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Exploration of Creativity in HCI

An interplay between freedom and structure

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Abstract:

Creativity has become a modern concept. In several job advertisement, organisation state that they are looking for an employee of ‘creative’ nature. There is however several perspectives on what creativity is and is achieved. The purpose for this thesis was to explore the perception of creativity in Human computer interaction (HCI), and how HCI-professionals working in organisations relate to and with creativity in their work. Research on how creativity can be facilitated is currently divided, some researchers advocate complete freedom while others favour control by methods. In this study, we chose to interview six persons in different organisations that are working with HCI. We found that creativity in HCI is a continuous interplay between freedom and structure, or sometimes referred to as restrictions. In order to be creative, the professionals have to find the preferred balance for the specific project. Creativity can either result in small incremental improvements or entirely new ideas. It is ideal to not focus entirely on only new things. Instead the HCI-professionals need to have the analytical skill and understanding to now when there is an opportunity for it. Creativity generating methods are not supposed to be followed strictly. They are rather chosen and adapted to each project. Changing the creativity methods between projects contributes to new ways of thinking and prevents the risk of ending up with similar type of results.

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1 Introduction

Woodman, Sawyer and Griffin (1993) express that the concept of creativity identifies a relatively unexplored area of innovation as a relatively new competitive advantage within systems development. Creativity is, in Furnham's (2008) research seen as a cognitive capacity with an operational capability to produce new creations, whether the product is of artistic, political, academic or technical nature, or belonging to the business world. Creativity is said to play a major part in organisations to stay competitive (Furnham, 2008). The importance of a creative process involves generating new ideas, being original, solving problems, and implementing ideas and to process them in an innovative way. Harkin (1998) state that even the definition of creativity is challenging and conceivably not constrainable. Creativity is in contrast something that is spontaneously developed, which then makes it impossible to control (Harkin, 1998). Creativity can be achieved through methods like: Brainstorming, the Theory of Inventive Problem Solving, the Delphi Method, Lateral Thinking, and Synectics (Yu, 2006). It is further claimed that efforts of controlling and directing creativity might be obstructive and the more you try to control it, the more problematic it will become (Harkins, 1998).

Furnham (2008) push forward, that it has since antiquity been common to associate creativity with madness, which has sometimes been expressed in words of 'the mad genius' or the 'mad scientist'. Researchers at Semmelweis University in Budapest have found a gene that supposedly relates both to mental illness, especially psychosis, and creativity. In the research they found that creativity was high among the persons that had the gene, had a high intellect and were highly educated (Keri, 2009). Creativity could possibly be achieved at a greater rate by 'the mad genius' or the 'mad scientist', but not directly connected with logical-mathematical intelligence, but with an individual's outgoing personality (Furnham, 2008). Furnham (2008) push forward that a personality trait that often is associated with creative people is the attitude of not fearing risks, but also that they have an aesthetic sense, high confidence, and a penchant for complexity. The desire for self-realization often works via a motivational factor for creativity. These characteristics are coveted in domains where creativity has big importance, for instance in Human Computer Interaction (HCI).

During the last decade we have experienced a new era of system development, which is still progressing. The value chain of developing an end product has expanded in size as well as in complexity, since it now includes more actors, some of them involved in HCI-design. Systems have been remodelled from being a tool used mainly by professionals to something simple and natural used in our common lives. It also

includes possibilities to make choices regarding the design, as a result of a high emphasis on appearance and less on technical performance, it is here the creativity and innovation process takes a major role with focus on breaking patterns and usability. (Woodman et al., 1993).

An essential element in the work of creativity and innovation for Human Computer Interaction (HCI) professionals are to be able to look outside of the box and dare to disrupt previous assumptions about an artefact (Herring, Jones & Bailey, 2009). This has to be achieved to further develop and improve the interaction between people and computers. Herring et al (2009) utters that disrupting previous assumptions of an artefact is a very challenging task in design areas like HCI-design, but is required to find creative breakthroughs. These creative breakthroughs are in the meaning of relationships that previously did not exist. This dilemma is the reason for the increased empirical studies in this area of research, managing creativity within organisations, and has widely opened the notion of creativity within Research and Development (R&D) systems. The development of creativity methods is to encourage creativity through an improved understanding of an artefact, but it also includes endorsing dreams among the individuals within the organisation (Stevens & Swogger, 2009). There have been several trends concerning creativity in the recent years, built upon organisation standards and traditions in product innovation from a creative perspective (Tschang & Szczypula, 2006).

We focus on possible ways of strengthening creativity in comparison to previous research in this area, which provides a specific approach or model. These definitions and theories play a major role in the exploration because of the ability to approach the area in all possible aspects. With this we strive to give the reader a fair understanding of creativity and how it can most greatly be achieved. While previous studies have had more focus on managerial and organisational ways of working towards the breaking of patterns, creating future trends in an interrelated context towards growth and success rate, previously described as the 'creative organisation'.

1.1 Research questions and purpose

As argued in the introduction, it is understood that it is common today to find job advertisements that have innovation or creativity as requirement from potential applicants. HCI is an area in system development that is rapidly growing and demands creative thinking among the professionals working with the aspect, to develop good and potentially new interaction possibilities that people like and want to use. A part in the creative process involved in the work of HCI-professionals is to sometimes break assumptions of an artefact, which in turn pushes the development in the field forward in form of creative breakthroughs (Herring et al, 2009). Creative

breakthroughs in this context could be seen as something entirely new that has a better and different approach than the existing solution and thus creates new and previous none existing relations. Herring et al (2009) argues that this kind of creativity can be very difficult to achieve. Keeping this in mind we have developed the following research question:

RQ: How do HCI-professionals cope with the task of creative development of new products, to drive the HCI-design development towards creative breakthroughs?

