Wayfinding Design: An Ergonomic Approach to Signage Systems

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ABSTRACT

Signage systems are closely linked to the security of persons and goods, as well as pressing issues such as ergonomics, accessibility, orientation, and mobility, among others. Signaling traffic, tourism, emergency signaling, railway signaling, air, maritime, etc., well reflect the role of signage/signalization in contributing to the safety and mobility of societies and the social role of design as a methodology or discipline that conceives orientation signs in space – The Signage systems. The potential benefits of information design (more properly signage systems) for social development are also looking for new approaches and methodologies, for research in and by design in an attempt to maximize new solutions that improve the lives of societies. The found solutions at the level of signage systems do not always consider the real needs of multiple users, i.e., at the level of design of these systems lack truly design projects centred on the users and that incorporate real solutions at technical, aesthetic, ergonomic and also inclusive levels. The development of signalling systems, which are considered as spatial information systems, involves the vital function of transmitting information in order to guide and direct certain individuals or groups / classes of individuals. It is a communication process that uses artifacts designed for the transmission of information and guidance clear and unambiguous for Citizens: The wayfinding. Considering wayfinding as the organization and communication of our dynamic relationship with space and environment, we are in the field of an important area for the design, to architecture and ergonomics, which is not only limited to the design of systems, but all that pertains to human interaction with spaces (Arthur; Passini, 1992). Thus, wayfinding design seeks to develop activity in the design of signage systems and of spatial information, which aim to guide and assist the task of accessibility to a particular space or territory. It is understood to be fundamentally a user-centred approach, which favors the ergonomic issues, anthropometric and inclusiveness, making signage systems truly universal or rather, accessible to a majority.

Keywords: Wayfinding, wayfinding design, signage systems, ergonomics

INTRODUCTION

The largest influx of people to certain places of tourist interest, tourist facilities, airports, train stations, events, shopping areas, public services, etc.., raised the need to guide these people in an unknown space and communicate basic messages in a language understood by a majority.

Generally, each signage or signaling project is developed in an isolated form, not contemplating any connection with the ruling systems, often ignoring the legislation, the agreed international systems, with the notable absence of strategies in the territories-country, and in various regions of the world. The own regulatory authorities of process disclaim often their role in the study, uniformity, standardization, monitoring and above all, lack develop methodological processes capable of generating synergies and inter-organizational projects.

At the level of development of specific signs to touristic information systems, lack above all that the various actors understand that projects can, and should be, user-centered and do not have only aesthetic or economic criteria. It matters also apply models, methods or methodologies that place the design professional in the center of the process, avoiding empirical processes, but also involve other professionals such as ergonomists, architects, technicians from central and regional government, municipal technicians, consultants, companies, scientific community and other entities related to the wayfinding process.

How to promote and guide the flow of visitors in a given territory, contributing to their knowledge and at the same time articulating the guidance needs, information of places with tourist potential interest and signage? The answer may be in a restricted set of uniformized symbols, standardized, recognized by most users, with potential application in various contexts and territories.

For this it is fundamental to create mechanisms to develop complementary systems that do not require the seizure of new codes and that facilitate displacement and the access to tourists and travelers, generating visual codes which complement the expressive limitations of the images and texts as code to use in touristic messages, incorporating a new universal and instantaneous signs language.

Problem

Sign systems for touristic information developed in several countries, generally, are not developed in a systematic way and it is unknown (in most cases) an applied methodology to projects development for touristic information, considering this problem as the starting point of this investigation.

To reach this objective, it is necessary to incorporate in the projects for signalize touristic information, principles and methodologies which are transversal to all the steps involved in the process, sufficiently adaptable to various types of design and allowing generate more effective systems from the point of view of communication, functional and aesthetic.

AN ERGONOMIC APPROACH TO SIGNAGE SYSTEMS

It matters, in the context of this article, to define the concept applied to systems of signs and their relation with the surrounding: The wayfinding. It is a term that has been applied to identify the theme of spatial orientation and navigation, especially in urban areas. It is an important area for the design, for architecture and for ergonomics, which is not only limited to the design of pictograms and signage, but to everything that concerns the human interaction with spaces (Arthur; Passini, 1992).

