Wow Experiences – When People Use ICT

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Abstract. In the paper *wow* experiences are explored that people may have related to using information and communication products or services. Based on three projects – including group discussions, a design project, literature reviews and fieldwork – two frameworks are proposed to help companies or organisations to deliver *wow* experiences to their customers or clients. *Wow* experiences are defined as strong, positive emotional experiences, surpassing basic or normal experiences. A framework is proposed to understand why *wow* experiences happen: when something in a certain person, who is in a certain context and is sensitive to a certain kind of *wow*, matches with something in a product or service, that triggers the same kind of *wow*. Additionally, a framework is proposed to study *wow* experiences on three possible levels: experiences of using ICT (micro), experiences of communication and cooperation facilitated by ICT (meso), or experiences of a service provided by people using ICT (macro).

1 Introduction

Companies or organisations are looking for ways to deliver *wow* experiences to their customers or clients. They aim to deliver unique, memorable and enriching experiences with their products or services, in an attempt to increase market share, capture margins or retain customers. Pine & Gilmore [11] drew attention to the economic value of delivering experiences, and the idea of creating emotional added value is also addressed in product development [6] and user interface design [8].

In any sector where there is a risk of products or services becoming a commodity, trying to create *wow* in order to differentiate is an interesting and relevant option. The ICT sector is such a sector. In the ICT sector technology and economy aspects are emphasised often, and a focus on end-users' experiences – seeing products or services from the end-users' perspective and imagining how it may deliver *wow* to them – is a valuable addition. That is not to say that end-users' experiences are dissociated from technology or economy. On the contrary: technological functions may be the basis for end-users' *wow* experiences, and people's *wow* experiences may trigger them to value a product or service economically.

In this paper key findings are summarised of three projects, in which the author was one of the researchers and research coordinator. All three projects are in the domain of mobile communication products or services. In the first project [13] *wow* experiences are explored through group discussions, which results in a proposal for a

framework to understand why *wow* experiences happen. The second project [3,14] is a product design project, a mix of research and development: we studied people's reactions to several mobile phones, created a design for a mobile phone that creates *wow* for people using it, and then studied the emotional reactions to a prototype of this new design. In the third project [4,9,15] people's *wow* experiences are put into a broader context: the experience of using an ICT product or service is embedded in a social setting of using ICT for communication and cooperation, and this communication and cooperation results in delivering a service experience to others.

2 Exploring *Wow*

Although many researchers or authors mention *wow* experiences, little is known on the nature of *wow* experiences, on why they happen. That motivated us to do a research project within TNO [13] in which *wow* experiences were explored. The research started with questions like: What kinds of *wow* experiences can people have? Why do these *wow* experiences happen? An explorative and qualitative methodology was applied, including an exploration of the research team members' own *wow* experiences, group discussions, and a small literature review.

During the team members' exploration of their own *wow* experiences, each team member recounted one *wow* experience (related or unrelated to ICT). Here are some examples of their *wow* experiences :

"I was eleven years old and camping with my parents during a weekend. Some friends of my parents gave me my first computer: a ZX81. There was no electricity and the computer's manual was in English so I could not use it. But the ZX81 was magical to me and I was glancing through the manual and staring at the computer all weekend."

"The movie "Waking Life" which I saw last week. It is shot with a digital camera and edited with animation software. I find the images and music so beautiful. Maybe one day I will make a movie like that."

"My Senseo Crema [coffee machine]. Every time I use it. And I use it daily. A smile appears on my face. It is a mixture of ease-of-use, and personalisation. It is my own cup of coffee, for me, very quickly made."

"SMS-ing [texting] with my new boyfriend. SMS enabled me to get in contact with him easily. Calling would be more difficult for me, because then I would have to overcome my shyness."

