

SOME CONSIDERATIONS ABOUT THE INTERACTION MAN-INDUSTRIAL PRODUCT: THE INSTRUCTIONS FOR USE OF THE INDUSTRIAL PRODUCT

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1. Introduction

The market evolution involves new scenarios to support the product and requires different actions to the enterprises both to face and to respond them. These scenarios have not only impact on the traditional problems related to the functionality of the product or to reduce the “time to market” and its cost, but they also are referred specifically to new questions, such as the use, the maintenance and, in ultimate analysis, the dismissal of the product. In fact, a major distribution of the product on the market needs supports able to furnish the right information about the product. These supports include manuals for the use and for the maintenance of the product. Clear and efficient information requires today the translation of the manual in the language of the customer. This translation is very expensive and often contains formal and informal errors that are source of misunderstandings. The lack of information is due, in many cases, to the difficulties of the translation in the common idiom of the country where the product will be distributed. So, the design of the product must be now strongly oriented to satisfy the integration between product functionality, service support and communication. Take account of this consideration during the process of definition and designing of new products is very important. This paper is devoted to explain some considerations about the use and the selection of pictorial signs to reduce the text quantity in the instruction manuals for the products.

2. Instructions

When you are called to evaluate the impact of the product quality perceived by the customer in function of information furnished with it, you can discover that the instructions for use and maintenance are very important and they are considered on major level of relevance of many parts of the product itself. This perception is higher when the instructions for use are embedded in the product, such as in the case of the digital display of new printers.

For this, the instructions for product use must be clear, right and complete. Usually the most part of the instructions are expressed as texts; this form of communication can represent difficulties from many points of views. In fact, the use of the text brings some instances, particularly:

- a. the necessity of translates the text of the instructions in many languages;
- b. the necessity of guarantee correct information for any countries.

First instance requires big investments, particularly for small enterprises, and it could be involve danger of translation mistakes, representing a problem. Spelling, typographical and printing errors bring, in many cases, to unexpected consequences.

Second instance takes in consideration the “real” environment where the product will be used. The common practice of translate the instructions for the use into the most diffuses languages constraints

the customer to know a specific language, predefined by the producer. This use could generate critical situations. The text in a specific language is “no-global” and could reduce the product appeal because there is always the possibility that a man without knowledge of this language has comprehension problems. In figure 1 it is possible to see an example related to an industrial product: the instruction for use furnished with a little room humidifier.

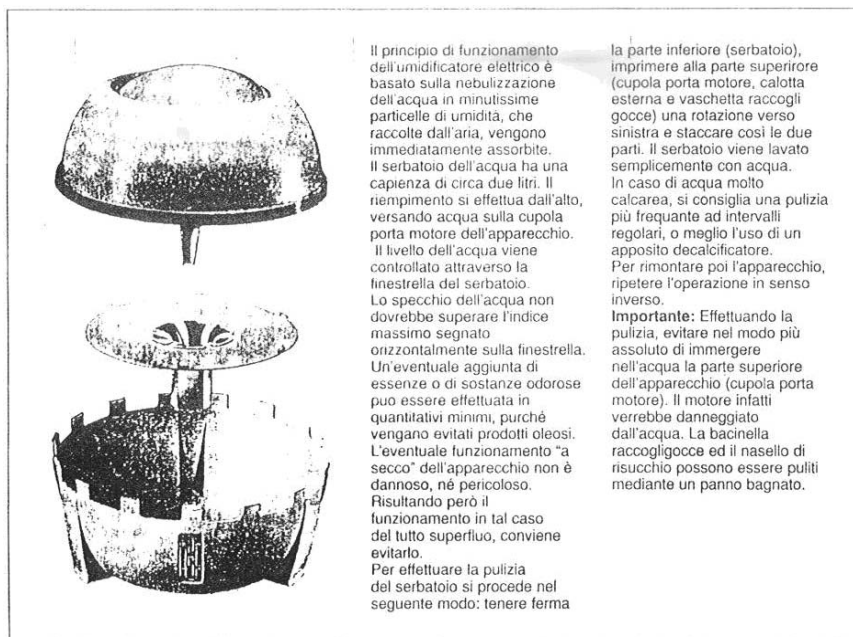


Figure 1. Instruction for use of a room humidifier: small importance to the graphical form

The communication problem proposed is not confined only to the field of the industrial or commercial products. Similar communication problems are founded in most daily situations. An example, in general sense, of “no-global” instructions could be retrieved in the road signs. The figure 2 represents an example of sign on an Italian road. It is easy to recognize how difficult can be the comprehension of such sign for Italian language not speaking peoples.



