

# Position paper- Where does it all end? How families set technological boundaries.

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## ABSTRACT

This paper discusses part of the methodology and research findings of the EnCompAs (Enabling Community Communications – Platforms and Applications) project. This European project is a Celtic<sup>1</sup>-labeled project. Research divisions of major telecom companies and universities in four European countries (Finland, Belgium, Spain, and France) are involved. As part of this research project twelve families participated in a creative co-design activity at their home led by a multidisciplinary team of communication sociologists, engineers and product designers. The families were asked to invent and create new information and communication technologies (ICTs). The focus of this paper is on ICT-related boundaries that families set during this process. The results indicate that families, as well as individual family members, do relate ICT to boundary setting. Moreover, the results provide an insight in how this boundary management through ICT takes place.

## ACM Classification Keywords

Families, boundary management, designing ICT, multidisciplinary approach  
User-centered design

## INTRODUCTION

About a decade ago, sci-fi movies and cartoons such as Star Trek or The Jetsons presented us with a vision of family life that seemed light years away to us: who could imagine a life in outer space, filled with electronic gadgets like holograms, electronic diaries and alien furry household-pets? Merely ten years later, this is not so unimaginable anymore: Cell phones, PDA's, electronic pets, the internet,... all seem to be quickly incorporated in families' everyday lives (Livingstone & Bovill, 2001; Van Rompaey, 2002; Mackay & Ivey, 2004).

The rapid ICT evolution and diffusion in family households has, however, raised new societal concerns: Do ICT have a negative impact on family life and relationships? How do families cope with these new technologies and how do they incorporate them into their daily lives? Research concerning the impact of media on family life started with the diffusion of the television set (e.g. Himmelweit, Oppenheim & Vince, 1958). Nowadays, with the rise of the Information society, some of the same questions emerge, but the focus shifts from the TV set to ICT as a negative influence on family life (Maignan & Lukas, 1997; Kraut, Patterson, Lundmark, Kiesler, & Mukophadhyay, 1998; Van Rompaey, 2002).

## Boundary Management

One of the main questions that will be addressed in this paper is the impact of ICT on family's internal relationships and on family's relationships with the outside world, forming the psychosocial structure of the family. If we want to examine the impact of ICT on internal family relationships, we have to look at how family cohesion is an indicator of the families' ICT use and attitude towards it (Van Rompaey, 2002). Family cohesion refers to the pattern of separateness and connectedness of the family members. In connected families the individual members have very open boundaries towards other family members. In separate families family members have strong and rigid boundaries between themselves and the other family members. In the theoretical model of Olsen, Sprankle and Russel (1979) the concept adaptability is added to the notion of cohesion, indicating that some family types are more balanced than others. However, the family cohesion pattern helps the family to maintain their family life and is no measure for the health or sickness of a family.

When it comes to relationships with the outside world every family establishes its boundaries and these determine how family members interact and how much interaction is allowed outside the family. Although systems theorists use the concept of 'boundary maintenance' (Morgan, 1985; Roberts, 1994) in our opinion boundary maintenance implies a conservatism whereby the meaning of the concept of boundary seems to be 'a barrier', a sort of fixed imaginary wall that by all means has to be defended by the different family members. However, boundaries are flexible

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<sup>1</sup> CELTIC is a five years [EUREKA](#) cluster programme, which started work in November 2003. The initiative is supported by most of the major European players in communication technologies. The main goal of CELTIC is to maintain European competitiveness in telecommunications through collaborative R&D. CELTIC projects are characterised by a holistic approach to telecoms networks, applications, and services.

and will not be the same in different situations. In the words of Rosenblatt (1994:86):

“Family boundaries may be understood as interfaces between what they bound and what surrounds what they bound. Rather than being simple barriers, they are gates, sieves, and windows that open and close.”

As flexibility is the key element we suggest changing the concept of ‘boundary maintenance’ to ‘boundary management’. When it comes to boundaries, families can be either more open or more closed in dealing with the outside world (Van Rompaey, 2002). In closed families, family members are focused strongly on each other. The family members have created a strong and rigid boundary between themselves and the others. There is little and little intensive social interaction outside the family home. Contrary, in open families, there is more to life than just the family. Friends, colleagues, ... also take up an important part of life. The openness and closed-ness of families will largely define how the family members look at their own lives and the outside world.

