

**Thesis Overview:****Semiotics of the Web Interface: Analysis and Guidelines**

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The growth of technological innovations, internet developments, and their (web) applications has raised a definite issue on retaining the web interface quite understandable, and a need is also being felt on developing suitable and coherent guidelines for designing interface to swell the user interpretability of web signs. These design principles are semiotics by nature and semiotics is the science of signs, that is, of meaning's representations. For this, new and important perspectives for interface design would be discovered by *Semiotic Analysis* on interface signs. Therefore, this research mainly focuses on the valuable insights that semiotic analysis could offer to present the fundamental concepts to create understandable signs.

Over the last decade, there has been an explosion on interface design for HCI. But a very little attention has been paid to the semiotics theory to the web interface design, though it has widely acceptable crucial effect on web signs to enhance the users understanding and satisfaction. The underlying goal for the designer is to create the web signs that would be easy for the users to infer and interpret the intended meaning to retrieve the proper information. This research will focus on these issues to present the fundamental concept for the interface designers to create understandable web signs. To create the meaningful and understandable signs for designing the web interface, designers needs to understand the semiotics theory to get the fundamental concepts on:

- The complexity reasons as well as the interpretation factors experienced by the users while interpret the interface signs. And
- How a proper representation of web signs are easily presupposed by the user.

This thesis focuses on the analyzing user understanding of interface sign for web applications from semiotics perspectives. One basic research question is addressed:

*Which awareness the designer needs to re/design meaningful, understandable web signs?*

Detailing this general question, relevant research questions that remained as far as now uncovered in web semiotic design concerns the following:

- How many web signs are belongs to different ontologies (knowledge-domain) for a particular web domain?
- How much complexities are associated to different ontologies?
- Which are the reasons that make a sign difficult to understand?
- Which are the factors to properly interpret a sign meaning?
- Which semiotics consideration may need to take to reduce the sign complexity?

The fundamental role of this research is to present the detailed answers of the above questions to provide the semiotics background to the web designers with presenting the entire semiotics explanations for a particular web domain and the *Semiotics Golden Rules (SGR)* that will help them to designing the web interface signs *comprehensible* and *usable* to work with. Finally, a look at semiotic theory and web interface design guidelines confirms that *semiotics* is still essential communication components in Human-Computer Interaction (HCI) design. This research looks at how the relatively immature web interface sign reflects those essential components as well as how this could be overcome.

An in-depth empirical study on web interface has carried out through the expert analysis. The study has conducted having in mind two issues : i) user presupposed knowledge (ontologies) to interpret the web sign, and ii) Complexity experienced by the user and reasons to feel this difficulties to interpret the sign meaning properly.

To demonstrate the feasibility and soundness of this research empirical study has been conducted on the 2346 interface signs from 200 pages of both big and small size 34 museum websites of Cultural Heritage (CH) domain. Since, CH websites are information and communication intensive. Moreover, websites of this domain are generally created for the group of people who have a specialized knowledge on this domain and for this museum interfaces make unfamiliar terms and concepts for the users outside this specific community.

Study ended with complete outlook of signs belongs to different ontologies and thus modeling the users presupposed knowledge. And, observed complexity reasons to understand a sign meaning has considered as the interpretation factors. Factors are grouped to four main principles: Cosmetics, Amplifications, Matching, and Knowledge and these principle leads to create the Interpretation Framework for the interface signs. At the end, study upshots also used to lay down a complete set of 20 general guidelines- *Semiotic Golden Rules (SGR)* based on the interpretation framework.

Furthermore, this research has also conducted a very short user intuitive test for the 124 interface signs from the 6 pages of 2 museum websites to furnish the additional standards to the final outcomes of empirical study. However, results strained from this study to fulfill the research goals could be presented as-

- Firstly, modeling the (critic) user's knowledge to interpret the interface signs in order to understand its (signs) comprehensions and interpretations.
- Secondly, creating the Interpretation Framework of interface signs so that designers may understand the basis of interpretation difficulties of interface signs to grasp the intended sign meaning.
- Finally, providing general guideline- *Semiotics Golden Rules (SGR)* for the web interface designer to integrate the semiotics explorations into the interface design to defeat the current problem of sign interpretation.

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