In this thesis we want to investigate the perception of creativity in the domain of Human computer interaction, and how HCI-professionals working in organisations relate to and cope with creativity in their work.

1.2 Delimitations

The big meaning of creativity is a bit divergent, which is the reason to why we delimit our study for concern of creativity that takes place in an early development process. With the creative development process we refer to the process of brainstorming and working with fresh ideas towards prototypes and future products, on the markets of IT and smartphones. This is a process, which ends after the efforts of marketing takes on. We have decided to focus on HCI-professionals working in Sweden, which will implicate that there may be differences in our empirical results in comparison to how HCI-professionals work in other countries.

1.3 Target group

This study is mainly aimed towards other students and researchers that have an interest in the HCI domain, the difficulties regarding creativity that this field may involve, and have an interest in further studies within this topic.

1.4 Outline of the thesis

In chapter 2 we will present relevant information that has been raised in literature about creativity. The focus in this chapter is on creativity as a general notion, meant to express a definition, non-specific of area of operation. We will also explain how the

conception has gained an increasingly big role in organisations and their processes. This then works as good foundation for the literature review.

In chapter 3 we will further elaborate on the notion of creativity expressed in literature, and focus on the concept of the human-computer interaction aspect. This includes their perspective on the notion and how they assess it in their work.

Chapter 4 will present the research model that will be used in the subsequent work and writing of this research. The research model is supposed to express the foundation on which we will base our discussion regarding the collected empirical data.

Chapter 5 is an exposition of the approach of the study and the methods that have been used. It also includes reflections regarding quality and ethical issues.

In chapter 6 we will present the findings and result of the empirical research, including an analysis of the result.

Chapter 7 will consist of a discussion regarding the findings using the research model proposed in chapter 4. Here we will highlight interesting topics and questions in the findings of the empirical research.

In chapter 8 we will present a conclusion of the research and state an answer to the research question.

2 Creativity

2.1 What does creativity involve

Today there are several perspectives and propositions of what creativity mean and involves. One of the earliest approaches to creativity that still is considered influential when discussing creativity and the creative process is a model proposed by Graham Wallas in 1926. According to this model the creative process is divided into four components: Preparation, incubation, illumination and verification (Herring et al., 2009).

During the *preparation* stage of the creative process knowledge has to be gathered and an understanding of the problem that requires creative thinking has to be developed. The second stage of the process, *incubation*, indicates the process of a person considering the problem and all the possible aspects that it involves and tries to develop a possible solution for the given problem. This stage could take some time, since it depends on the time it takes to develop an actual idea. After having spent time pondering the scope of the problem an idea usually emerges after some time, which is referred to as *illumination*, the third stage of the process. The last stage, *verification*, consists of analysing and evaluating the idea to determine whether the idea is good enough to pursue (Herring et al, 2009).

An important conception regarding creativity and the models proposed to describe what the creative process involves, is that they should not be followed in a linear fashion, even though they often are pictured that way (ibid). Herring et al (2009) means that following a proposed creativity model or method strictly and in a linear fashion would mean that you are not using the process in the most optimal way. The process should instead be seen as iterative and it is allowed to move between steps, to further improve the idea.

2.2 Barriers to creativity

Creativity and innovation play increasingly important roles for the organisations' survival. Business leaders are also beginning to understand that they must actively

work to promote creativity among the employees to maintain a competitive advantage (Stevens & Swogger, 2009).

Professor Teresa Amabile of Harvard Business School has conducted research on creativity and innovation for over thirty years. In a major study, she followed nearly 300 people in industries where creativity is especially important. As a result of the study Amabile et al (1996) concluded that having fun while working might increase the degree of creativity. For example when having fun individuals use their knowledge and experience in pattern-breaking ways. The study showed a very strong relationship between positive emotions and creativity. Just as negative emotions such as anxiety, fear and anger reduces creativity. People are the most creative when they are happy, leading to a workplace that is permeated by the work and the playfulness of a perfect breeding ground for innovation. Amabile et al.'s (1996) research showed that creative breakthroughs often follow days in which the person was particularly happy.

Henry (2006) argues that when viewing ads for employment, business leaders often want to hire creative people in areas concerning design and marketing. If you ask the manager if there is anywhere in their organisation where they do not want creative employees, a common response is that they do not want non-creative employees. The fact is that innovation and creativity are desirable in the entire organisation and all employees have the ability to be creative.

There is also the conflicting opinion where some believe that only people in art and design can be creative, but Tharp and Reite (2003) assert that this is not true and that any reasonably intelligent person can be creative. Organisations could stimulate creativity by eliminating or minimizing barriers. Examples of creativity barriers are prolonged stress or overwork, fear of failure, bureaucracy and a certain 'we have always done in this way' - mentality that truly counteracts innovation (Tharp & Reite, 2003). When people have the knowledge and are engaged in what they are doing, creativity and innovation often follows. There are no magic or extraordinary courses to enhance creativity. It is in our nature to be creative and to create, so producing opportunities and encouraging creativity is a good strategy to allow this (Tharp & Reite, 2003).