#### **Boundary Management – Family Theme**

Boundary management is one of the concepts that compose family life. It results in a certain shared family paradigm that structures the way the family members think about reality and how they interact with it. This family paradigm is called the family theme (Hess & Handel, 1972; Reiss, 1981). Since ICT are technologies specifically designed for contacting other people, we might ask ourselves if ICT have an impact on boundary management and thus on the family theme.

In 2002 we already performed a quantitative and qualitative study on the impact of ICT on family life (Van Rompaey, 2002). The study investigated whether and how ICT serve to sustain or change the family’s internal relationships and family theme. The results of this study indicate that ICT are embedded in family life. ICT use and family attitudes towards ICT are strongly linked to the family theme, or as Van Rompaey puts it (2002:220):

“Furthermore, it [the family theme] regulates family members’ attitudes towards ICT. As a result, families customize ICT to fit their family theme”.

Evidence for this lies in the fact that families’ ICT use and rules on ICT use, together with their attitudes towards ICT, reflect the way the family looks at itself and the outside world. By creating rules around ICT use and promoting a certain ICT attitude, the family creates or re-establishes internal relationships and as a consequence boundaries with its own members and with others. Other recent research confirms the use of ICT in communicating social boundaries to others, e.g. in the way of disclosing information to others about your location (Consolvo et al., 2005).

#### **Boundary Management - ICT**

In the current paper we introduce a re-examination of how families use ICT to define boundaries by using a different research design. Besides looking at the families’ current

ICT use and related rules and attitudes ... we wanted to look at the family members’ idea of their ‘dream-ICT-tool’ by using a creative co-design methodology. Throughout this research design the family will have to work together in an intensive manner, the result of their teamwork being a family-invented ‘dream-ICT-tool’. Combined with contextual information about the families’ ICT use and regulations and their conflicts and talks about ICT, we expect that this ‘dream-ICT-tool’ will reflect the family theme, and will hold information on how families manage boundaries relating to ICT.

This results in following research questions:

*How do families and family members manage boundaries related to ICT?*

*How are ICT embedded in the family theme?*

*Which boundaries do families set on technological development?*

#### **CREATIVE CO-DESIGN METHODOLOGY**

Asking families direct questions on their boundary management in relation to ICT is of little use, since people’s perceptions of their family functioning most often differ from reality. Therefore, a qualitative methodology was applied using a creative co-design activity (Van Rompaey, Hemmeryckx-Deleersnijder, Van Der Meerssche, De Mondt, & Godon, 2005; Van Rompaey, Van Der Meerssche, Godon, Vanden Abeele & Charliers, 2005). This activity was constructed by a multidisciplinary research team of sociologists, engineers and product designers. This multidisciplinaryity was considered necessary in order to construct and perform one method that explores the family relationships concerning ICT (social and engineering perspective) by using creative design techniques (product designer perspective). As research on ICT stresses the importance of studying technology inside the family home (Hindus, 1999), the activity was performed in the natural setting (i.e. the family home) of twelve Flemish families.

#### **Participating Families**

In everyday life different communities are created (with friends, with colleagues, with siblings). The EnComPAS research focuses on families. Families are defined as: ‘consisting of two parents (homosexual or heterosexual, married or unmarried) with their (biological or non-biological) children, residing in the same home’. This was based on three arguments. First of all, these kinds of families are mostly early adopters of new media applications (Gunter & Wober, 1989; Gray, 1992; Livingstone, Holden, & Bovill, 1999). Secondly, children are a very important factor in the acquisition and use of new media applications (Hellman, 1996; Van Rompaey, Roe, & Struys, 2002). Thirdly, in Flanders children mostly live in two-parent households (29,7% of all households in 2004) (NIS, 2004).

Twelve Flemish families were selected to participate in this research project. They were chosen on the basis of their participation in previous research into the implications of

ICT for family life (Van Rompaey, 2002). The twelve families all consisted of two parents (one of them being a lesbian couple) and a different number of children. The children ranged in age from four to twenty-three years. This was a deliberate choice since it creates different levels of abstraction and creativity in designs.

### Creative Co-design

The creative co-design activity consisted of five stages that resulted into the construction and presentation of a paper prototype:

1. introduction of a contextual story/scenario,
2. individual drawing stage (2D ideation),
3. family drawing stage (2D ideation),
4. paper prototyping stage (3D prototype),
5. presentation of the family prototype.



