

RESEARCH ARTICLE

Linguistic Elements in Industrial Design Interfaces: The Linguistic Aspect of Usability and Perception

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Abstract

The article examines the linguistic elements used in user interfaces of industrial design objects. It analyzes lexical, syntactic, and pragmatic features of interface texts from the perspectives of linguistics and ergonomics. Special attention is given to the role of language in shaping user experience, communicative accessibility, and the efficiency of interaction between a person and a technical device. The conclusion emphasizes the need to involve linguists at the interface design stage to ensure cognitive and linguistic adequacy of the texts.

KEYWORDS

Industrial design, interface, language, linguistics, user experience, ergonomics, label, message, syntax, pragmatics.

INTRODUCTION

Modern industrial design is not limited to the form, material, and function of an object: it increasingly incorporates linguistic tools that ensure effective user interaction with a technical device. This trend is particularly evident in the interfaces of digital and household appliances, where language becomes the primary control and navigation tool. The presence of labels, commands, notifications, warnings, and other verbal messages requires not only technical precision but also linguistic accuracy. As V. I. Karasik notes, language acts as a mediator between people and technology, and therefore is subject to specific communicative requirements [1]. In the modern digital and industrial landscape, interfaces play a crucial role in shaping user experience. Industrial design interfaces are no longer limited to physical controls but increasingly incorporate digital, visual, and linguistic elements. Among these, linguistic elements—such as labels, instructions, icons with textual support, and system messages—serve as a bridge between the user and the product.

The effectiveness of an interface depends not only on its visual

design but also on how clearly and intuitively information is conveyed through language. Therefore, the linguistic aspect of usability and perception has become an important area of interdisciplinary research, combining linguistics, cognitive science, and design studies.

Language interface elements perform several functions simultaneously: they inform, control, warn, accompany user actions, and create an overall impression of the product. The effectiveness of such elements directly depends on their lexical clarity and syntactic simplicity. In most cases, preference is given to infinitive or imperative forms: "Save," "Delete," "Click." These forms are perceived as neutral, functional, and minimally overloading the cognitive perception system [2]. Particular attention should be paid to vocabulary selection. Using common words facilitates the interpretation of actions, whereas complex or borrowed terms, if not adapted, can confuse the user. An example is the "Reset" button found on many devices intended for the mass market. For a Russian-speaking consumer, such a word, not being localized, may be

incomprehensible, meaning the button is not used [3]. Similar problems arise with literal translation from English: labels like "Домой" (instead of "Главная") or "Сброс" (instead of "Сборка" (reset)) do not conform to Russian language norms, violating the principles of pragmatic appropriateness [4].

The syntactic structure of the interface text is also of great importance. Complex sentences, an abundance of turns of phrase, and indirect forms slow down comprehension and increase the likelihood of communicative errors. As shown in the study by A. A. Pisarev, effective interface texts strive for maximum directness, avoiding passive constructions and redundant formulations [3]. Sentences like "Press the start button" are preferable to cumbersome and formal ones like "Press to begin the activation process."

Equally important is the pragmatic level. Interface messages, especially those concerning errors or failures, require sensitivity and a neutral tone. Aggressive or unclear wording can irritate the user. As N. S. Molchanov notes, emotionally charged or politely phrased statements like "Check the parameters and try again" are perceived positively, helping to reduce frustration [4]. In this context, the practice of interface gamification is developing, in which the language takes on a personalized, friendly tone: "Great! You did it!", "Ready for a new day?", etc.

An important aspect is compliance with the cultural and linguistic norms of the target audience. The interface localization process should not be limited to mechanical translation: it requires comprehensive adaptation, taking into account speech habits, sociocultural expectations, and even phonetic associations. Neglecting this requirement can lead to significant communicative and image losses. As Yu. A. Shreyder emphasizes, the digital space requires special linguistic awareness and cultural flexibility [5].

