

Linguistic Analysis of Websites: A New Method of Analysing Language, the Poor Cousin of Usability

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Abstract. While text and concepts have always been acknowledged as key players in effecting the overall impact of a website, language - much like an attention-deprived stepchild - has always been allocated a little side role. The following work introduces a method for linguistic analysis which enables usability experts to examine language on a website at its various layers, and to carry out a user study about users' perception of language. The method will be illustrated by an eBay case study in Germany and China and will be equipped with concrete examples. These examples indicate that this method is indeed easy to apply and that when used together with the classic usability test, enhances the study results and allows for a strategic optimization of the website.

Keywords: Linguistic Analysis, Usability, Web Usability, Usable Language, User Experience, User Test, Expert Analysis, Linguistics, Semiotics, Syntax, Semantics, Pragmatics.

1 Introduction

The increasingly user-centered development of websites have proven their impact: In terms of user-friendliness as well as in terms of graphic design and content, the quality of websites has in the last few years considerably gone up. And, in the web teams of big businesses these days, more and more psychologists are finding themselves working alongside linguists.

The unambiguous and intelligible designation of links and clear operation instructions are essential to the user-friendliness of a website. However, the naming of links and labelling of buttons deal with only one layer of language – that of meaning (semantic layer). An example of a semantic analysis is the study conducted in 2003 by Paivo Laine who analyzed the language of hyperlink and buttons.

All too often the diligence and care which should go into writing and shaping the text of websites are found to be lacking – supported of course by that well-known excuse that "online users do not read anyway". Indeed it is true that the manner with which people read the web differs greatly from the one with which they read books or

magazines. John Morkes and Jakob Nielsen (1997) found out in a study that 79 percent of the test users always scanned any new page they came across; only 16 percent read word-by-word. In our eye tracking studies however, we have found out that users actually read more and that women, in particular, read often more text than men (Duda, S., Schiessl, M., Thölke, A., Fischer, R., 2003).

A linguistic analysis of the language on a website would lend perspective and accuracy to the results of a usability test for language here is taken as a topic in its own right and subjected to close examination. The method of linguistic analysis offers several advantages. The first is that the results of a linguistic analysis allows for a quick yet concrete improvement. Furthermore, this improvement is considerably low in terms of expenses for it basically involves changing or rewriting of text rather than a redesigning of icons and graphics – which is a costly measure. Another plus point of the approach is the fact that an expert analysis will also deliver a model with guidelines and strategies for its further development.

Martín del Pozo (2005) points out that it is acknowledged by HCI experts from the beginning that linguistics as a discipline contributes to the field of HCI. Another important area of research regarding language and websites is the design of multilingual websites, localization and cultural particularities (Morgan, T., Luttrell, C., Liu, Y., 2001) (He, S., 2001). Nevertheless, research about the very issue of language on websites is rare. The online article "Linguistics and Web Usability" by María Angeles Martín del Pozo (2005) has identified this lack. She categorizes the research about language and usability in two fields: Reading materials which in the context of guidelines and checklists (e.g. Duda, S., 1998) briefly points to linguistic aspects, and articles on website writing and publishing.

In 2004, we were tasked by the internet auction company, eBay Germany to conduct a study of its selling pages. The following is a description of a linguistic analysis of those pages.

2 Theory

The method of the linguistic analysis was developed by eye square GmbH in cooperation with the linguist, Gerald Wildgruber from Humboldt Universität zu Berlin. According to the theory of signs by Ch. S. Peirce and C. W Morris (1868), it is possible to examine any kind of communication in terms of the syntactic arrangement and distribution of its signs, the semantic format of its contents and thirdly, the pragmatic embedment in a context of action.

The linguistic analysis method combines expert analysis with a user study. In the expert analysis, the language on the website is reviewed at the three levels (Syntax, Semantic and Pragmatic). In addition, the overarching themes of the website such as its metaphors and narration are also examined. Subsequently, the text on the website is put to a user test so that actual users get the chance to evaluate the language. Problems identified in the expert analysis are also reviewed in the user study. Results will then serve as both input in formulating concrete steps to improve of the text layout and as guideline for its future development.