**Figure 2: Creative co-design**  
(top left: natural setting; top right: 2D ideation; bottom left & right: 3D prototype)

In the first stage of the creative co-design activity a contextual story or scenario was introduced. The family received a letter from the year 3025. In this letter a board of wise men of the future asks the family to help them solve a major societal problem: the people in 3025 have great difficulties to communicate with each other. The board of wise men challenges the family to create new tools or technological applications that help future people to communicate. It is emphasized that even the wildest ideas are possible in 3025: there are no restraints for designing. The product designer presents himself as a delegate from the board of wise men, who wants to help the family by organizing the activity.

In the second stage all participants were given 15 minutes to think for themselves and write or draw their individual ideas onto a large poster with color markers. When everyone finished writing/drawing, each family member is asked to present his or her ideas to the other family members.

In the third stage, after the presentation round, the product designer assigns the family to work out one (or more) idea(s) that embed some or all of the previous individual ideas, or represents a completely new idea. The product designer recommends to work together as a family.

In the fourth stage, the family has to translate their 2-dimensional drawing or text into a 3-dimensional paper prototype. The product designer provides the family with materials (cardboard in futuristic colors, paint, plastic cups in different sizes, scissors, tape, glitter glue ...). Making the paper prototype induces a final stretch on creativity, and enables the family to make changes or final adaptations. Furthermore, family members can also double check if everyone has the same concept in mind, and if necessary, redefine their design.

Finally, the family has to present and market their paper prototype to the board of wise men in front of the video camera. To guide this presentation, the families are stimulated to come up with a name for their 'invention' and to describe the three most important features, benefits ... of their design.

### RESULTS

When analyzing the creative co-design sessions we wondered whether family boundary management is reflected in the drawings and 3D prototypes of ICT that the families make. Concerning this matter, we have found evidence that the internal boundary management of the family is well reflected in the families' drawings and 3D prototypes. For example, in one very connected family all family members are very enthusiastic about an invention of the father...

**Father:** I've invented something very special... I'm now going to write down the name. This is a hug-machine!

**Daughter:** Oh! Fun!! (parents laugh)

**Son to his sister:** Then he won't need you anymore, because he can use his machine! Imagine that! (everybody laughs)

**Father:** No no no... (... *father explains how communication has evolved through time...*) In the hug-machine there is one more thing added: you can also hug each other. So someone is 20 planets away from you, you step into my hug-machine and then you can talk to him and give him a big hug!

**Daughter (impressed):** ooh yeah...

**Father:** yeah... Like telephoning grandma ... that's not really special, is it. But if you could give her a hug while you are telephoning!

(...)

**Father to son:** Imagine you are living on Pluto, and your father lives on earth. If you could only talk to each other through a screen... That's no fun...

In another family, family members live physically very much together: both parents are at home all day (the father works at home, the mother is a housewife). The adolescent children go to school around the corner and still eat at home at noon. However, this physical togetherness may not be confused with connectedness. This is clearly illustrated by the family's initial collective design: a flying cocoon in which all family members sit together in a circle, each in their own sofa. Nobody else can penetrate this cocoon. Communication with 'outsiders' happens with holograms. The family is together, but does not have a great need to interact with each other: each member has its own TV screen, hologram, ... Or as the father explains:

**Researcher (referring to the hologram):** Are there other ways to communicate with other people you don't know? Or ways to talk to each other? Because I see that everybody has its own screen in the cocoon... Is there still conversation then?

**Father:** But that's just the purpose; that you sit in one group, but that everyone can get away in its own world separately. And everybody can make different connections through his hologram, without interrupting the others, so that they can talk to each other.

This is also a perfect example of the fact that the paper prototype is a reflection of the family's relationship with the outside world. Furthermore, as expected, in most families the outcome of the creative co-design activity was a good reflection of the families' family theme. One of the families, for example, has shown to have a family theme that is built on the patriarchic hierarchy. The family hierarchy in this family was not only visible in the process of designing, but also in the designed prototype itself. This families' prototype, which was mostly invented by the authoritarian father, is strongly focused on discipline and obedience. In 3025 all people wear a multimedia device that contains a life card. This card rewards for good behavior and punishes for bad behavior, for instance by prolonging or shortening your lifespan. The device is also equipped with an electric shock system that shocks people when they enter a forbidden zone ... One might think that this design is something that the family envisions for the future, but doesn't really want. This however is not the case: the father really wishes for a 'Big Brother' society.