From this exploration we observed that *wow* experiences are very diverse, and personal and contextual. What one experiences as *wow* depends on the person, e.g. his or her biography or social-cultural background, on the context and on the product or service. Context refers to a combination of the situation you are in, and, related to that, a task you are doing or a need you are feeling. The same person in one context

may experience *wow* with a certain product, but may not experience *wow* with the same product in another situation. And likewise, another person may not experience *wow* with the same product in the same situation. This observation functioned as a working hypothesis for the group discussions.

Three group discussions were executed with a total of 14 participants. The participants were approx. 20 years old, and use the i-mode™ service on their mobile phones. In the first half of the sessions participants were invited to speak about their own *wow* experiences. All respondents were asked to think beforehand of their *wow* experiences (related or unrelated to ICT), and where asked to bring an object to illustrate this *wow*. The researchers emphasized that *wow* experiences are very personal and each person has its own unique *wow* experiences – "just like you may have your favourite colour, and there is no best colour". In the second half of the sessions the researchers showed several concepts for innovative i-mode services. The concepts were shown as sketches, in order to invite participants to react more freely . The concepts were primarily used to make the respondents talk about *wow* experiences – and not, for example, to test the commercial value of the service concepts.

There were sketches for five concepts, of which the researchers chose three or four for each group discussion:
1. a mobile service that delivers music which matches with your mood, see Fig. 1
2. a mobile service that sends inspirational texts or pictures
3. a mobile service for making, sending and receiving photos and short videos
4. an instant messenger service on a mobile phone
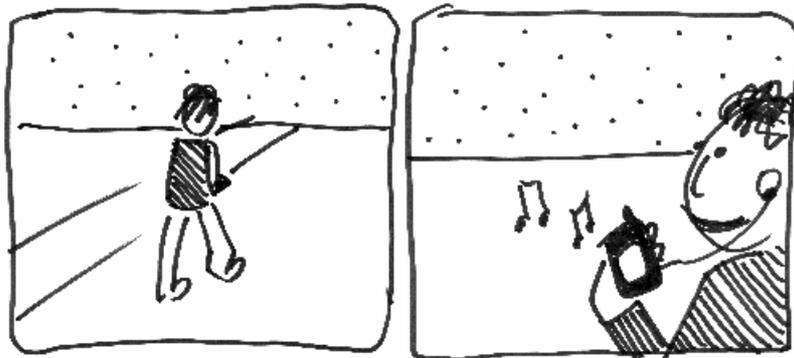5. a mobile service to play (simple) games with others

Fig. 1. One concept as it was presented in the group discussion sessions: "You walk somewhere and are in a … mood. Then matching music comes from your mobile phone"

After the session, the notes were analysed and discussed by the four researchers involved (researcher triangulation). Based on these studies, and also on a small literature review, a definition is proposed to characterise a *wow* experience: *a strong, positive emotional experience, surpassing basic or normal experiences.*

With this definition, *wow* experiences are characterised as unique, memorable and enriching, and distinguished from normal or basic or normal experiences. This implies an assumption, namely, that *wow* can only happen when the functionality and

the user interface are useful and usable. The concept of a *wow* goes further than usefulness (a necessary criterion for the adoption of an innovation, with key concepts: compatibility with daily life, relative advantage, complexity, visibility and triability [12]), and further than usability (with key concepts: effectiveness, efficiency and satisfaction [10]).