2.1 Syntax: Text Is an Image

The subjects of analysis are the signs themselves – the way they are arranged and distributed on the page and their relationships and connections with one another. This has to do with the so-called iconic perception of the website, i.e. without taking into account the meaning of the words nor sentences (for this would make up the semantics); how the text is perceived, as a whole, as a picture.

2.2 Semantic: Meaning and Understanding

Semantic deals with the meaning of the signs. Here the question of whether the sign is understood in an effective manner takes centre stage. Are the concepts and instructions in use grasped intuitively by the user? The experience of having understood the system and the sense of security that accompanies that experience is an essential condition for a positive user experience.

2.3 Pragmatic: Meaning Is Use

Pragmatic here is used to denote the relationship between the sign and its user. The user is the one who acts. This aspect of language plays an important role when we consider the extent text can serve as an impetus or indeed as a commanding force for action. Language is never without a connection to action. The one who speaks does effect somebody else and wants to motivate for actions. Communication always has an aim.

2.4 Narrative

In order to provoke an (re)action from the user, mere comprehension (semantic level) and a simple call to action are often not enough. If the goal of the communication process is the action of the user we recommend for the generation of action impulse in the user the set up of a narrative. A narrative tells a story, a type of primordial story. It deals with primary conflicts and their solutions and addresses fundamental psychological needs. Finding such a tale would be enable one to address people at an emotional level that would directly appeal to them. A narrative can be seen as an extended and well-developed metaphor, a kind of meta metaphor ("Metaphora Continuata").

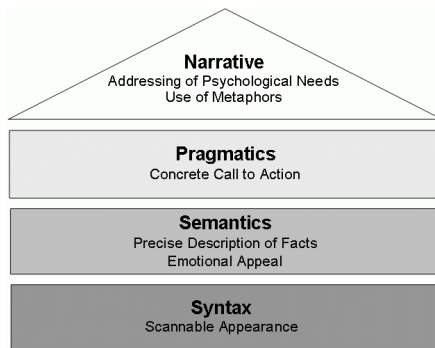


Fig. 1. Model of ideal language on a website

3 Method

3.1 Expert Analysis

Three experts - linguists and cognitive psychologists - analyzed independently from each other the language of the selling pages. The three levels of the text i.e. syntax, semantics and pragmatics were examined by each expert independently.

Syntax

- Is the amount of text appropriate?
- Is the text clearly laid out? Can the user quickly summarize the information in each block?
- Are the sentences clear and concise or clumsy and long-winded?

Semantics

- Cognitive effect: Is the wording comprehensible and informative? Is the wording consistent?
- Emotional effect: Is the style friendly and inviting? Is the user always addressed in the same way? Is the brand being conveyed?

Pragmatics

- Does the language call one to action?
- Is the point of the action being conveyed across?
- Does the user know which step to take next and how?

Narrative

- Which psychological needs could be addressed?
- Which narratives or metaphors could be used?

3.2 User Study

For the study we conducted in January 2004, a total of 10 participants were invited for single user sessions (90 minutes per person) in our media lab. These individuals had varying experience level - the group contained experts as well as novices. All participants used the same selected section of the website – the sales pages of eBay Germany. They went through the entire process of placing an item on the eBay pages. We used the thinking aloud method, and interviews. We focused our attention in having the following questions answered: What is the impression the users have of the language? Is the language appealing? Which terms cause confusion? Do users know what to do next? What would the users change?

After the website test, the user handed up the so-called association cards. These are cards on which the users wrote down terms that they associated with the language used on the pages. Subsequently, the participants evaluated the website using Semantic Differential, a procedure which measures connotative meanings of concepts: ratings on bipolar scales defined with contrasting adjectives at each end.

4 Results

4.1 Results of Expert Analysis

It becomes evident that in general, the user is offered too much text. The pages often come across as overloaded and have the effect of scaring off the user rather than inviting him to read them. A uniform layout for pages that belong together is also missing, for example, instead of having a specific position for the Help text throughout the pages, its placement changes. Often, the sentences were not only too long but also unnecessarily complicated in structure. The problem continues at the semantic level: Words were not always easily understood. The text was littered with technical terms for which definitions were not offered (e.g. "Verkaufsagent" and "Kaufabwicklung"). The mode used to address the user was inconsistent. In certain sections he is addressed politely with "Sie", in others he is the informal "Du". And yet in many parts, an appropriate tone of friendliness was found to be missing. Often, a direct call to action was missing. Sometimes the necessary steps were not clear or the processes were not described appropriately. It is also difficult for the user to have a complete picture of the selling process. He has to work through Step 1 to 5 without having any idea of what stage he is at and what is to come next.