Lower barriers stimulate creativity, which implies greater freedom. This involves having just the right challenges, frequent feedback, and by matching tasks and the employee's own interests and strengths as well as possible. When developing something you tend to be interested in what you develop and have fun doing it. Your internal motivation arises and by working for new achievements with your basic knowledge and experience in the area you continuously find new ways to work which can be characterized as creativity. Amabile's research shows that stressful deadlines, restrictions and financial bonuses have a negative effect on creativity. (Amabile et al., 1996; Henry, 2006).

2.3 Generating creativity and innovation

When considering creativity and when supporting innovation there are several methods and approaches that aim to help people overcome the difficulties of being creative, most of them performed in groups. Mentioned methods in the area of encouraging creativity are according to Savransky (1999): Brainstorming, the Theory of Inventive Problem Solving, Delphi Method, Lateral Thinking, and Synectics. In the next sections we are going to explain what each of these notions mean and how they suggest that you approach creativity.

2.3.1 *Brainstorming*

Maisel and Maisel (2010) explain brainstorming as an operational method used to solve problems based on the stimulation of creative activity. In this approach participants are invited to discuss the greatest possible number of solutions and approaches, these propositions do not have to be fully possible but they should be named, since they could support the creative process. After the discussion there should be a number of ideas expressed, from which you select the one prone to be the most successful when used in practice. Brainstorming is also described as a method of peer assessment (Maisel & Maisel, 2010). Herring et al. (2009) agrees with this description and emphasizes that it is good to generate a large amount of ideas, and that you should not evaluate them. Unusual ideas are welcomed, since they could play an essential part when combined with a good idea.

2.3.2 *Theory of Inventive Problem Solving*

Yang and El-Haik (2008) discusses the theory of inventive problem solving (TRIZ), which is an approach from the inventor and science fiction writer Henry Altshuller. TRIZ is a methodology, tool set, knowledge base and simulation technology for generating innovative ideas and solutions to problems. TRIZ provides tools and techniques for the formulation of the problem, system analysis, and failure analysis. It also assesses the reflection of 'as is' to 'how it should be', with the intent of showing how you progress toward the desired goal. In contrast to the technique of brainstorming, which include randomly formulating ideas and solutions to problems; TRIZ is to create an algorithmic approach to the invention of a new system or improving an old one (Yang & El-Haik, 2008). Banciu, Draghici and Grozay (2010) elaborates on the topic expressing that TRIZ provide instruments of thinking,

consisting of recommendations, instructions, rules, suggestions and examples. The method emphasises to first solve technical and physical contradictions in order to later solve technical problems, leading up to new ideas.

2.3.3 Delphi Method

Van De Ven and Delbecq (1974) claim the Delphi method is a technique that allows you to use surveys, interviews, and brainstorming sessions, to achieve the maximum consensus in determining the correct solution or approach. Analysis using the Delphi method is conducted in a number of stages and the results are later processed by statistical methods. The basic principle of the method is that a number of independent experts, often unrelated and without knowing each other, better assess and predict the outcome than a structured and collective group. Schniederjans et al (2010) claim this in return allows you to avoid open clashes between the carriers as opposed positions eliminates direct contact between an expert and therefore the possible group effect. This scenario, which could occur in joint work, means that people adapt to the majority. It also provides an opportunity to interview extraterritorially without collecting experts in one place.

2.3.4 Lateral Thinking

British physician de Bono (1993) has suggested many methods of creativity and creativity thinking. He is the creator of a concept called lateral thinking, which is different from the usual patterns founded on vertical thinking. One example of lateral thinking is the technique of six hats in different colours. Where white indicates analytical thinking, red is emotional thinking, black is critical thinking, yellow is optimistic thinking, green is creative thinking, and blue refers to judgment and caution. In a metaphorical sense, by putting on each of the hats, a person can look at the problem from several angles. Waks (1997) agrees with de Bono (1993) and suggests that the lateral thinking method helps you to restructure your thinking pattern, to make new ideas possible. This approach supports parallel thinking, but it is important to mention the fact that by hats is meant as directions of thinking rather than an actual label (de Bono, 1993).

2.3.5 Synectics

Synectics is an approach that was designed by William Gordon and George Prince in the company of Arthur D. Little Invention Design Unit in 1950. Hota (2000) explains that the methodology comprises an attempt to make certain strange and odd things

well known. Duin et al (2009) further elaborates on Hota's (2000) explanation, expressing that the core concept of the method is to combine objects that previously have been completely different or irrelevant to each other. The technique consists of ten steps: analysis and definition of the problem, offer solutions to the problem of spontaneous, a new formulation of the problem, building a direct analogy, personal analogy construction, the construction of symbolic analogies, again building a direct analogy, analysis of the direct analogies, analogies to the problem of migration and development of approaches to solving problems (Hota, 2000).

2.4 Summary

In this chapter we have explained the general definition and use of creativity expressed in previous research of the topic. The importance of creativity has increased in organisations and should actively be promoted by encouraging creative thinking among the employees. We have also presented some methods that could be used to generate creativity and support the creative process. Using the information from this chapter as a foundation, we will in the following chapter focus on creativity from an HCI perspective in order to consider how it is used in that domain and how HCI-professionals relate to the notion.