In addition to that, a framework is proposed to understand why *wow* experiences may happen, see Fig. 2. Different people in different contexts may have different *wow* experiences with different products. We propose to conceive of *wow* as a match between certain a person in a certain context who is sensitive to a certain kind of *wow*, and a product or service that triggers that certain kind of *wow*. Or, in other words: a person with certain qualities, in a context with certain qualities is sensitive to specific kinds of *wow* – characterised by one or more *wow*-factors – and a product or service with certain qualities triggers specific kinds of wow – characterised by one or more *wow*-factors – and if these *wow*-factors match, a *wow* experience is possible.
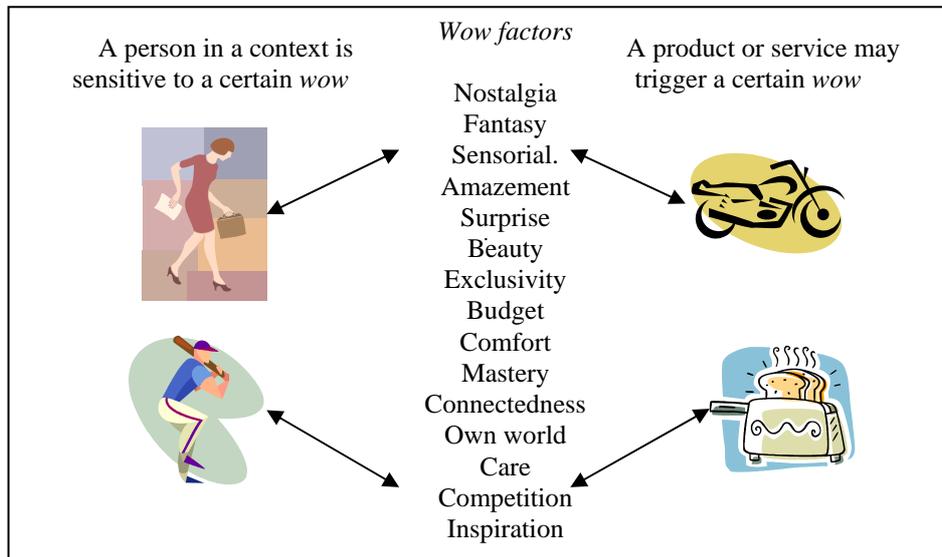

Fig. 2. A specific person in a specific context is sensitive to certain kind of *wow* (left), and a product or service may trigger that certain kind of *wow* (right) – *wow* may happen when these match (middle).

Here are two examples of how personal and contextual *wow* experiences are. A sales representative driving in his car in a hurry may experience *wow* when he receives quick and accurate directions from his car navigation system – and this may be characterised by the *wow*-factor *comfort*. A teenage girl sitting at home at night may experience *wow* when she receives an SMS of her friend – and this may be characterised by the *wow*-factor *connectedness*.

An analysis of the group discussions and of the project team's own exploration delivered a provisional list of *wow*-factors. These are explained briefly below, using examples from the group discussions [1]:

1. *Nostalgia* – "*wow*, that reminds me of …". One may experience *wow* because of pleasant reminiscence or memories, e.g. looking at photo's of the family's holiday in an album, or visiting an ancient, foreign place that you dreamt of as a child.
2. *Fantasy* – "*wow*, this makes me think of …". One may experience *wow* because of pleasant fantasies, e.g. reading a Harry Potter book ('preferred the book over the film, because it felt more active'), or fantasizing about video projection on the wall.
3. *Sensorial experience* – "*wow*, this … feels terrific". One may experience *wow* because of pleasant physical activities or sensations, e.g. sailing on a boat, salsa dancing, or watching The Matrix and almost immersing physically in it.
4. *Amazement* – "*wow*, I didn't know … is possible". One may experience *wow* because of an unexpected and pleasant functionality [2], e.g. finding a taxi phone number on imode ™ 'in the middle of nowhere', or the first time use of car navigation.
5. *Surprise* – "*wow*, I like this new …". One may experience *wow* when one likes to be surprised [3], e.g. buying music without knowing it, and then being surprised by that music.
6. *Beauty* – "*wow*, that… is so beautiful". One may experience *wow* because of the aesthetical qualities of an object or environment, e.g. a handbag with a beautiful colour and shape ('got to have it'), or mobile phone ('icy blue, with blue lights').
7. *Exclusivity* – "*wow*, this … is unique". One may experience *wow* when an event, product or service is rare or (almost) unique, e.g. a total eclipse of the sun, or participating in a sports championship and being very close to a sports star.
8. *Budget* – "*wow*, this …is cheap". One may experience *wow* when a product or service is cheaper than was expected, e.g. buying a pair of blue jeans for 11 euro only, or receiving a picture on a mobile phone without paying for it.
9. *Comfort* – "*wow*, this … is so easy". One may experience *wow* because a product or service is very easy, accessible or helpful [4], e.g. speech recognition on a PC, or a digital camera ('take many pictures, put some on the web, have them printed').