Linguistic elements in industrial design interfaces include all forms of textual communication that guide user interaction. These elements can be categorized as follows:

Labels and commands (e.g., "Start," "Stop," "Settings")

Instructions and prompts (e.g., "Press to continue")

Error messages and feedback (e.g., "Invalid input")

Navigation terms (e.g., "Home," "Back")

These components must be concise, clear, and contextually appropriate to ensure effective communication. Poorly designed linguistic elements can lead to confusion, errors, and

reduced usability.

Usability and Linguistic Clarity

Usability refers to how easily and efficiently users can interact with a system. Linguistic clarity is a key factor influencing usability. Clear language reduces cognitive load and helps users quickly understand how to perform tasks.

Key principles of linguistic usability include:

Simplicity: Avoiding complex or technical vocabulary

Consistency: Using the same terms for the same functions

Clarity: Ensuring that instructions are unambiguous

Brevity: Keeping messages short and direct

For example, a button labeled "Submit" may be less intuitive than "Send" in certain contexts. The choice of words directly affects user comprehension and interaction speed.

Cognitive Aspects of Language Perception

From a cognitive perspective, users process linguistic information through mental models. These models are influenced by prior knowledge, language proficiency, and cultural background.

When users encounter interface text, they:

Recognize the words

Interpret their meaning

Relate them to expected actions

If the language used does not match the user's mental model, confusion arises. For instance, technical jargon may be clear to experts but incomprehensible to general users.

Thus, designers must consider the target audience and adapt linguistic elements accordingly.

Cultural and Multilingual Considerations

In global markets, industrial design interfaces must accommodate multiple languages and cultural contexts. Linguistic elements that work well in one language may not be effective in another.

Challenges include:

Translation accuracy

Cultural differences in meaning

Text length variations

Symbol interpretation

For example, a word like "Cancel" may have different connotations depending on the context and language. In some cultures, direct commands may seem too abrupt, while in others they are acceptable.

Localization—the adaptation of language to specific cultural contexts—is essential for improving usability and user satisfaction.

Linguistic Economy and Efficiency

Another important aspect is linguistic economy, which refers to conveying maximum meaning with minimal text. In industrial design, space is often limited, especially on small screens or physical interfaces.

Designers must balance brevity and clarity. Overly short messages may be ambiguous, while long messages may overwhelm users.

For instance:

"Error" is too vague

"Incorrect password" is clearer and more useful

Effective linguistic design ensures that users receive sufficient information without unnecessary complexity.

Interaction Between Visual and Linguistic Elements

Linguistic elements do not function in isolation; they interact with visual components such as icons, colors, and layout. This multimodal interaction enhances usability.

Examples include:

Icons supported by text labels

Color-coded warnings with explanatory messages

Visual hierarchy guiding attention to key information

When visual and linguistic elements are aligned, users can interpret information more quickly and accurately.

Practical Implications for Design

The integration of linguistic principles into interface design has several practical implications:

Conducting user testing to evaluate language clarity

Using plain language guidelines

Applying consistent terminology across the interface

Adapting language for different user groups

Designers should collaborate with linguists and usability experts to create effective interfaces. Therefore, language in an interface is not a secondary design component, but a fully-fledged element of the functional environment, influencing the effectiveness of communication and the overall impression of the product. The linguistic development of an interface should be an integral part of the design, and the participation of linguists in this process can significantly improve the ergonomics, accessibility, and emotional acceptability of a product. Only at the intersection of linguistics, design, and psychology can high-quality human interaction with the technological environment be achieved.

An analysis of the linguistic components of an interface demonstrates that the linguistic component of industrial design has a significant impact on user behavior, usability, and intuitiveness of a product. Key factors in the effectiveness of a text are semantic transparency, grammatical simplicity, pragmatic appropriateness, and cultural adaptation. The participation of linguists in interface design represents an important step toward humanizing technological interaction. In the context of increasing automation and digitalization, the role of language as a mediator between humans and machines will only increase, requiring in-depth study and implementation of linguistic approaches in design practice.

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