaluation, training, education.

The activity domains the interface are targeted to and which may benefit from the guideline. It can be one or more of the following: e-commerce, e-banking, e-documents, CAD,...

The user's tasks that benefit from the guideline. The tasks are meaningful in the activity domain. It can be can be more than one task for which the guideline applies. For an e-commerce web sites the task could be classified within following categories: *user support* (i.e., knowing the site, understanding return policies, understanding shipping conditions, contacting, looking for help), *product navigation* (choosing a store, choosing a product category, choosing a brand or a designer, specifying a display, product examination, detailed product examination), *product picking* (add to wish list, examining the wish list, add to shopping cart, examining the shopping cart), and *checking out* (checking the order, specify payment details, tracking an order).

Under the keywords section are classified other attribute values that might be relevant for the guideline organisation.

5. Conclusion

In this paper, we introduced a template for structuring design guidelines for the UI of interactive computer-based systems. This template is currently being used to input design guidelines into knowledge bases of the MetroWeb project. This software is a Web-based tool for working with guidelines: any user may input a guideline, submit it for revision to developers or human factors expert, and validate it. Once guidelines are accepted in a knowledge base, they can be accessed through the web.

For instance, a user interested to know usability guidelines applicable to mobile devices, such as WML-compliant cellular phones, may access the guideline base for mobiles devices. In this base, the user can select any subset of guidelines and retrieve them from the base to form his/her own working base. Examples can then be added, along with annotations. Guidelines for which some possibility for automated or computer-aided evaluation are considered for an extension of this tool.

REFERENCES

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