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[1] In a later study of TNO several additional or alternative *wow*-factors were proposed: *Escapism*, *Control*, *Fascination*, *Pamper others*, and *Connect to (inner) self*. Furthermore, an attempt was made to plot the *wow*-factors into a grid with two axes: 1) social/connect vs. private/own world and 2) active/challenge vs. passive/sensation – but this attempt was not fully satisfactory. And there were critics who commented that *wow* experiences are social constructions or social experiences, rather than individual experiences – this aspect will be addressed in section 4 of this paper.

[2] *Amazement* may be similar to *fascination*, although *fascination* often implies some ambiguity: feeling attracted and taken aback.

[3] *Surprise* and *Amazement* are slightly different: surprise refers to the person, whereas amazement refers to product or service

[4] *Comfort* may includes the feeling of being in control. Note that for personalised services, the feelings of comfort and of being in control may conflict.

10. *Mastery* – "*wow*, I managed or learned to do this …". One may experience *wow* when doing something that one was not able to do before, e.g. horse riding, singing solo in a choir, or hacking a mobile phone. May be related to self expression.
11. *Connectedness* – "*wow*, we are … together". One may experience *wow* when one feels connected to others [5], e.g. receiving an SMS, sharing blog messages, or creating a SMS chain poem. This may be physical or digital, real-time, or time-shifted.
12. *Own world* – "*wow*, this is my personal …". One may experience *wow* because of a pleasant private sensation [6], e.g. being with a horse, or going outside to skate with a walkman on. This *wow* may be related to self expression or escapism.
13. *Care* – "*wow*, it feels good to care for …". One may experience *wow* when providing care to another, e.g. talking over the phone or MSN, or playing with a Tamagotchi, or caring for a horse. This is similar to connectedness or to own world.
14. *Competition* – "*wow*, we play …". One may experience *wow* when playing with others (stimulating each other, not fighting), e.g. playing Xbox Live with friends across the country, or competition sailing. This may coincide with connectedness.
15. *Inspiration* – "*wow*, I feel inspired to …". One may experience *wow* when feeling inspired to do something. This *wow* was not mentioned in these wordings by the participants – maybe they referred to it as fantasy, amazement, surprise or beauty.

With this list of *wow*-factors , we can characterise the stories that the participants of the groups discussions told:

> *"I met my girlfriend in a bar when a specific song was played. Every time I hear that song it reminds me of that special wow-moment when I saw her for the first time."* (nostalgia)

> *"Together with my best friends I write a poem via SMS. Sometimes we recite this poem and other people have no idea what we are saying."* (own world, connectedness)

> *"It is really great to play games with friends – who are more than 150 km further – via internet."* (competition, connectedness)

> *"I had a Tamagotchi with which I played for months. I took it everywhere and always took care of it. When it died I took out its battery and restarted it: trying to keep it longer alive than the last time."* (competition, care)

This study provides a framework for understanding why *wow* may happen, and a list of different sorts of *wow* experiences. The next section describes a product development project in which an attempt is made to make these concepts work in a more practical setting.

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[5] *Connectedness* refers to connecting to other people, not to products, and may include the *wow* of being pampered by someone.
[6] *Own world* is similar to cocooning – it may be shared with one or two others (but not more, because then it would be *connect*).

3 Creating *Wow*

In a project funded by KPN Mobile, TNO together with Delft University of Technology and design agency KVD cooperated in studying *wow* experiences with the goal of creating a product design that elicits *wow*. We studied people's reactions to several mobile phones, created a design for a mobile phone that creates *wow* for people using it, and then studied the emotional reactions to a prototype of this new design. [14].

