

Resumen ponencia nº 111

Knowledge and Communication Acts in the Development of Tactile Ceramic Tiles

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Key-words: Universal Design, Accessibility, Warning Tactile Pavements, Visually Impairment.

In this paper we intend to present the roles of theoretical and technical knowledge and the communication actions for the design process of a new line of ceramic tiles for visually impaired persons. This reflection is based on the cooperation project “Research and Development of Ceramic and Polymeric Tiles for Accessibility” developed between the Federal University of Santa Catarina, A2D – Agency for the Development of Ceramic Design, the Architecture and Urbanism Department at UFSC, the ceramic industry group “Itagrês” and “Dow Chemical of Brazil”.

The central aim of this project is to develop a new line of ceramic tiles for visually impaired users to improve their orientation process and independent movement along safe tactile routes in open and indoor environments. Besides, the research also has as a particular objective to spread the generated knowledge for several sectors: industrial production, professionals responsible for design, survey and construction, visually impaired organizations and general public.

To design new products to improve spatial accessibility conditions for persons with defective or absent vision capacity requires, from the start, a comprehension of their difficulties and needs based on theoretical knowledge about spatial perception processes. Moreover, it is essential to learn from the visually impaired, what they can and can't do, since it is particularly difficult to understand how it is possible to perceive and to orient in different spatial organizations when visual information is not a primary source. In this investigation it is also central to understand how different kinds of information can be perceived by all senses, and their significance for spatial perception and understanding.

Considering the novelty of the product that establishes new codes of use and application it was necessary from the start to develop a process of integrated knowledge management based in technical exchanges between professionals of different fields, regulation and normative institutions, the university and the industry. Moreover, in all stages of the design process detailed tests are necessary involving users with different kinds of visual impairments (low vision and totally blind) and also technical tests to verify the adequacy between the required functional attributes and the product characteristics (resistance, relief, format, etc.). These last aspects involve the evaluation of prototypes design, an experimental project in the university campus to verify the application of the system on a real environment, the following of industrial production. Finally, the development of informative material in different levels, addressed from researchers to practical users, aims to spread the generated theoretical and technical knowledge.

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