Wayfinding Design

Several definitions of the term wayfinding are known, as a methodology for organizing indicators to guide people to their destinations (Beneicke; Biesek; Brandon, 2003). Wayfinding can also be an orientation process that uses spatial and environmental (natural, urban or built) information. Wayfinding can be considered as a method to provide consistent information, from a clear and obvious way, to guide a person to their destination. This information can include maps and signs, clear clues to the architecture and interiores design of facilities, or through the use of color pattern and texture. Advanced systems of wayfinding can also be effective information systems that support organizational identity and branding strategies (Hablamos Juntos, s.d.).

At the organization and communication of our dynamic relationship with space and environment can be defined as Wayfinding. Successful design to promote wayfinding, allows people: (1) determine their location within an environment, (2) determine your destiny, and (3) develop a plan that takes them from their location to their

destination. The design of wayfinding systems should include: a) identifying and marking spaces, b) areas of agglomeration, and c) binding and organizing spaces through architectural features and graphics (Center for Inclusive Design and Environmental Access, s.d.).

Wayfinding design is the creation of resources and spatial information systems and the environment, to guide and direct people. Can still be considered as the process of organizing spatial and environmental information to help users find their way. Wayfinding should not be considered a separate or different activity than the traditional "signage design", but rather a broader, more inclusive way of assessing all the environmental issues which affect our ability to find our way (Kelly Brandon Design, s.d.).

A wayfinding system includes brands, signs, maps and directional devices that tell us where we are, where we want to go and how to get there. An effective wayfinding system can add an important dimension to the image of a museum, a transit system, an airport, an office building, or an entire city. It can be designed as an auxiliary understanding that provides information and guidance to people in a clear, appropriate and friendly to the user, in order to help find your way through, and out of an environment (Wyman, 2004).

All wayfinding projects have a common factor, whether they are large-scale or small-scale, long-term or short-term, to public spaces or commercial companies, for new visitors or staff, indoor or outdoor, pedestrians or car drivers: All wayfinding projects are intended to be used by people. This means that all projects wayfinding will have to take into account human perception and human psychology (Mijksenaar, 2009-2011).

Principles and standards

It is understood, in the context of this study, that the Principles describe the general characteristics of development of a visual code with graphical and functional quality perceived. The Standards describe the content and processes for application in the graphic development of the visual code. Together, the Principles and Standards constitute the guidelines in developing the visual code.

Principles

Outlined below are some Principles that purport to describe the general characteristics of development of a visual code with graphical and functional quality perceived.

It is considered as a general principle, in the development of graphics system, that all systems are different, distinct, unrepeatable and with distinct audiences. It is therefore important to consider the issues related to the design of the visual code.

Any image that competes to form a pictogram, tends to take on the characteristics and convey the sense of the total category of objects which belong to the object in examination (Massironi, 1983, p.118). That is to say that an image to be represented by a pictogram, tends to regulate the design of other pictograms that are contained in the same category.

Ordinarily, the image of an object has the property to display that object in all its uniqueness, loaded of all attributes that characterize it as unique. In the pictograms should happen otherwise, the figure "man" should serve to "all possible men".

If it was used a photograph of a man to a signal, the image would be much closer to the real man than the outlined by pictogram, but it would be much less useful. If each figure must serve to 'the whole set of possible objects belonging to that class', the figure of which we speak should never foreshadow an object, but the whole class of those objects. Ie, a concept (Massironi, 1983, p. 119-120).

According Moles and Janiszewski (1992, p. 47), there are criteria that characterize the different types of images, such as Iconicity/Abstraction; Complexity/Simplicity; Normativity; Universality; Historicity; Aesthetics or cognitive load; Fascination.

The requirement of transmitting information by pictograms obliges to conceive concise, simple and quickly understandable signs; for it, must be sought elementary graphic structures, to do justice to a certain type of perception (Aicher; Krampen, 1995, p.101). In general, the conceptual model (taking into account the design of pictograms) should present information in a more simple, clear and without ambiguities possibles (Mijksenaar,

2001, p. 25). The design has the unique ability to shape information by certain techniques (Mijksenaar 2001, p 25.), As the emphasis or understanding; comparison or structuring; Grouping or order, selection or omission; Option for immediate or delayed recognition; presentation in an interesting way.

