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Use of Hot Stamping Technology in Packaging for the Blind and Visually Impaired

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Abstract*: Nowadays the principles of universal design are used practically in every sphere of design, but there is one particular direction of packaging design where those principles and rules are much needed. Typically, packaging includes different types of visual information, both graphic and text, such as list of ingredients, contained portions and illustrations. But this information is not available to all categories of the population, especially those who are blind and visually impaired. While Braille is only used on packaging of important drugs and drugs used by blind and visually impaired people it can and should be used to label food and other categories of goods. Conducted by a informational portal survey concluded that without help or escort visually impaired and blind people are not always able to navigate stores and understand what they are buying, especially when a lot of food of the same category use same shaped packaging. While it is possible to label packaging in Braille not every manufacturer decides to do so, partly to avoid designing and redesigning problems. Different design works show that it is possible to find a compromise, using blocks of tactile text, but also using various embossed symbols, drawings and ornaments to help blind people. It shows that it is possible to incorporate symbols in packaging design, using auxiliary elements as decoration, or tactile text itself as a design element. Braille font can perform as not only main informational function, but also artistic, as it is used as an element of decoration.

Keywords : Braille, hot stamping, marking.

I. INTRODUCTION

Nowadays the concept of design as the process itself is widespread and used everywhere. In a broad sense the definition of the word design is familiar to the specialists in this and related fields as well as to residents. However, not many think that the broad concept of design includes different directions.

One of the most popular directions of design is universal design. The basic principle of universal design is the development of a variety of objects that are convenient for people of different sex, age, with different physical capabilities and limitations. The object of universal design is the environment, as is everything that surrounds people nowadays: various products and objects, furniture, infrastructure, devices and equipment, software and provided services. Objects created according to the principles of universal design can be used equally by all consumers without making any special changes corresponding to the needs of certain categories of population [1]- [5].

At the moment, attention to the most part is paid towards the creation of architectural objects corresponding to the principles of universal design, such as residential and non-residential buildings and premises, improvement facilities, parks and alleys. However, most subjects used in everyday life still remain difficult to use for all categories of people. Development of packaging is one of those areas that are in need of usage of principles of universal design.

II. METHODOLOGY

Since its inception, the package has performed a practical function of preserving the consumer properties of the goods. Over time, other functions, such as informational and operational, were added to this function. Today, in addition to mentioned above functions, packaging plays a greater role in marketing, serving as an important branding tool, helping to establish communication between the consumer and the producer of the goods. More and more importance is attached to the creation of 'interesting,' creative packaging, attracting attention, designed to highlight the product of a particular brand among competitors.

This development of the role of packaging has become possible because its functions have become increasingly complicated over time. When most food products has got packaging that could protect them from the environment, it has become necessary to give this packaging a transportational function. This function is responsible for the transporting of products by one mode or another and is directly related to the design of the package. This function is very important in today's world, where the product often has to cross hundreds of kilometers before arriving to the store. After the transportational function had been fully performed, the packaging was given the following function - informational, then dosing function, and so on.

In this case, it can be concluded that modern packaging fully performs, if not all, most of the functions assigned to it. The product label whether it's a pasta package or a soda bottle lists everything from the name of the product and the brand producing it to the composition and usage instructions. But this is only basic information that should be on the package.

Often in addition to this the product itself, the service of the ready dish with its use, and accompanying illustrations to help convey a certain message to the buyer will be depicted on the package of the goods.

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On the packaging of goods whose target audience is children, in addition, there may be images of mascots - symbols of the product (for example, Rabbit Quicky on the packaging of the Nesquik brand of Nestlé), on the back there may be not only recommendations on cooking but also on serving a healthy menu as well as developing games.

But this information is not available to all categories of the population. Blind and visually impaired people without other people's help will not be able to learn the number of portions in the package or list of ingredients.

At the time of writing, Braille font is only used to label important drugs and drugs used by blind and visually impaired people. Food and other categories of goods are marked at the manufacturer's request.

One of the articles of the information portal devoted to consumer branding and design 'What the pack?' about 'design for all' considered this issue [6].

The portal conducted a survey of visually impaired and blind people about how they navigate in stores, understand what to buy, which concluded that without the escort or the help of a consultant, buying products turns out to be a rather difficult task. Some respondents replied that they were using overall shape of the packaging of the goods as well as on its individual elements - bulges, covers, etc., as an orienting tool. At the same time, if there are no problems with the definition of any category of goods: for example, canned food can be found out by the shape of the can and the presence of the key, other details have to be guessed.

There are whole categories of products that can be difficult to select because they are packed in the same shape packaging. For example, cans of canned sweet corn and green peas or yogurt with various fillers and tastes to the touch are no different from each other.

It cannot be said that Braille technology is not popular because of its lack of workability or learning. The embossing technology, used to apply tactile font, is one of the most popular post-printing processes and is used to apply various patterns, including using thermal transfer printing foils.

Hot foil embossing is used to make a packaging of a huge variety of products: for example, cardboard boxes for tea, flakes and other food products.

According to respondents interviewed by the WTP portal, the main problem is the fact that the text printed in tactile font occupies a place on the package. At the same time, it cannot be printed on top of a small 'flat' text, because then, due to a plurality of dots, the ordinary text printed in a small size may not be readable, and must be made in the empty, 'negative' space of the package or label of the goods (Fig.1). At the same time, the text printed in a large size may well be read, even if it is printed atop of tactile font.

Fig. 1. Tactile font printed in a special field

Any one author cannot submit more than 05 papers for the same volume/issue. But in addition to applying a tactile font there are other ways to designate products. So for example the Belarusian agency Public Group developed the concept of packing of SML milk (Fig. 2) in which mass fraction of fat is designated by the letters used in clothing size: S –small/small – 1.5% of fat content; M – medium/average – 2.5%; L – large/big – 3.5%. At the same time points of different size are embossed in the form of concentric ornament on the packaging: small for 1.5%, medium for 2.5%, large for 3.5% [7].

Fig. 2. SML milk packaging

Thus, the percentage of fat contained in milk in such a package is clear to both sighted people and visually impaired and blind.

III. RESULT

This package is an example of how it is possible to help blind people to better navigate themselves when choosing products not only using blocks of tactile text, but also using various symbols, drawings and ornaments. In this case, packaging designers will not have to sacrifice the readability of the small text, as it will be possible to incorporate the used symbols into the layout design, use auxiliary elements as decoration, or use the tactile text unit itself as a design element (Fig.3). In such packaging Braille font performs not only its main informational function, but also artistic, as it serves as an element of decoration, and is not an addition to already existing design, but its integral part, in some sense becoming the embodiment of the idea of universal design, i.e. design for all.

Fig. 3. Lazarus Wine packaging using the Braille font as a design element

IV. CONCLUSION

In this case, the tactile text can be made not only in the usual 'transparent' version, as on packages with medicines, but also be accentuated. For example, it can be printed in a different contrasting to the background color, highlighted using foil embossing. But this will not happen until the manufacturers will think about the convenience of visually impaired and blind consumers.

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