3 HCI-perceptions on creativity

3.1 The origins of interaction design

Many researchers derive the origin of interaction design to 1989, and the researcher Gillian Crampton Smith. Bagnara and Smith (2006) claim that interaction design is not just about designing a device or invention and the manner in which it interacts with it. It is more about designing the whole experience of the active usage so that it is coherent and meets needs and desires. The authors believe that interaction design differs from traditional design disciplines such as architecture and industrial design, where the designer's task is to tackle complex design requirements or to produce things that have to do with human culture needs and desires. Smith (2004) argues that it is important to reconcile the possible with that which is desirable. The emphasis is on experiential qualities and does not have that much to do with function but rather with things that will give us satisfaction and pleasure. As for the information aspect, technology is still grappling with managing functional aspects and is far capable of providing such experience features that we take for granted in other contexts.

3.2 The HCI-process

Löwgren (2002) suggests we should ask ourselves where the emphasis on design should lie. The HCI perspective encourages the view of the application of new technology to be as smooth as possible, an add-on to the already existing users and the application itself. Preece, Roger and Sharp (2002) utter that it is possible to be more rigorous when determining the choice of interaction design by basing them on the understanding of the users. The procedure involves creativity as a way of taking into account what people are good and bad at and what can help them improve various routines. Furthermore, you should consider what can lead to qualitative user experience, listen to what people want and get them to take part of the design by using 'performed and tested' - based techniques through the design process.

3.3 Creativity in HCI

Herring et al (2009) discuss different types of idea or creativity generating tools that are supposed to aid the creative process and are common among HCI-designers, some of them described in the previous chapter. Shneiderman (2002) gives some perspective to this use of idea and creativity generating tools stating that the interest of HCI research and projects has changed. Previously much attention was aimed on productivity support tools, where today the focus is on creativity support tools that are supposed to just assist with creative thinking.

Löwgren and Stolterman (2004) assert that creativity could be difficult to establish but that it is the tension between the development situation, vision and operative image that forces an HCI-professional to be creative in his or her work. A person working with HCI therefore cannot just wait for creativity to happen, thus a tension between the three notions has to be developed and it is only then that creativity is sincerely stimulated (Löwgren & Stolterman, 2004).

A commonly discussed topic in literature is how stress of deadlines and other kinds of constraints affect creativity. Some believe that restrictions, for instance deadlines and restrictions from a customer or user, in HCI design projects, impair creativity. That is why some people in HCI wish for more freedom in their creativity (Löwgren & Stolterman, 2004). Löwgren and Stolterman (2004) argue in favour of a nearly complete opposite perspective, expressing that restrictions not necessarily are disadvantageous in the creative process but that they could help to focus a task or problem. They also state that complete freedom could lead to uncertainty of where to begin. Having too many restrictions could have similar affect, where creativity is not encouraged or allowed. This then conveys that an interaction between freedom and structure should be pursued (Löwgren & Stolterman, 2004).

Ladner (2010) argues that that which inspires them exceedingly influences the creativity of an HCI-professional. When something has an inspiring influence over the HCI-professional during the development process it has a great chance of establishing itself somewhere in the final product. This is however not something that should be pursued in the creative process. Ladner (2010) argues that this is an archetypal example of lack of standards, which then would result in lack of consistency and expertise. If this is not considered in the process it could have big impact on the practice. HCI-professionals should instead embrace standardization, but not blindly (Ladner, 2010).

Löwgren and Stolterman (2004) also argue that pure creativity, that is present in for instance music or art, is not the most important kind of creativity in HCI. Though creativity is needed, Löwgren and Stolterman (2004) stresses that the kind of creativity that is needed in HCI has to be balanced with analytical thinking. Everyone

can develop ideas in their individual creativity process without any restrictions present. An HCI-professional should however know how to differentiate good and bad ideas, what is appropriate, possible to realize and that at the same time are new and radical (Löwgren & Stolterman, 2004).

A thought that has inspired the approach of creativity in HCI is that genuine creativity only can be achieved after several years of working in the sector, thus it is only then that the person has acquired a deep and rich enough knowledge to accomplish it (Johnson & Carruthers, 2006).

Norman (2010) maintains that the grand conceptual innovations derived from the creativity process of HCI-professionals only happen when technology finally has made them possible. Norman then concludes that most innovations are rather small and simple and that major innovations are rare. Norman (2010) claims that it is the new technology that inspires creativity in HCI, and makes the HCI professionals dream of new applications. It does not matter if the dreams are reasonable or not, they all can inspire the final idea. This then complies with what Löwgren and Stolterman (2004) said previously regarding what creativity includes in HCI, thus an HCI-professional still has to know what is rational or not.

3.4 The influence of intuitions on creativity

Researchers see creativity as something based on our experience and understanding of what we observe thus intuition affect the creativity (Boden, 1994; de Bono, 1994; Edwards, 1986).

Sandström (1995), an professor in the history of art at Lund University bases the artifact intuition on six theses when he explains the concept of intuition. Sandström's third thesis clearly underlines that which was previously mentioned; shared views of researchers in the area of HCI design states that: Intuition is simply put a resource for orientation and is not dependent on or intended to adapt and communicate, thus it is not linguistic. It must be understood on the basis of how we understand by the point of view, not how we understand through language.

Even if intuition is not a commonly shared asset in the sense that two separate individuals generally share and apply the same kind of intuition, it does not mean it is an insignificant asset in an idea-process Intuition seems to mean formation in our consciousness. It is not useless as a result of that fact, but simply requires a different channel to become active (Sandström, 1995).