Relatively at the definition of basic principles for tourist signs, the European Conference of Ministers of Transport in 1991, supplementary to the Signs and Road Signs Convention, established basic principles for tourist signs (World Tourism Organization, 2003, p. 47-48) ,principles such as the Principle of safety; Principle of proximity; Principle of specificity.

According Maria Avillaneda (2006, p. 88) for developing a signal system, it is essential to define the bases of creating a set of signs or graphics, because the strict observation of each normative basis will be reflected in the signaling system functionality. It is defined the following normative foundations (Avillaneda, 2006, p 88-97.): Coherence; Logic; Terminology; Location; Clarity and precision; Color; Design; Flexibility; Universality.

Standards

It is considered as a general principle in the development of the graphic system, that all systems are different, distinctive, unrepeatable and distinct audiences. It is therefore important to consider the issues related to the design of the visual code. In the following paper are presented various contents and processes for application in the graphic development of the visual code, which are intended to contribute to the graphical and functional quality of the system.

The technical report ISO TR 7239: 1984 (E), provides procedures for the development and implementation principles of the symbols for public information, addressing the report three major areas: procedures for the development or adoption of symbols, criteria for visual design; the implementation process of the symbols for public information (ISO TR 7239, 1984, p. 4 - 16).

As for the procedures for the development or adoption of symbols for public information, the technical report indicates that one should first check if the referent is no longer standardized (ISO 7001, 2007), before developing a new symbol. If not, before proceeding to development a symbol for a certain function, must be clearly established whether the graphic symbol is really necessary. Establishing the necessity of the existence of a new symbol, the development of the symbol for public information must be based on the results obtained by the procedure proposed by the standard (ISO / TR 7239, 1984, p. 7).

Regarding the content of the normalized image, the ISO 7001 establishes three elements: a) the contents of the default image, b) function c) field of application. Generally, the information contained in the Technical Report are aimed at design professionals in visual communication, which are to interpret and apply after appropriate assessment of specific environments.

As for building a symbol, the Report reflects on the different elements of the systems graphism, such as the application of grid construction, symbol proportions, symmetry of shapes, directional arrows, shapes and contours, and reduction scales. The Report also presents a number of technical rules for defining the shape of symbols, as well as the angles of vision, important for the design and implementation of public information symbols, contains also other rules relating to the viewing distances / symbol size / displacement. Also presented are other rules for the implementation of symbols as its orientation, distance, symbol / text / arrow interaction, tonal contrast and relationship with the corporate image.

In other way, the standard ISO 22727:2007 (E) indicates some guiding principles for the creation and design of public information symbols, being these principles organized into three parts: the creation process, function and meaning, and finally the design of graphic symbol (ISO 22727, 2007, p. 2 – 24).

According to Norma, before developing a new symbol for public information, you should check whether it is really necessary that symbol and not another, one should also identify its precise meaning, and the need to create a new symbol by determination, or if the symbol with the meaning required is already given in ISO 7001. For the design of a new symbol for public information, one must consider the existing graphics elements with similar meanings that can be used, adapted or combined to form the new symbol. An analysis of the expected characteristics of the new symbol users and the context of their use, must also be performed.

For the design of the new symbol should be used a model (layout) . After the conception of the new symbol, it is highly recommended to conduct a evaluation of the understanding of the symbol in the context in which the symbol is being used (according to ISO 9186-1 standard). If necessary, the public information symbol must be modified.

Must be assigned a meaning, a function and image content to the symbol for public information. To this one must consider the category to which the symbol belongs (categorization). Each symbol must normally be used to transmit only one message and it should be placed in only a single category. Must be assigned a meaning and a function that must be unambiguous.

According to the ISO 22727:2007 standard, the design of a graphic symbol should be understandable; easily be associated with the intended meaning; be based on objects, activities, etc., or a combination thereof, which will surely be identifiable by the users; be easily distinguishable from other graphic symbols; contain only those details that help to the comprehension; maintain these characteristics when reduced to 25% of the size of the conception layout grid.

The graphic symbol must be designed within a grid. This should not extend beyond the margins of the grid, but should make full use of the area within the margins of the model. It should also be constituted by the fewest possible components while maintaining comprehensibility.