**Father:** I believe that in the future there will be a stricter world order, and that there will be more rules to apply to. Opposed to the perhaps too free world of today. People will have to obey more to the rules, or otherwise they'll lose things.

**Mother:** Ahh, like that.

(...)

**Father:** If the world keeps evolving as it is evolving now, with more and more freedom there will be more and more chaos... That can't continue forever! History shows that people always tend to go back to order and authority.

**Product designer:** But you think of this as a good thing?

**Father (surprised that his idea is being questioned):** yes, yes! In fact, I do.

## CONCLUSION

As we expected, the concepts of the ICT designs hold information on the family itself and reflect boundary management. The family interaction that can be observed is reflected in the 3D paper prototype. By using the creative co-design methodology, we haven't only explored family patterns and relationships, but we have also managed to investigate the way families look at ICT as a means for boundary management between themselves and other family members as well as between themselves and the outside world.

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## REFERENCES

1. Consolvo, S., Smith, I.E., Matthews, T., LaMarca, A., Tabert, J. & Powledge, P. (2005). Location disclosure to social relations: why, when & what people want to share. CHI 2005: Portland, Oregon.
2. Hess, R. D., & Handel, G. (1972). The family as a psychosocial organization. In G. Handel (Ed.), *The Psychosocial Interior of the Family*. (pp. 10-24). Chicago: Aldine - Atherton.
3. Hindus, D. (1999). The importance of homes in technology research. In N. Streitz, J. Siegel, V. Hartkopf & S. Konomi (Eds.), *Cooperative Buildings – Integrating information, organizations, and architecture*. Proceedings of the second international workshop on cooperative buildings (Cobuild '99): Pittsburgh.
4. Himmelweit, H. T., Oppenheim, A. N., & Vince, P. (1958). *Television and the child*. London: Oxford University Press.
5. Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukophadhyay, T. & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist*, 53(9), 1017-1031.
6. Livingstone, S., & Bovill, M. (2001). Children and their changing media environment. A European comparative study. Mahwah, New Jersey: Lawrence Erlbaum Associates.
7. Mackay, H. & Ivey, D. (2004). *Modern media in the home*. Rome: John Libbey Publishing.
8. Maignan, I., & Lukas, B. A. (1997). The nature and social uses of the internet: A qualitative investigation. *The Journal of Consumer Affairs*, 31(2), 346-371.
9. Morgan, D. H. J. (1985). *The family, politics & social theory*. London: Routledge & Kegan Paul.
9. Olson, D. H., Sprenkle, D., & Russell, C. (1979). Circumplex model of marital and family systems: Internal cohesion and adaptability dimensions, family types and clinical applications. *Family Process*, 18, 3-28.
10. Reiss, D. (1981). *The family's construction of reality*. Cambridge, Massachusetts: Harvard University Press.
11. Roberts, T. W. (1994). *A systems perspective of parenting: The individual, the family, and the social network*. Pacific Grove, California: Brooks/Cole Publishing Company.
12. Rosenblatt, P. C. (1994). *Metaphors of Family Systems Theory*. New York/London: The Guilford Press.
13. Van Rompaey, V. (2002). 'Media on/Family off? An integrated quantitative and qualitative investigation into the implications of Information and Communication Technologies (ICT) for family life.' Leuven: Audience Research Centre, PhD dissertation, 232 p.
14. Van Rompaey, V., Hemmeryckx-Deleersnijder, B., Van Der Meerssche, B., De Mondt, H. & Godon, M. (2005).

Beyond Marketing. Applying qualitative user experience research techniques on social media applications. *The Journal of The Communications Network*, 4 (3): 26-30. <http://encompas.org/images/fitce%202005%20paper%20final-20050922T174859.pdf>

15. Van Rompaey, V., Van Der Meerssche, B., Godon, M., Vanden Abeele, M., Charliers, K. (2005). Connecting the family home: Co-designing new technologies for Community Communication. ECCR/ECA conference, Amsterdam, 25-26 November 2005. [http://encompas.org/images/2F\\_van-20051201T224525.pdf](http://encompas.org/images/2F_van-20051201T224525.pdf)