For example, to understand an actors' intuition without involving the discursive language, you come through by using intuition 'language', thus, through a design- and making of design basis. With this conclusion Sandström (1995) does not refer to the premeditated and planned signing, as it is a consequence of the discursive thinking. This intuition language is a form of spontaneous signing, like 'sketches' or other unplanned 'drawings' to which we would typically not give any more attention.

A seemingly unplanned tampering can be obtained by looking at the intuition's 'groundwork' for significant formation, which suddenly becomes a path to awareness. It concludes these instances of unplanned tampering as a phenomenon going on even when the intention is to act or create something. Sketches and drawings can thus be present in our planned work, these smears a very important part of the creative work (ibid). HCI designer's sketches, drawings and intuition therefore means a lot to the development of ideas, which should be carried through the whole design process (Boden, 1994; de Bono, 1994; Edwards, 1986).

3.5 Summary

In this chapter we have further elaborated on the notion of creativity from an HCI perspective. We have presented how the domain related to the concept and how creativity is developed among HCI-professionals, both in regards to inspiration and intuition. With this presentation of creativity in HCI and previous elaboration of creativity (chapter 2) as a foundation we will in the following chapter present our research model of the inquiry.

4 Research model

4.1 Method

Creativity research is in an on-going discussion with conflicting perspective of the concept. There is for instance Harkin (1998) that argues that creativity is impossible to control while Yu (2006) claims that creativity could possibly be achieved through various methods. However, Furnham (2008) further discussed that creativity could be affected greatly by the individual's outgoing personality. Both of us felt that this discussion had to be further examined and researched with its major elements and approaches of creativity and how creativity is managed within HCI today.

4.2 Research framework

When developing our research framework, we had to thoroughly consider what problem we were going to investigate and how we best would get the answer to our question. There is also the aspect of what has been presented on the topic in previous literature. Derived from the research question as well as our presentation of creativity and innovation (chapter 2) and HCI-perceptions on creativity (chapter 3) we identified three themes that had an important role in the research. The three themes were: *Personal relation to creativity*, *Creativity in HCI*, and *Creativity methods and tools* (Table 4.1). We identified some subcategories within each of the themes that relate to the description of that specific theme. An elaborate description of each theme, including subcategories will be presented below.

Personal relation to creativity refers to the aspects that directly are related to a person's relation to creativity and how conditions affect their ability to be creative. This personal aspect is aimed at a particular person's viewpoint on creativity, assessing the definition of creativity on a more general level. It also is a personal idea of what is good and bad for their creativity. Personal relation to creativity relates to the fact that, for instance, some people believe that creativity only exists in certain areas and that creativity among HCI-professionals is often improved by discussion in groups. It all starts on a personal level when they get inspired.

Table 4.1 - Research framework

<i>Themes</i>	<i>Categories</i>
Personal relation to creativity	Definition
	Creative process
	Influencing factors
Creativity in HCI	Role
	Goal
	Components of creativity
	Freedom and Structure
Creativity Methods and Tools	Purpose of methods
	Methods

The subcategories for this theme are: *Definition*, *Creative process* and *Influencing factors*. As expressed in the previous chapters there is no singular definition of creativity, which means that how HCI-professionals define the notion might be very different. Furthermore, people can have different processes to achieve creativity or work towards creativity. As expressed in 2.1 there are several perspectives on how it could be done, but could often be seen on a more personal level. People working together could consequently have different perspectives on the same process. The last subcategory within this theme is influencing factors, which relates to what encourage and discourage a person's creativity, and could be different from person to person. Some might prefer working alone with only input from others, while others prefer to work entirely in groups.

Creativity in HCI is a narrower aspect and considers how HCI relates to creativity, and what role it has in that specific sector. In this theme there is a bigger interest in the common thoughts regarding what creativity represents in a specific sector, HCI. An important aspect that this theme includes is how they use the notion and what the goal of the creative process among HCI-professionals actually is. The theme called Creativity in HCI correlates to arguments concerning the kind of creativity existing in the domain, and statements about what is good for an HCI-professional. In this theme we identified four subcategories: *Role*, *Goal*, *Components of creativity*, and *Freedom and structure*. As seen in chapter 3 creativity has a specific role within HCI, the professionals should be creative in their work in order to develop a solution and creativity is found in many steps in their processes. In chapter 3 it is suggested that creativity in fields like HCI is a specific kind of creativity that is strongly coupled to analytical thinking, and creativity is more than just formulating ideas. The last subcategory relates to the discussion about freedom and structure. Some HCI-professionals wish for freedom while others believe that restrictions are good. Furthermore organisations, including HCI departments, need structure so great

freedom is not really possible. There are deadlines to meet, customer requirements and more.

The final theme is called *Creativity methods and tools* and refers to the methods that are being used, and in which way HCI-professionals use them. Included in the theme are also the several methods available and the noticeable increase in the interest of creativity support tools in the domain, while there at the same time is an inconsistent perspective of their importance and use. Both in the presentation of creativity and innovation in general and the narrower aspect of HCI-perceptions on creativity, there are discussions about possible methods and usable tools and how their importance is growing in organisations.

