Interaction Design for Co-present Use of Infotainment at Home

Mattias Arvola
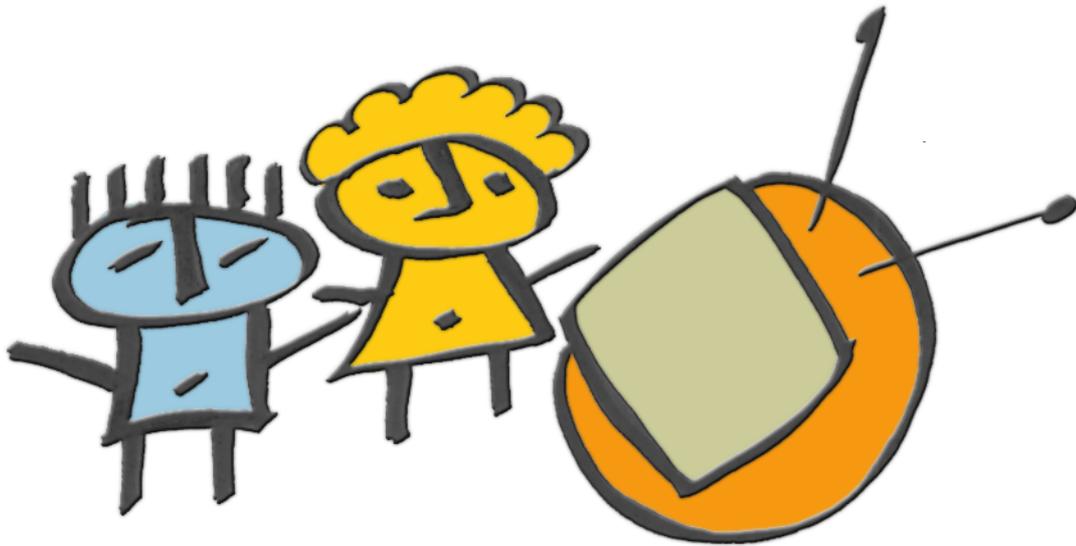Department of Computer and Information Science
Linköpings universitet
S-581 83 Linköping
+46 13 285626
matar@ida.liu.se

INTRODUCTION

In the connected home, all devices can potentially talk to each other, but what should they talk about? Previous research show a need for high flexibility and open design of IT in the home since routines and organisation of the home differs so much between families. Home activities are also dynamic, in terms of that people enter and leave activities that takes place in a highly opportunistic fashion. The connected home opens up a solution to a design problem in infotainment services. Access devices to infotainment in the home are inflexible and stationary. This may lead to conflicts over space in the home and friction in home activities. An example is when someone wants to watch the a show on the television set while the kid brother wants to surf the web. What if the kid brother can take his surfing activity from the telie to a tablet PC and walk away. What if he can throw it back up on the television screen when his sister is finished watching the show. Perhaps his sister joins him in his surfing. How is this dealt with in the interaction design of the infotainment services?

WORK IN PROGRESS

The first research question that has been preliminary answered is what good design is concerning infotainment co-presently used by several users in the home. It is characterised by six key use qualities: entertainment, ease, flexibility, face management, seduction, and togetherness. For further details se also Arvola and Holmlid (2000), and Holmlid, Arvola, and Ampler (2000).

The research is based on user trials of three different infotainment systems (related to interactive television and the web), and semi-structured interviews with 28 informants out of which six participated in extended situated interviews in their homes.

Part of the concept of infotainment is of course *entertainment.* Two aspects of that is ego challenge and social challenge. Ego challenge is the testing of skills and knowledge, and encourages what can be called psycho-pleasure. Social challenge is a safe conflict. It can be a matter of comparing strengths, but also a matter of

managing complex social interaction. Any infotainment service that can offer these has a lead over competing products.

In the home, usability issues must be treated somewhat different than the HCI-community is used to. Users will have to be able to meet their goals, but the goals are not stable in a home context. They are even more opportunistic than in a purposeful work context. If there is any resistance to using an artifact it will not be used, because it is not so important. Rather than talking about effectiveness, efficiency and learnability it is more rewarding to see it as *ease*. That is perceived effortless use of the technology and fluent interaction with the artefact without any disturbances and friction. For infotainment services it is clear that *content is king*. The product must be content-focused, by which is meant that the users of the service want to get to the content with ease. Otherwise he or she will soon get tired of the system, regard it to be cumbersome, and in the long run, abandon it. Diverse user groups of consumer technology makes design for ease difficult but for more complex systems there are two ways to go: Design for the least common denominator in the user group or work with personalisation. The solution would be to build principles that a broad user group can agree upon and then leave room form the user to create her own environment. Apartments are designed in that way, perhaps infotainment appliances also can be designed in around such an idea.

