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DENMARK

Finding the difference which makes a difference

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Finding the difference which makes a difference: From user profiles to xxx in the FEEDBACK-project

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ABSTRACT

The paper discusses prioritizing forces of context in design of interfaces to walk-up-and-use-systems for un-motivated users. Experiences from working out user profiles and conceptual prototypes in the FEEDBACK-project suggests perceived feedback to be an intersection of cues to answers to What-Who-Where-How-questions: *what* is the state of affairs, *whom* does this state of affair concern, *where* do they accept to be disturbed about this, and *what form* of disturbance is acceptable.

Author Keywords

User-profiles, forces of context, walk-up-and-use interfaces

INTRODUCTION

In design of interfaces it is always a challenge to match form to context of use - the famous 'fit between form and context', by Alexander [1] characterized as 'the quality without a name'. If only it was a matter of investigation and combining sources of knowledge, engineering would be the answer, as suggested by Simon: *'the optimization problem is to find an admissible set of values of the command variables, compatible with the constraints, that maximize the utility function for the given values of the environmental parameters'* [6]. Already choosing the traits, which is held to characterize the context, is however a serious design problem, a 'wicked problem' [2], for which there is no straight forward solution. The designer is referred to make a choice, as informed as possible, without ever knowing if choosing differently would have produced a better fit. In this paper we interpret findings from a concluded phase of an on-going research project, the FEEDACK-project, the aim of which is to give online feedback to households about their electricity consumption. Aalborg University (these authors) is responsible for producing user profiles and conceptual prototypes of user-interfaces. User profiles and conceptual prototypes were produced through a design process driven by innovations from selected end user households [4].

For this short paper we have selected the discussion of our 'informed choices' with respect to which forces of context to take into account when preparing the user profile: At the outset we, based on existing research, focused on user attitudes, and in the end we extended forces of context to also comprise setting and type of information. Accordingly the paper has two sections: Problems with drawing on existing research in choosing forces of context and validating choice of forces of context through instances of user driven innovation.

PROBLEMS WITH DRAWING ON EXISTING RESEARCH IN CHOOSING FORCES OF CONTEXT

The aim of the FEEDBACK-project is to develop and test new concepts for the utilities' communication with households about their electricity consumption at the end-use level (feedback), and to give a scientifically based answer to the question: Does online feedback about electricity consumption generate electricity savings, and will the savings increase, if the feedback is given at the final consumption level (i.e. electricity consumption of the specific appliance) compared to a situation in which it is given as the summary electricity consumption at household level.

According to the project plan user profiles/personas should help all parties in the project focus on user preferences, habits and attitudes throughout the project, and the conceptual prototypes of the feedback interfaces should be designed to fit these profiles. Hence, at the beginning, 'user profiles' was synonymous with 'forces of context' with respect to design choices of the interfaces. In this case, as in case of most public online services, 'users' are everyone, which is why demographic, psychological or sociological segmentation is difficult. Public online services are 'walk-up-and-use-systems' with the twist that the kind of service offered is not requested: users are in no 'need state', but rather in a state of not wanting to know.

We began by consulting a project partner, Aarhus School of Business (John Thogersen and Alice Grønhøj), who suggested to take 'forces' as attitudes referring to research on attitudes towards electricity consumption [5] based on which we generated a typology of four attitude profiles for families/households: 'don't care', 'busy', 'economic' and 'environmentalist'. Based on these attitudes and attitudes towards technical innovation developed through our own case studies [3, 4] we screened families, which we found through snowballing, till we had eight families, who we thought covered the typology, with which we ran the user-driven design workshops in the project. Although we had

good reasons for giving priority to attitude research, we thereby ended up suppressing situational aspects of use, traditionally considered very important within the field of HCI. This would have been a problem with respect to developing valid user profiles, had it not been for the user-driven approach to the design of conceptual prototypes. Being on location, in the homes of the eight families, innovating together, made us see forces of context differently.

VALIDATING CHOICE OF FORCES OF CONTEXT STEMMING FROM INSTANCES OF USER DRIVEN INNOVATION

We conducted seven design-workshops: 1) Initial user profiles and Lab design of a game to help the families focus. 2) Video-documented visits in the homes, where the families played the game and took photos, which they annotated saying what kind of feedback they wanted, and why. 3) Lab analysis of collected material, and design of mock ups and probing kit. 4) Families using the mock ups for a week and returning probes. 5) Lab analysis of probing kits, and design of two innovation workshops with the families. 6) Lab workshops with the families, where they criticized the mock ups, and designed an interface of their own. 7) Lab design of user profiles, and conceptual prototypes of interfaces.

In the final state we revised the user profiles, because we realized what was the feedback as experienced by the families, namely the intersection of information, situation, location and media, below presented under the headings of What, Who, Where and How.

'What' refer to what kind of information 1) Remember!, 2) Monitor, 3) Compared to, 4) More knowledge. Actions like 'turn off the light' or 'check if the TV is still on' are, if not routine, a matter of in-situ prioritizing, hence seeing the information at a glace is important. Planning situations like 'is our freezer too el-consuming - should we change, even though it is still functioning? makes information that puts actual consumption into perspective desirable. If the family decides to buy a new freezer, being able to seek out the least electricity consuming product is important.

'Who' refers to the prioritizes of the 'What'-feedback, a revised version of our initial attitude typology, separating those who give first priority to economy, to more knowledge, to do-good, or to high quality in products and in life in general. In our conceptual prototypes we have tried to meet them all by building a nice, simple, but layered interface on a large clock display.

'Where' refers to the locations in the home, where the families were ready to even consider acting or planning about electricity consumption: For reminder-feedback the kitchen, where also shopping lists are prepared, and the exit door, when you also check to lock etc. was the favorite, and for planning information the kitchen and the home office were the chosen spots.

'How' refers to the degree of pull or push in the form of the feedback. Pull, as in websites you have to look up, was not preferred – they invoke at situation of 'going to the computer and make a search' as an extra effort. This was also the case for pull-technologies as e-mail or sms because of the smell of 'big brother'. Both objections confirmed that this kind of information is not a felt need by the consumers. The families, when designing themselves, came up with small screens, put up on the fridge, at the exit door, or eventually where you have to kill some waiting time – again the kitchen is the place.

Within the frame of research in interaction design we find, that using attitude research from the application domain enriched our design tool box in the beginning, but our way of working with user-driven innovation provided an indispensable test of the golden 'Wodiczko'-question *'How close are we to the ground?'*[7] – which is where the designers' prioritizing of forces of context inevitably rest.

CONCLUSION

We described experiences from prioritizing forces of context in user profiling in the FEEDBACK-project: how attitude research contributed to the initial zooming in, in cases where the traditional walk-up-and-use heuristics are not sufficient, and how user-driven innovation contributes by taking the designers to the real water holes, the difference, which makes a difference.

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