Universal Design and Diminished Reality

A.I.Zhigunova, N.E. Milchakova, M.L. Sokolova

Abstract: The article describes such a state of the subject-spatial environment as diminished reality. The correlation of the principles of universal design with examples of diminished reality is analyzed. The formation of diminished reality is a promising area of activity for designers following the concept of universal design, because diminished reality contributes to a more comfortable human interaction with technology. The connection of diminished reality with mediaasceticism is analyzed: both of these phenomena are aimed at optimizing the operation of various devices and objects in the most comfortable way for the user, cutting off unnecessary functions, getting rid of unwanted interactions.

Keywords : universal design, user experience, diminished reality, functionality, mediaasceticism.

I. INTRODUCTION

Universal design aims to create a comfortable and safe environment. The environment surrounding a modern person is oversaturated with various devices, and the constant expansion of their functional capabilities increasingly leads to an overabundance of interactions in the "man-machine" system [1], [2]. As a result of such a seemingly positive phenomenon as the development of technology, a modern person has a new problem: comfort in interaction with devices is reduced, redundant functions and redundant information overload the sensor, make it difficult to perceive.

The principles of universal design are the basis for the formation of a comfortable and safe environment [3]. Most of these principles correspond to a relatively new direction of design, called abroad as "diminished reality" or "diminished reality". Reduced reality can be offered to users as a way out of the cycle of functions, updates, interactions, opportunities.

II. METHODOLOGY

The diminished reality can be perceived as a specific mode of the existence of the object-spatial environment, aimed at providing user comfort by eliminating undesirable influences on its part, cutting off the "extra" functions, options, capabilities, and interactions for this group of users.

In Fig. 1shows examples of a reduced environment: AEROSLEEP sleep capsules at Sheremetyevo Airport (Moscow) [4], which give users the opportunity to rest privately while waiting for a flight, as well as providing protection against unwanted effects.

Fig. 1. Capsules for sleeping "AEROSLEEP".

The capsules for sleep given as an example correspond to such principles of universal design as: emotionality, ergonomic sizes, ergonomic space for access and use, low physical effort, intuitive use, loyalty to error, easy perception of information.

The principles of ease of perception of information and intuitive use are very important for any object related to diminished reality. For many years, the work of designers was aimed at increasing the number of functions of various devices, therefore, at complicating their interfaces. In fig. 2 shows the "overloaded" functions interface of the washing machine[4]. The need to make difficult choices often puts the user in a quandary.

For most cases of using the washing machine, the average user would have enough of a minimal set of buttons (Fig. 3), presented in the form of a sketch of a simplified ("lightweight") interface [5].

Fig. 2."Overloaded" interface of the washing machine.

Retrieval Number: E3302039520/2020©BEIESP
DOI: 10.35940/ijitee.E3302.039520
Journal Website: www.ijitee.org

Published By:
Blue Eyes Intelligence Engineering
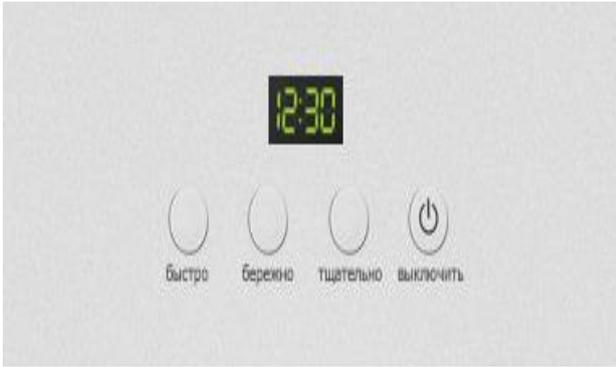*& Sciences Publication*

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Fig. 3.The "facilitated" interface of the washing machine.

III. ALGORITHM

In view of the above-mentioned problem of "congestion" of interfaces, the introduction of a mode of diminished reality is often carried out by the users themselves. This is especially true for certain social groups (which is consistent with the concept of universal design). Fig. 4shows the manufacturer's reaction to a user's solution, the so-called "grandmother's remote control": interaction with technology is simplified by eliminating irrelevant buttons on the remote control, which corresponds to such universal design principles as equal use, easy perception of information, intuitive use, error loyalty, low physical effort, ergonomic size and emotionality. The manufacturer drew attention to the needs of users, as a result, a new product appeared - a remote control with minimal functionality ("necessary and sufficient") [4].

Fig. 4. Custom "remote for grandmother" and the reaction of the manufacturer

In the given examples of diminished reality, a manifestation of the principles of universal design is traced, and therefore the following conclusion can be drawn: the formation of diminished reality to provide a more comfortable interaction between a person and technology is a promising area for designers who follow the concept of universality. The application of the principles of universal design will help in the formation of a diminished reality, and will ensure the satisfaction of human needs for easy perception of information and in simplifying interaction with interfaces.

The need of a modern person for a diminished reality is fixed by the appearance of such a social movement as mediaasceticism (media asceticism) [6]; the essence of this movement is the call to more consciously interact in the media environment and to protect oneself (the user) from the flow of redundant information, to cut off unnecessary interactions in the media environment. Also, the need for informational privacy is manifested in the words "off is a new emotion" ("offline - a new emotion, value") [7] - the desire of a modern person to switch to the "off" state and disconnect

from redundant information is understandable. To some extent, the mediaasceticism is an example of diminished reality in a virtual environment, however, the user has the same problems and needs in the real environment - in the material world.

IV. RESULT ANALYSIS

Instead of the excessive flow of textual, visual and interactive information in the media, the material world "overloads" the user with an abundance of home appliance functions, many modes, buttons, interface features that even the teapot now has. Thus, diminished reality is a wider area that may include mediaasceticism. A mediaasceticism calls for cutting off unnecessary information, and diminished reality also means unnecessary functions, interactions [8].

V. CONCLUSION

Thus, diminished reality is a promising direction for the modern designer and can be considered as one of the systems for the formation of the subject-spatial environment. The tasks that solubilized reality solves are aimed at increasing the user's comfort level by rejecting undesirable effects and unnecessary functionality.

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