Here we found two relevant subcategories: *Purpose of methods* and *Methods*. There is the on-going discussion of how these should be used and the purpose of using methods. Methods used the right way can be very supportive in creative process. However, following methods and models too strictly should be avoided, since you then restrict your creativity. As seen in chapter 2 and chapter 3 several methods concerning creativity have been developed and are used in the HCI-sector among others. In section 2.3 we present a number of proposed methods that are used to generate creativity, not only in HCI but also for creativity in general. In the methods presented in 2.3 it is to be noted that methods that are supposed to encourage creativity can for instance help you to see things from different perspectives, allow all ideas to be heard no matter if they are feasible or not, and put up new relations.

To manage creativity you cannot only be concerned with the business managers or directors. The process of creativity must therefore be defined and understood in a personal context and something as an ongoing and never ending process of preparation, incubation and verification, described by Herring et al., (2009). In this way the linear influential process of creativity flourishes within the designer through inspiration. Through the whole project team members with shared goals proceed within the freedom that the department or organization provides in order to break paradigms and be innovative (Ladner, 2010).

5 Research methods

The methodological chapter attempts to present the chosen approach and methods for our research study. We will initially explain how the research procedure progressed, assert the primary approach and then later progress with an in depth narration of the methods used and reason to the decisions made.

5.1 Research approach

To acquire information about creativity among HCI-professionals in order to later answer our research question within these themes, data had to be collected with HCI-professionals experiences and thoughts about creativity in their work. To do so we had to conduct empirical research, where we physically or at distance conducted interviews to collect the data, which were obtained from organizations working with HCI. The data that we needed was of a qualitative fashion, thus the interest for us in this research was to use a qualitative approach. The reason why a qualitative approach is more suited than a quantitative, and why we believe that the data required is of a qualitative mode, is that the notion of creativity is not really measurable.

Furthermore we needed explanations of how the HCI-professionals work which then would be acquired through a qualitative study. Creswell (2007) explains that the approach of a qualitative research highly affects the process and design of a study, which then indicates that the researchers have to be mindful and wisely consider the decision made. There are then three important elements to consider when introducing and focusing on a qualitative research, consisting of the problem statement, purpose statement and research question. When inspecting these elements, we could conclude that the type data that we were interested in was the experiences of creativity among people in the sector of HCI.

In this research the intention is to explore the creative process among HCI-professionals and good method to gain this knowledge is to ask questions (Creswell, 2007). Taking that into account we also consider the qualitative research interview approach discussed by Kvale and Brinkmann (2009), where we as researchers attempt to understand the situation from an HCI-professionals point of view through the use of interviews.

5.2 Data collection

Elaborating on previous reasoning we decided upon using in-depth interviews. This was decided upon since interviews would give us the fullest explanations of the experiences of the process, leading up to us being able to answer the research question. This choice of method also corresponds to what Creswell (2007) says about collecting data about personal experience. Creswell (2007) testifies that it is a good and suitable tool to gather data in form of experiences and stories.

Our aim was to make the interview semi-structured since this approach will allow us to prepare questions for the interview beforehand, but at the same time leave space for possible improvisation additional questions that may be interesting to get an answer to, based on what is being said during the interview. By taking this approach the interviews will be kept more open and dynamic, allowing the interviewee some degree of freedom without losing control and direction of the interview (Kvale & Brinkmann, 2009).

Another reason why a semi-structured interview approach is a good choice and the reason to why we have chosen it is because having some structure will ease the structuring of the analysis in the latter phase of the research (Kvale & Brinkmann, 2009). Since we are conducting more than one interview, having some structure will support the comparison and pattern seeking. To deal with this structure we used the previously mentioned themes.

Kvale and Brinkmann (2009) asserts that an audio recorder is the most common method to record what is being said during an interview, since it frees the interviewer to fully concentrate on the topic and control the dynamics of the interview. Listening to this suggestion we believed that an audio recorder would be the best solution for the interview and also keep the interview flowing without missing out on information. This will in addition allow us to achieve a higher quality in the transcriptions made afterwards and ease the analysis phase.

5.2.1 Interview guide

Kvale and Brinkmann (2009) argue that a research interview is not a standardized and mechanical approach, but one where the relation between the interviewer and interviewee determines the result and knowledge that is produced during and after the interview. This suggests that a good interview should address the mentioned knowledge production, whilst maintaining good interaction between the interview and interviewee. Keeping that in mind we developed our interview guide based on themes.

A semi-structured interview approach was the most appropriate. We valued and constructed open-ended questions that were relevant for the research questions and allowed the interviewee to elaborate in their answer. Doing so will endorse a more detailed view on the research area, and leave possibilities for to ask second questions on the topic (Creswell, 2007). Using a semi-structure interview approach also means that it is possible to modify the question based what the interviewee has previously answered. The questions in our interview are thus meant to support the structure of the interview, and the areas that we are interested in. However, it does not mean that we had to follow the guide precisely, but could leave out questions that have already been covered in the discussion and it also enabled the possibility to change the order of the questions if a topic was mentioned earlier in the interview.

As most of our interviews were conducted in Swedish we chose to have the interview guide in Swedish as well (Appendix 1a). The reason for having most interviews in Swedish was because the interviewees would be more comfortable with the language and thereby allow a better discussion. One of our interviews had to be conducted in English thereby we also needed an interview guide in English (Appendix 1b). In following tables we will present how each question in our interview guide is related to the themes presented in our research model (Chapter 4). We will also explain the purpose of asking a specific question and how it relates to the previous sections of this research.