This project had an interesting mix of research and development: studying people's experiences and trying to create *wow* experiences – and of qualitative and quantitative methods. The project was divided into five phases:

1. a quantitative study of emotional reactions to eight mobile phones (n=35);
2. a qualitative study with two group discussions (total of 9 participants, selected from the previous study) to explore people's *wow* experience, to better understand the results of the quantitative study, and to provide input for the next, design phase;
3. a design phase to create a design for a mobile phone, based on the findings of phases 1 and 2, and based on the commissioner's brief to include innovative functions such as a browsing and gaming;
4. a quantitative study of emotional reactions to eight mobile phones (n=30), including one prototype of the design from the previous design phase, see Fig. 3;
5. a qualitative study with two group discussions (total of 8 participants, selected from the previous study) to explore people's *wow* experience , and to validate the results of the previous quantitative study.

Fig. 3. Design for a mobile phone which aims to create a *wow* experience – design by *KVD Reframing and design* in cooperation with Delft University of Technololgy .

For details on the quantitative studies, in which the PrEmo instrument was applied to study emotions [2], and for details on the design process, please refer to Desmet and Porcelein [3] in this volume. The current paper focuses on the qualitative studies.

In the groups discussions participants were asked beforehand to think of a *wow* experience that they would like to talk about, and to bring an associated object, or a photo of it situation with them. They were aware that the study was about mobile phones (since they were selected from the participants in the quantitative study, in which they evaluated eight mobile phones), however, they were invited to talk about *wow* experiences that are not related to ICT. The group discussion started with people telling about their various *wow* experiences, then they were invited to talk about the same eight mobile phones that they had already seen in the previous phase, and finally they were presented with the results of the quantitative study and were asked to evaluate and comment upon these results. The group discussions were typed-out entirely, and analysed and discussed by the three researchers involved (triangulation).

At least three observations can be made on the results of these groups discussions. Firstly, during the qualitative studies an interesting idea emerged, namely the idea that people experience *wow* when one experiences authenticity – the feeling that "it clicks with me", that there is something authentic deep within me that "clicks" with something authentic in the product or service or situation. Many participants – when describing their own *wow* experiences, and when describing *wow* experiences with the mobile phones – mentioned that some aspect in a product resonates with some aspect of themselves. This seems in line with the framework in the previous section: that *wow* happens when some quality of the person (in a certain context) matches with some quality of the product. Here are some quotes from the group discussions:

"When I drive in my Mini, I become happy. I really, simply become happy. [She tells about test driving a new Mini, but preferring her own old Mini.] A real Mini creaks a little bit and is a little bit a weird car. And also a little bit clumsy car. But then again, it's its compactness, its charm. […] I think it's an inborn abnormality. It is the first car I was ever in. Maybe it started there. I have the feeling that it comes from my toes. […] I really like driving. My mother often told me that always when we were in a car, and when the car stopped, that I started to cry, and then when the car started to drive, then I became quiet again."

This car is special for her, and driving in it, makes her feel special. There is something with this car that relates to something inside her, and that makes her feel *wow*.

"This is my wow. This is a headphone [she shows a picture of a an old-fashioned headphone]. A very old-fashioned one actually. And I bought in on a flee market for ten cents. And it works really well. And it has a beautiful sound. I also find it beautiful. I don't exactly know why. I guess it's the design. And that it has rather clear forms, and also something tough. And on each side is a label, which side is for left and for right. I rather like that. [several participants engage in a small discussion on

whether to call it "retro", "a little bit old-fashioned" and that it is "really old"] Yes, okay. I don't know. I think I would like it anyway. It was totally different. Because on this flee market. And I was totally not looking for such a thing. I walked in this flee market. And it was ten cents. And I found it very cool when I saw it."

She is trying to articulate why she feels *wow* about her headphone. After some effort, she articulates that it's the experience of having found it on a flee market that makes this headphone *wow* for her. There was something with these headphones that "clicked" with something in her. This example also illustrates how difficult it is to articulate a *wow* experience and explain where it comes from [7].