Figure 2. Example of Italian road sign: it is very difficult the “read” such sign for non Italian speaking peoples (Except vehicles jointed to the religious activities or direct to the private properties or bicycles.)

The logical solution to the questions exposed is represented by a major use of graphical signs in the communication. The graphical communication has many advantages:

- universal;
- immediate;
- not expensive for the translation.

In figure 3 and 4 are represented two examples of instructions with different level of integration between textual and graphical information. They have been evolved from the instructions for the use of the humidifier shown in figure 1. It is easy to recognize that the advantages a), b) and c) are increasingly present in such examples. But it is not enough, in fact, the interpretation of the graphic signs could bring other misunderstandings because the graphic representation permits a large combination of forms, so different signs are used to explain a same concept and vice versa. For these reasons, it would be interesting to study a “general” language, accessible to all peoples. Such a language, could reach, with respect of the local languages of any single country, a role of transversal language. This language can be based on a set of visual signs. For example, it could be realised by mixing alphabetical and graphic signs, including colours. Of course, in order to define an unambiguous language it is necessary to study a rational and logic system of graphic signs, by taking in account the communication techniques. The problem is to find a system of graphical signs that must be immediate and comprehensive for all peoples, of all cultures. It is possible, to the selection of the graphic signs more sufficient to explain correctly the communication, apply the techniques of analysis adopted for the choice of the product solution more sufficient to satisfy the functions required. It is so possible to speak about “methodic design” of graphical signs.

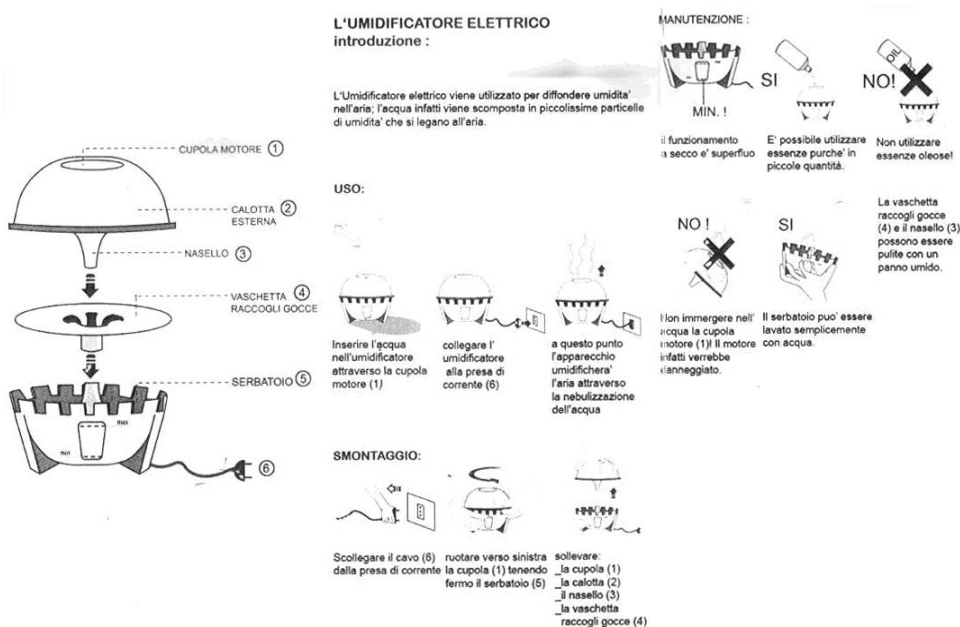


Figure 3. Instruction for use of a room humidifier: more importance to the graphical form

3. Methodic design of graphic signs

With analogy to the steps of the methodic design of technical systems, it could be proposed the following steps for the methodic design of graphical signs. Each graphical signs must perform a function: “Transmission of information with graphical means”. The principles and constructive solutions of such function are combinations of graphical signs. Such constructive solutions must behave in a Life Cycle Analysis and, then, can be evaluated with DfX methodologies.