Table 5.1 – Introduction questions

<i>Question</i>	<i>Purpose</i>	<i>Theme</i>
Do you wish to be anonymous?	Find out whether the interviewee wishes to be anonymous. It concerns ethical issues of confidentiality.	Introduction
What is your position in the organisation?	Obtain picture of who the interviewee is, while also working as an introductory question and making the interviewee comfortable with the interview situation.	Introduction
What are your duties?	To get a picture of the interviewee and make the interviewee comfortable in the situation.	Introduction

As an introduction to the interview and for the purpose of making the interviewee comfortable in the interview situation, we asked some introductory questions about their position and what they do in their work (see Table 5.1). Asking about their tasks

and the position that they have, could also result in information and an understanding of why they discuss things in the way that they do.

Table 5.2 - Questions on personal relation to creativity

<i>Question</i>	<i>Purpose</i>	<i>Theme</i>
What is creativity to you?	To get an understanding of what the notion means to the interviewee.	Personal relation to creativity
How would you describe your creative process?	To get a picture of their view on the process. It also relates to what Herring et al (2009) expressed, regarding that the model and process of creativity should not be seen as linear.	Personal relation to creativity
What affects creativity positively?	To express what elements that could lead to an increased creativity. The elements that inspire creativity.	Personal relation to creativity
What affects creativity negatively?	To state what should be avoided when you have to be creative. This question could possibly relate to stress, mentioned in chapter 2 and 3.	Personal relation to creativity

Once the interviewee were somewhat more used to the interview situation, we continued with asking questions about creativity and their relation to the notion. As discussed in 2.1, there is not explicit definition of the notion and therefore we wanted to see how the interviewee related to it before continuing with further questions (see Table 5.2). By understanding how the interviewee related to the notion, we would also reduce the risk of misinterpretations in the following questions and our analysis.

The next step in the interview was to put focus on creativity in HCI. At this point we had a common understanding of the notion and now wanted to know more about its role in the domain. Here we could then get perspective to some of the claims and statements made by authors regarding HCI, seen in chapter 3. We could also get the interviewees to explain how you support and encourage creative thinking in HCI (Table 5.3Table 5.3 - Questions on creativity in HCI).

Table 5.3 - Questions on creativity in HCI

<i>Question</i>	<i>Purpose</i>	<i>Theme</i>
What role does creativity have in HCI?	To get an explanation how creativity is used in HCI and whether they find it important.	Creativity in HCI
It has been stated that a challenging part among people in HCI is to disrupt previous assumptions of an artefact and find new relations, what do you think about this?	To get the perspective of someone who is actually working with HCI, to whether this is an actual problem.	Creativity in HCI
Is disrupting previous assumption something to strive towards or should you keep to what people is familiar to?	This is a follow-up question that is meant to state whether disruption of assumption is anything that they want to attain.	Creativity in HCI
Some believe that the kind of creativity found in HCI is different from the kind seen in other domains, what do you think of this?	To get the HCI-professionals perspective on the statement. It also concerns how they believe that their creativity relates to other areas.	Creativity in HCI
Some have expressed that creativity demands freedom, but at the same time an organisation needs structure, what are your thoughts on this relation?	This intends to get a picture of the relation between two essential aspects that affects an HCI-professionals ability and process of being creative. In chapter 2 and 3 we have seen arguments from both sides. For instance the structure is what generates creativity in HCI, or also that some desire freedom in their creative process.	Creativity in HCI

Since methods and support tools can be important components to generate and improve creativity, we found it relevant to ask how they used methods. In chapter 3 some authors discussed the usage of methods, but also that you should not follow models and methods too strict (see 2.1). We therefore found it interesting to now what they referred to as methods and good usage (Table 5.4).

Table 5.4 - Questions on creativity methods and tools

<i>Question</i>	<i>Purpose</i>	<i>Theme</i>
What methods and tools do you use to support creativity?	To get a take on what kind of support that HCI-professional use. Especially since creativity has become an important aspect and competitive advantage, with several possible methods to use.	Creativity Methods and Tools
Another belief is that creativity cannot be generated through methods, what are your thoughts on that?	To understand how people in HCI see creativity and the methods that are meant to support the creative process. It then also concerns if they believe that methods are good or bad for creativity.	Creativity Methods and Tools
How should creativity support methods and tools be used?	This elaborates on how the interviewee think that people in his profession should relate to the methods and how they should be used. Hence there are some that mean that methods are bad and could be used too linear.	Creativity Methods and Tools

We used some ending questions that allowed the interviewee to further elaborate on something that they felt was missed previously or should be mentioned and had an essential role in the discussion. In addition, we decided to have an ending question to deal with confidentiality (Table 5.5).

Table 5.5 - Ending questions

<i>Question</i>	<i>Purpose</i>	<i>Theme</i>
Is there anything that you would like to add?	To give the interviewee the possibility to add information if something important is missing.	Ending question
Based on what has been said during the interview, is your position to anonymity the same or would you like to change you answer?	To ensure the interviewee that he or she still has the possibility to change their position if something has been said that might incite it.	Ending question

5.2.2 Interviewee selection

Regarding the selection of interviewees for this study, we can from our research question and purpose conclude that interviewees should be working with HCI. We wanted to find interviewees who had been involved with HCI for some years and thereby had experience in that line of work, and hopefully could elaborate on our topics. Also given that we were interested in creativity in the HCI-sector, we wanted to interview professionals in different organisations since that could give a more disperse result. Interviewing several persons in the same organisation could have the risk of resulting in similar answers since they work together. We looked up organisations which work with systems development of IS and IT and therefore have people working with HCI to find possible interviewees for the interviews. We also preferred that the interviewees have an office in Lund or Malmö, so that we could conduct our interviews in person if possible. Furthermore we chose to pick interviewees that all was involved in HCI-work, but that had different roles and approaches in the work, and in that way getting a better overview of creativity in the sector. In Table 5.6 below is a presentation of the interviewees, including the name of the organisation, the position of our interviewee, the duration of the interview, the date of when it was conducted, how it was conducted and finally the location of the office where our interviewee works.