Secondly, it was interesting to see in the qualitative studies how participants were able to discuss and validate the results from the PrEmo study. In the two group discussions of the second qualitative study, for example, these results were presented on a large board, showing the mobile phones distributed in a two-dimensional space. In the first group discussion we included the wordings from the PrEmo study: *Desire, Fascination, Pleasant surprise, Satisfaction, Amusement, Boredom, Contempt, Dissatisfaction, Disgust* and *Unpleasant surprise* [3].

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[7] From this study, and also from the study in the previous section, it appears that male respondents can less easily or less adequately articulate their emotions then female respondents. This difficulty of speaking about one's emotions was one of the motivations for Desmet to develop an instrument to study people's emotions non-verbally [3].

Fig. 4. Foam board that was used during a group discussion – notice that the words of the PrEmo study were removed, and respondents added their own words on Post-It ™ notes.

In the second session we removed these words, and invited participants to write their own words on Post-IT ™ notes and put these to the board, Fig. 4. In this session, participants were better able to articulate in their own words their emotions elicited by the mobile phones, e.g. *Authentic, Ugly, Want to touch, Trustworthy, Functional, Cheapo*, or *Too-much*. And they were able to validate and "correct" the PrEmo study's results. E.g. they wanted to move a certain phone away from some phones, and towards other phones, explaining that their responses in the PrEmo study were biased because of a marketing campaign related to that particular phone. And now, discussing the results from the PrEmo study, they wanted to "correct" that. This way of combining quantitative and qualitative methods and the iterations in the process proved to be constructive.

And thirdly, this project is evidence that it is possible to intentionally create a product design which elicits *wow* experiences – or, in the words of Desmet and Porcelijn, the following product appraisal: "unexpected, unfamiliar, promising and fit for possession" [3] – and that these *wow* experiences can be studied empirically.

4 *Wow* in Context

The previous sections looked into individuals' experiences when using ICT. However, in many situations people use ICT products or services as tools to communicate or cooperate with others, and use ICT to deliver a service to others. In this section *wow* experiences are put into this broader context.

In a joint research project – Freeband FRUX [5] – TNO, Telematica Institute and other organisations are currently investigating how people may use and experience *we-centric* mobile services. With *we-centric* we refer to ICT services that are meant to support people to communicate and cooperate with other people in different, dynamic or spontaneous groups [4,15]. This research focuses on two application domains:

1. In the domain of public safety safely, we study how *we-centric* services may help police officers may cooperate better with other police officers, and with other parties in order to provide a better police service and safety experience to citizens;
2. In the domain of health care, we study how *we-centric* services may help people who provide informal care to people with dementia may cooperate better with others in order to improve the quality of life for both their patients and themselves.

This research is executed with a lot of fieldwork in close cooperation with end-users, including observations, interactive workshops and interviews, and with desk research.

Studying how people experience using of *we-centric* services when they communicate and cooperate in order to deliver a service is different from studying how an individual experiences using a product or service. This approach is related to the notion that experience is a situated and social phenomenon, and is socially con-

structed, and is in line with e.g. Buchenau & Suri who state that "the experience [exists] in dynamic relationship with other people, places and objects" [1], and with Koskinen & Battarbee, who state that "we co-experience things with others in situ, and in elaborating experiences in stories afterwards" [7:pp.40-44]. Based on a review of studies of user experiences [9] a framework is proposed to think of people's experiences (related to the use of ICT) as possibly happening on three different levels, see Fig. 5:

- On the micro-level are people who use ICT – this level is related to studies with their roots in product development or user interface design.
- On the meso-level are people who communicate and cooperate facilitated by ICT – this level is related to studies in CSCW or social psychology.
- On the macro-level are people in their roles of customers or clients, who experience a service provided by people who communicate and cooperate through ICT .