Any existing standardized representations of components of the symbol shall be used without modification. The letters, numbers, punctuation marks, mathematical symbols and other characters should be used only as an element of a symbol for public information. The symbols for public information should only be denied for reasons of comfort or convenience. The denial bar and cross, are usually in red.

It is recommended that the designer addresses certain issues during the creation and design of a graphic symbol for use in public information in the sense of solving a identified problem of public information: Meaning; Alternative meaning, Unintentional meaning; Function; Necessity; Existence of symbols for public information; Graphic symbols and elements of graphic symbol Existence; Field of application; Users; More details for specific audience; Related meanings; Negation, Project review, Test data.

RESULTS

The sign systems for tourist information are not developed in a systematic way and it is not know (in most cases) one applied methodology to projects development for tourist information, in terms of graphic development, in management terms, planning, development and application.

To achieve this objective, it is necessary to incorporate in the projects for signaling tourist information, a methodology that covers all the steps and actors involved in the process and sufficiently adaptable to various types of projects and permitting to generate more effective systems from the point of view of communication, functional , ergonomic and even aesthetic.

Considering this problem as the starting point for this essay, based on the research area of design, specifically the graphic design / information, it was understood that this test could produce results in terms of defining the principles and standards that would support decision-making of designers when developing pictograms and ideograms for application in systems of signs to tourist information, which would make them more inclusive and focused on the diverse needs of users.

Ergonomic approach to signage systems: Essay

This test is assumed as a reflective proposal about certain principles and norms that is believed may have implications in improving the graphical and functional quality of visual code and part of the interpretation of the results of the entire investigation. Are presented the principles applied to the development of systems of signs for tourist information:

a) Principle of Necessity: It is necessary to develop a new system or a new symbol? Prior to the development of a system of signs for tourist information, must be evaluated before more your need, that is, if exists any system ever developed or related and sufficiently recognized that fulfills the same function without the need to make known to

the user a new code to decode.

b) Principle of universality: For whom is the signalling or symbol? Regarding the signalling systems for the tourism area should always be considered the universe and not the sample, ie, it should be considered as the target audience of the system, the entire audience from various sources in order to make the system recognized by the majority. If possible should be used, pictograms and ideograms recognized worldwide.

c) Principle of participatividade: Who develops the system or symbol? It is essential to the quality of the system or symbol developed the participation of various actors (customer, company, designers and other professionals and above all the user) and that they incorporate the decisions of each design stage, to conceive conceive a more inclusive system, one closest to the user's needs and hence with greater differentiation potential, with perceived quality and satisfaction of all needs of the stakeholders and recipients of the developed system.

d) Principle of usability: The systems of signs or symbols are easy to use? Systems of signs or symbols for tourist information should be developed taking into account the ease with which the user interacts with the signalling artefacts, in order to facilitate access and displacement in a given space or territory. In this sense many cycles (analysis / design / testing) should be performed and evaluated their results.

e) Principle of Simplicity: The system of signs and their symbols are clear? The complexity of the information provided by the signaling system or the symbols and / or the need for fast reading and decoding by the user of the signs, impose a graphic system, simple, clear and without ambiguities possible. In this sense, graphic design plays a key role in the transmission of information, should be based on elementary graphic structures, flat colors, typography with effective readability and legibility and other factors that may contribute to a system that fulfills its function: to inform.

f) Principle of Uniformity: The system of signs or their symbols have a common graphic language? The graphical choices made in the development of a particular pictogram that belongs to a class or system must regulate the design of other signs, that is, there must be a common principle to the graphic language regulatory and uniform for all system . The uniformity results from similarity of constituents and homogenization of the parties to establish a common code, facilitator of the communication process between the system of signs for tourist information and the user.

g) Principle of normativity: There are standards or rules that constrain the development and application of symbols or signs of the system? The adoption of international symbols or systems implemented in another country can be beneficial for decoding and recognition of the code applied. However should be analyzed all the precepts and rules that might constrain the development and application of a particular symbol or system. Thus, there must be an analysis of the normative documents (sectoral regulators, regional, national and international) that may affect or assist in the development of the graphic system.

h) Principle of perceptibility: In the development of the symbols or system was considered the perception question? In the development of pictograms and ideograms to incorporate the signs to tourist information systems, must consider the question of perception as fundamental to the quality of the system.

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