The final task of the experts would be to find and formulate a suitable narrative that would take into account the results of the analysis. When looking for a suitable metaphor for the Selling procedure we found the shop metaphor: the eBay seller as a shop owner. For example:

- Putting articles in a shopping window (uploading items)
- Writing name tags for articles (item title) and price tags (auction starting price, or fixed price)

4.2 Results of User Testing

Examples of User Comments. The language is seen as factual and not very personal or motivating, but the latter aspects are not regarded as being important:

- Real estate agent, 55, newbie: "It's appropriate – it's like a manual!"
- Student, 35, user: "The language is appropriate for a form."

Though the informational aspect is regarded as the most important issue, some subjects thought it could nevertheless be more appealing:

- Consultant, 47, user: "A little bit too dry."
- Author, 31, user: "Could be more pleasing."

Interestingly, the very experienced as well as the inexperienced subjects thought the pages were not made for them. For the power-users there is too much additional text which they don't need and for the newbies there is not enough! Especially the compound nouns like 'Angebotsformat', 'Einstelloptionen' etc. are not comprehensible:

- Author, 31, user: "Two abstract terms combined, that creates a very special language!"

User Test Association Cards. The results of the free association together with the cards on which the users wrote down the adjectives produced a mixed picture of what they think of the selling pages. 44 overall associations (on average 4,4 per subject) were made; out of this 20 negative associations and 24 positive associations.

The positive adjectives were given by the two groups: usable language, positive user addressing. Several negative comments were found in the following three groups: complicated or incomprehensible language, too much text, factual style.

User Test Semantic Differential. The trend in the associations was further supported by the results of the Semantic Differential. The highest rated adjectives were: comprehensible, reliable, factual, and informative. The lowest ratings achieved: casual, motivating, and personal.

Here it is made clear that the eBay selling pages are perceived as fact-orientated and informative. They are however found to be unmotivating and impersonal – the emotional factor therefore is missing. To sum up: The pages worked well at the cognitive level but they were no fun to use.

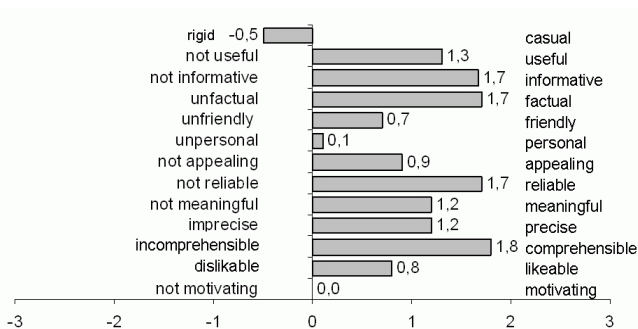


Fig. 2. Results user test semantic differential

5 Recommendations

The review of the syntax of the used language yielded the following recommendations:

- Use shorter sentences and reduce text.
- Take care about consistent positioning of text elements over different pages, according to content and function.
- Adapt user support to amount of user experience. Offer additional information and term definitions which are accessible through links.

Problems identified in the semantic and pragmatic analyses helped in making the following suggestions for improvement:

- Make the wording more friendly and motivating!
- Use clearer descriptions of objects and processes. Avoid complicated nouns.
- Use the friendly and polite addressing with "Sie" instead of "Du". Keep the addressing of the user consistent.

6 Case Study in China

eBay China site, in simplified Chinese, was launched at the end of 2004. Besides the unique features developed for eBay China, the content of the site was mainly translated from the English version. To analyze the site content the linguistic analysis method was adopted from eBay Germany. A combination of content-specific user studies and expert reviews were carried out in Shanghai. Again the user test consists of four sections: task-based website test, Semantic Differential, card association, and interviews.

In the expert analysis, two linguistic experts evaluated the buying and selling flows. The experts worked independently to evaluate the site by going through the typical buying and selling flows.