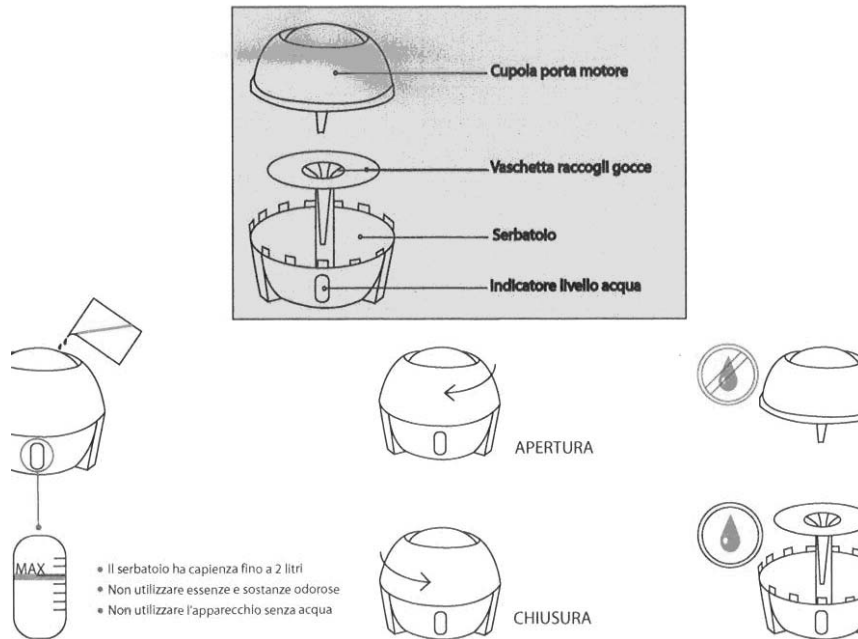


Figure 4. Instructions for use of a room humidifier: most importance to the graphical form

In particular, it is possible to recognize two different problems:

- choice of the “best” graphical sign among a set of assigned signs;
- construction of new graphical sign.

To choose the “best” graphical sign, it can be useful to evaluate how the different given signs behaves in the life cycle, by using methodologies such as Design for X.

There are many cases of same meaning expressed by a range of different graphical signs. In figures 5 and 6 there are some examples.

The most significant phases of the life cycle are as follows:

- realization;
- utilization.

Each of such two phases can be analyzed to highlight the aspect important to the choice (table 1).

Table 1. Aspects related to the function: “Trasmission of information”

Realization	Known signs with the know meaning Known signs with new meaning New signs
Utilization	Speed of perception Distance of perception Completeness of meaning Same meaning in all countries and cultures Uniqueness of meaning Visibility in difficult conditions(e.g. smoke, fog) Visibility for persons with vision problems(e.g. colour blindness)

The different signs in figures 5 and 6 can be evaluated in relation to the aspects exposed in table 1, with the aim to choose the “best one”, in relation to the requirements of the function “transmission of information”. The same criteria can be applied in the instructions of the industrial product, both in separate issue and integrated in the product self.

