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Usability Briefing for hospital design: Exploring user needs and experiences to improve complex buildings

This PhD thesis is a contribution to an ongoing debate in Denmark about improving the building design processes of complex buildings, especially in relation to the current hospital developments. It provides knowledge about capturing user needs and defines the process model for usability briefing for hospital architecture from a user perspective. The thesis is based on comprehensive literature studies, three main case studies at hospitals, numerous expert interviews and workshops. The research results generate a better understanding of how knowledge about user needs, acquired from workshops and evaluations, can be fed into briefing and design processes. This PhD thesis proposes methods for usability briefing. Usability is a concept similar to functionality, but usability depends on: subjective view of users, context, culture, situation and experience. Understanding usability is achieved by involving users. This PhD thesis extends the research in usability of buildings to include all building design phases, therefore not only proposes usability evaluations, but also defines usability briefing. Briefing, also called architectural programming, is usually understood as one of the first phases of a building project. In practice the process, led by experts, involves the users as data sources, and results in the program of requirements for the building. This PhD thesis synthesizes the research findings and proposes a Usability Briefing process model, where briefing is a dynamic and continuous process throughout all the building phases: from pre-project, through design and construction phases to handover and in-use. In the proposed Usability Briefing model the activities of briefing and design are not sharply divided, but support each other in frequent interactions. User involvement and evaluations support briefing and design by common learning, participatory data collection and analysis of needs. Therefore, the model combines all interrelated activities and provides a visual overview of them throughout all phases. Additionally, the model includes the focus, users and methods for each phase. Furthermore, this thesis suggests that the practice could go further with user involvement, compared to the usual user-centred design, where users passively reveal their needs and the professionals continue with the design. Instead, this thesis proposes a move towards user-driven innovation and Scandinavian participatory design, where users are seen as partners and co-creators, and where innovation and design are not done 'for' users, but 'with' or 'by' users. Research results from the presented hospital cases demonstrate that user-driven innovation is possible even in the hierarchic and technically advanced healthcare environment, and that patients and medical staff can have a positive influence on the prospected architectural environment, provided that the user involvement occurs early and is managed properly. Moreover, the model incorporates the evaluation activities in the process, also at the front-end, where evaluation can give input to briefing and design, and can occur as participatory methods, i.e. simulations. In order to choose an appropriate method, the various methods and tools for evaluating facilities are grouped according to their main focus: technical building performance, function/usability or form/beauty. Furthermore appropriate methods are selected specifically for hospital projects. The results are published in five scientific articles and are summarised in this PhD thesis. It provides tools that contribute to satisfying the needs of future building users and maximising the usability of complex buildings, such as hospitals. The research results have relevance to researchers, architects, facility managers and client organizations planning new complex facilities, and especially for professionals working with briefing and design of hospitals.

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