The Freeband FRUX research focuses on the meso-level, on how police officers and informal carers communicate and cooperate with others. Obviously, the other levels are closely related to that, and are also part of the research: how police officers or informal carers experience using ICT (micro-level), and how using ICT effects the service they provide to citizens and patients (macro-level). The micro-level is seen as a necessary precondition – the product or service must have a basic level of usefulness and usability – and the macro-level as an outcome – the effects of using ICT on the service delivered.
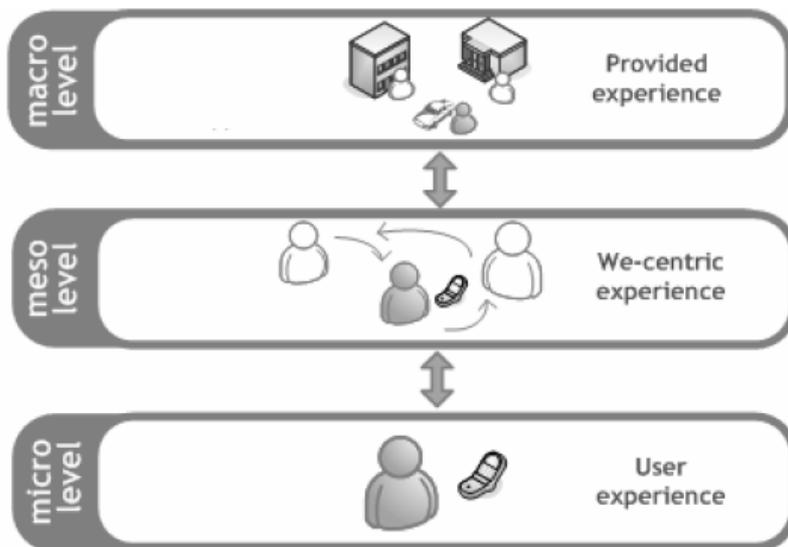
Fig. 5. Experiences of using ICT products and services (micro-level); Experience of social processes, communication and cooperation (meso-level); Experience of the service provided (macro-level)

This framework is meant to better understand how *wow* experiences play on different levels, e.g. how a police officer or informal carer experiences *wow* when the ICT service has an unexpected and valuable function; how he or she may experience *wow* when cooperation or communication happens pleasantly due to ICT; or how citizens and patients may experience *wow* when the service or the care they receive exceeds their expectations.

5   Future Research Agenda

Reflecting on these three projects, there are at least five clusters of questions that seem interesting and relevant for further study:
1. About the proposed concept of a *wow* experience as a person's sensitivity for a certain *wow* that matches with a product or service that triggers that certain *wow* – How can we test, validate, or refine that concept? Or develop a better framework? And how do the proposed *wow*-factors *(Nostalgia, Fantasy, etc.)* relate to measures that are used by PrEmo *(Desire, Fascination, etc.)*?
2. About studying experiences in an iterative research and development process (like the product design project described in section 3) – How can we further develop or improve methods for simultaneously studying and creating *wow* experiences? E.g. through the combination of qualitative and quantitative methods, and through application of empathic design or participatory design methods?
3. About the relations between the proposed levels for studying experience – How does the experience of using ICT (micro-level) relate with the experience of social practices facilitated by ICT (meso-level) and with the experience of the service delivered (macro-level)? It seems obvious that the micro-level influences the meso-level and then the macro-level, but how about influences in the other direction?
4. About studying the experience of communication and cooperation and other social practices facilitated by ICT – How do social contexts influence people's individual experiences, or how do personal experiences relate to social experiences. How much is a 'group experience' one individual's experience? Or how can we study group experiences – e.g. ask all members collectively or separately?
5. About studying experiences in the course of time – Wow experiences are often associated with "a first time" or with a surprise, therefore it would be interesting to ask whether or how *wow* experiences wear out? Or how *wow* experiences develop over time, e.g. from first use to regular use, or before, during and after an event, and how are experiences remembered and (re-)constructed afterwards?

Some of these questions will be addressed in the remainder of the Freeband FRUX project which runs until 2007 [5]: we plan to extend our fieldwork into piloting of services for police officers and informal carers, so that we can study their experiences *in situ*, while they use the *we-centric* services in their daily life and work.

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