The call for *flexibility* (O'Brien et al., 2000; Frolich et al., 2001; and Lacohee & Anderson, 2001) can be treated in a similar way, but when using personalisation one must be careful since the individual user may shift rapidly. The mother of a family or can sit down in front of the television set only seconds after the her husband, or perhaps she joins in, on whatever he is viewing. This fact calls for an elegant way of changing between personalised profiles, just like Frolich et al. points out. People in front of an iTV-appliance will enter and leave the activity (for example to make coffee). This will swiftly change the character from a single-user situation of use to a multi-user situation, where users may have to sequence the control over the application, or using several simultaneous input devices as in Single Display Groupware (SDG) (see for example Stewart, Bederson, & Druin, 1999). When that happens sevaral parallell activities takes place with the system. A user may be attending on one part of the screen while the other is navigating and opens a menu over what the first user is reading. Semi-transparant widgets may be a design solution for the problem. That would also provide strong-enough visualisations of feedback in the interface; visualisations that does not disturb the background and users attending that background, while still being strong enough for the user whom it concerns.

In all joint activities *face management* play a vital role (Clark, 1996). With consumer products users try to communicate an image, a social identification. This is what is called positive face (Brown & Levinsson, 1987). The negative face is the freedom of action which is evident that kids in a family try to create even though there still is parental control (O'Brien, et al.). There is lots of face work

going on between grown ups and especially teenagers. Still the situation within a family is more intimate than at work where lots of face management takes place. Face management, as a use quality, will be vital in all co-present groupware, and probably important for any system that is used in a shared activity. This includes all SDGs and probably all iTV-applications. Design for face work is indeed a challenging concept.

Seduction is a use quality that arises when the present activity is all there is and an emotional bond is tied between the users and the artefact. It is overlapping with the entertainment-part of the concept of infotainment. The first level of a seductive experience is clearly dependent on the ante-use of the artifact (the events and activities that precede the actual use). What the users expect to meet will decide if they are enticed by the product, or if it is yet another product of the same kind as before. It will also decide if the user is willing to enter a state of flow or only dismiss the attempt to seduction as foolishness. Woszcynski et al. (in press) reports that flow can have positive as well as negative effects. The positive effects include user satisfaction, increased learning, creativity, and intrinsic motivation. The negative effects are decreased efficiency, and over-involvement. Seduction is without doubt more important for consumer products than it is for work systems, but in order for a system to sell and get satisfied users, it might be important to consider. A seductive software has ecstatic customers that loves the product and place stickers on their cars that says: "I love my [insert product name here]!" That is definitely something to strive for as an interaction designer.

Togetherness is the social interaction and unity promoted in the use of an artefact. It can promote both immediate and delayed togetherness. A result of togetherness is socio-pleasure. At work togetherness is important as it is at home, but at home it is in focus. Spending time with ones family is what counts as quality time.

When someone enters or leaves a use activity there is an issue of public and private information and information displays. There is a need for fluent transitions between the private and the public. A user will need to be able to share personal information and experiences and invite others to a closer relationship. This may be reflected in information appliances as well. the opposite is however also true. One concern is that of showing respect to the others in the family and not disturbing the others in what they are doing. Un-intrusive technology is an interesting concept worth closer attention in the area of infotainment.

FUTURE WORK

My research up until now, has been based on scenario-primed interviews and situated interviews. Future work will focus more on explorative design research, with design concept development, implementation and testing. Future research questions to be answered includes:

How can we design infotainment services and surrounding systems for Entertainment, Ease, Flexibility, Face Management, Seduction and Togetherness?

What are relevant design concepts of infotainment for co-present use, and what are the constraints and possibilities of those concepts?

DISCUSSION POINTS

In what direction should the interaction design research and interaction design practice go in the domain of infotainment?

What is required of interaction design research in order to be published? Do we have the right fora for explorative research that tries to open up space for design and discussion about design rather than trying to determine facts?

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