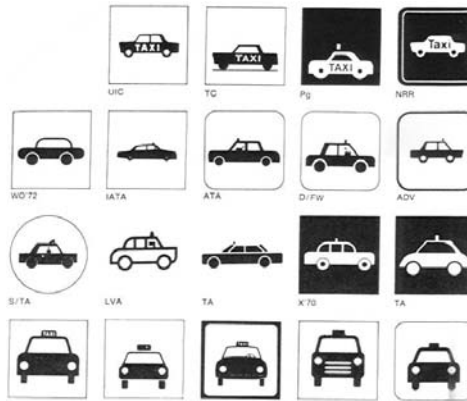


Figure 5. Example of graphical signs used to express the “taxi” concept

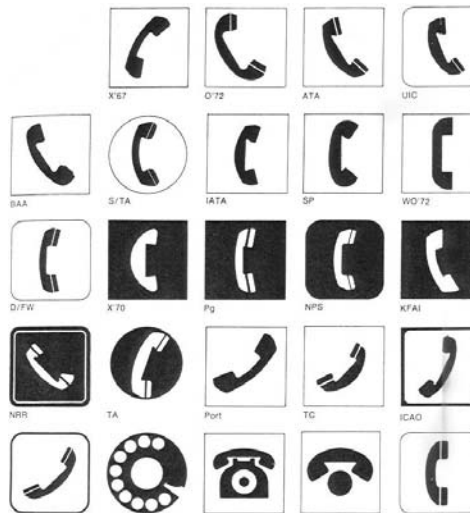


Figure 6. Example of graphical signs used to express the concept “telephone”

The other mentioned problem is the construction of new graphical signs. By starting from the figure 4, it is possible to modify the communication, with the aim to realise the instruction completely in graphical form, for example, with following modifications:

- a. no name for the components of the device, but only alphanumerical code;
- b. tank capacity 2 l;
- c. it is necessary to utilize the device only with water.

It is necessary to find graphical signs to indicate the following concepts:

- a. open;
- b. close;
- c. perfume.

Of course, it would be necessary to prepare a graphical international language, with specific semantic and syntax, to be teaching, as a foreign language in the primary school.

4. Conclusions

The industrial product is now strongly evolving to an integration product-service-communication. The communication is always very important, e.g. in the instruction for use. Sometimes, such instructions

are direct integrated in the product: such trend is now strongly increasing. The proposed method of large utilization of the graphical communication has many advantages:

- a. immediate communication;
- b. independence from any language;
- c. no necessity of translation;
- d. particularly useful in the modern multiethnic society.

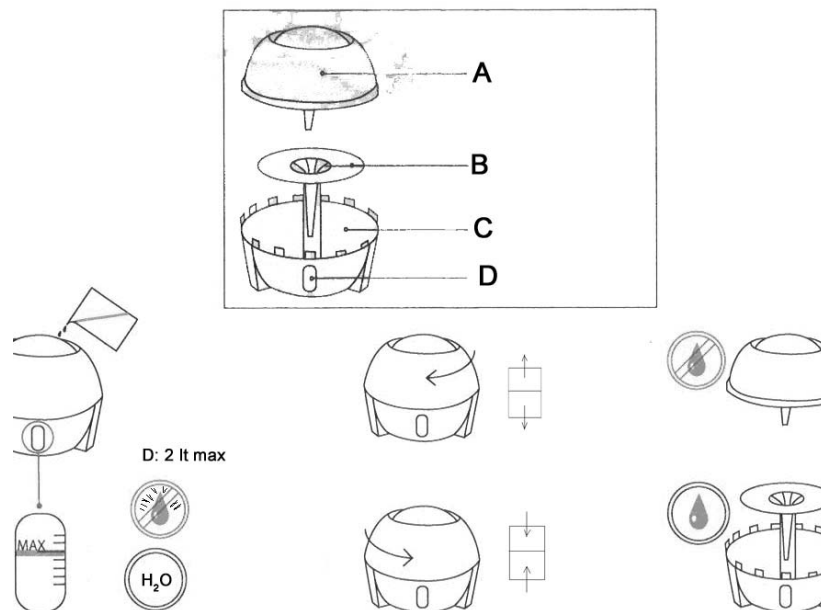


Figure 7. Instructions for use of a room humidifier completely realized in graphical form

In this contest, together the considerations expressed in this work, is important does not preclude the use of different media for the communication. Evaluate the possibility of realise the instruction for the use of the product by means of digital media permits the introduction of new functionalities into the communications. So, the instructions manuals can be present the information by means of videos, audio or interactive representations. The reduction of the quantity of the text is a goal for these applications too.

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