6.1 Results of Expert Analysis in China

From the linguistic analysis, forty seven buying-related and fifty selling-related issues were identified. In general participants thought that the site content needed improvements in the areas of precision, conciseness, call to action, informality, liveliness, and fun. Those ninety seven issues were then classified into six categories: content precision, content style, page design, business decision, legal content, and content bugs.

6.2 Selected Results of User Testing China

In China the study was conducted with the whole site. We want to present some general user comments and the results from the Association Cards and from the Semantic Differential from the selling pages user testing.

User Comments. Users felt the site is easy to use and intimate:

- "Although I've never been to eBay and not familiar with online purchase, I feel it easy to use the site when I use it for the first time today as if it was an old friend to me."
- "Its content is easy to understand and brings me sense of belonging."

Users put more emphasis on the fact that eBay is convenient; friendliness was less important:

- "Trustworthy, sincere, friendly and lively."
- "The reason I visit eBay simply is it brings convenience to my life."

User Test Association Cards. 26 overall associations (on average 3,3 per subject) were made; out of this 10 negative associations and 16 positive associations. The positive associations fell into three groups: Easiness, clearness, intimateness. The negative associations were: Missing conciseness/clearness, missing integration of both graphic and text.

It is very interesting that the results from Germany and China are rather similar. In both countries the positive associations were stronger; users found the selling pages

comprehensible, concise, clear and easy. In both countries a considerable amount of users found that the pages are complicated, not concise. But in Germany more users than in China criticized the amount of text and the factual style.

User Test Semantic Differential. For the Chinese study the Semantic Differential was adapted to Chinese needs; therefore only some items can be compared directly. Nevertheless, the results point in a similar direction. In Germany rigid is the most negative item, followed by motiving, personal, likeable. In China formal is the most negative item, followed by boring and wordy.

Despite the different adjectives, one can see that in both countries there is a lack of nonchalance/ "lightness of being", and inspiring factors.

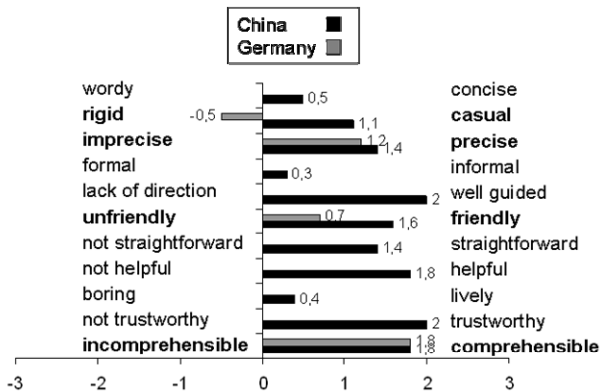


Fig. 3. Semantic Differential China-Germany

Comparing the adjectives that were identical (rigidness, preciseness, friendliness, comprehensibility) one sees that Chinese and German users rate the eBay selling pages equally comprehensible. As well preciseness is rated almost equally. Nevertheless, Chinese users experience the pages much more friendly! And regarding rigidness Chinese and German users have a different opinion: Germans think the pages are rather rigid, Chinese users not.

7 Recommendations China

High level recommendations from the study include:

- Cut back the content on each page. Simplify complex sentence structures. Make the content more scannable. Make sentence structure and presentation consistent.
- Update the content where it does not call out the benefits to the users and does not motivate users to action. Update the content where it uses eBay terms and is not expressed from the buyer's point of view.
- Minimize eBay technical terms. When technical terms are used ensure they are in the user glossary.

The eBay China use case illustrated the ease of adopting this linguistic research method, and the multitude and quality of the findings demonstrated its effectiveness. The China use case, combined with the German study, also provided evidence to the validity of the research method in the international context.

8 Conclusion

With our studies we wanted to throw light on the benefits of going beyond usability issues and paying more attention to the language on websites. We tried to show how looking at a website from a different perspective can help gain deepened insights how to improve overall user experience. We hope that these studies could demonstrate that language issues can easily be integrated in usability projects.

Research which systematically measures the effect of improved language on web pages on efficiency and user satisfaction is needed. What are the factors regarding language that influence users' performance, and users' emotional perception of the website? Especially the use of metaphors and narratives is a challenging and promising area of research that could involve linguists and HCI researchers.

We hope that research in linguistics and usability will continue to expand, and that both disciplines will work more closely together in the future.

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