Table 5.6 - Interview Overview

<i>Interviewee</i>	<i>Organisation</i>	<i>Position of informant</i>	<i>Duration</i>	<i>Day</i>	<i>Type of interview</i>	<i>Business location</i>
1	Jayway	Team Leader User Experience	30 min	2012-04-13	Face-to-face	Malmö
2	Anonymous	Industrial Designer	50 min	2012-04-16	Face-to-face	Confidential
3	Cybercom Group	Project Coordinator	20 min	2012-04-17	Face-to-face	Malmö
4	Anonymous	Sr Director, User Experience, CTO	40 min	2012-04-25	Phone	Confidential
5	Anonymous	Sr Level Interaction Designer	30 min	2012-04-25	Face-to-face	Confidential
6	Ubisoft: Massive Entertainment	Chief of Communications, Project Manager	15 min	2012-04-27	Face-to-face	Malmö

Interviewee 1's name is Håkan Reis and he works at Jayway (Appendix 2a). He leads the user experience team, which means that he copes with issues of interaction design, or user experience as it is also called on a daily basis. The handling of assignments in user experience means in Håkan's case daily work not only leadership of the team.

He also has to live up to the expectations of the leadership himself to work creatively in software development in the striving for peak performance applications and customer satisfaction.

Interviewee 2 chose to be anonymous, thus not much information can be given (Appendix 2b). Our anonymous interviewee works at a department that is little different from that of the previous interviewee. The specific tasks are very similar with the view that they both work with design, but it is different from the perspective that the interviewed person is also working on product design. Through his artistic background and knowledge in industrial design, he constantly copes with creativity. The wide network of team-members of Interviewee 2 works internationally wide across the globe in the organization's network. This requires good practice of tools for information sharing in order to quickly produce and share thoughts and designs to offices in the company worldwide.

Interviewee 3's name is Nevenka Silfverhielm and she works as a Business unit leader at Cybercom group, Malmö (Appendix 2c). The selection of this interviewee is based mainly on her way of coping with creativity. In her daily work she has to struggle with different complex situations which means that she must learn to balance project workers and their work as well as Cybercom Group's current approaches to achieve the best possible outcome. The project group could consist of everything from interaction designers to technical staff. This puts a great demand on Nevenka's shoulders of achieving the best possible outcome throughout the process and to make her clients satisfied with the team's work. This involves both matters of design and technical issues. These are approaches that demand great efforts and agility because of the constant change of coping with creativity is something definite as the years- and projects goes by the organization.

Interviewee 4 chose complete anonymity because of the very strong confidentiality of the company's (Appendix 2d). The respondent works with development of the next generation of products that customers desire and features that in future could be a demand in the area. This involves several groups within the company such as hardware, user interface, software, cloud computing, and our informant work as a team leader in one of these groups. It is a matter of handling complex relationships in terms of project teams with work that puts demands on the team members to work agile in order to predict future market demands. This also requires professional creative thinking to construct complex relationships and innovations.

Interviewee 5 is a senior level interaction designer in an organisation that is anonymous in our report (Appendix 2e). Our respondent is today conducting user research and participating in preliminary studies as part of the work tasks. In these studies the work consists of analysing and discussing it with the economics department to provide interpretations and user-demands, and needs. This is further analysed by modelling personas and conceptualize the designs into wireframes and

later into detailed user experience specifications developed in corporation with developers to further develop prototypes. This analytical approach in interaction design is influenced by numbers of groups with different skills. The approach demands creativity in ways of linking and create connections in terms of analytical understanding through modelling and prototyping.

Interviewee 6, Martin Hultberg works at Ubisoft - Massive Entertainment (Appendix 2f). Martin Hultberg is working with social media and with project management, with his greatest responsibility the homepage and the relations with journalists and internal communication within the Ubisoft organization. Through his previous knowledge and through his international background with jobs in the U.S., our respondent has seen how creativity may differ between different companies in different cultures, which give an interesting aspect into this area of creativity.

5.2.3 *Interviewing*

The interviews were mainly conducted face-to-face in the interviewees' offices or at an adjacent café, since we believed it would allow for a better discussion and more elaborated data compared to for instance doing the interview over the phone. Before the actual interview began we asked for permission to record the interview to allow a more accurate data collection. Thereafter we gave a short introduction to our research and purpose, but also the role of the interview. After each interview we sent out our interpretation of the data collected for validation and feedback.

5.3 **Data analysis**

We transcribed the interviews immediately after they had been done. By doing so the interview was still accurate and fresh in our minds, which then eased the process of transcription. Another reason to why we did them directly after the interview was so we could begin analysing it as soon as possible and prevent the risk of having too much to analyse at a time. As the transcriptions were completed early we had more time to send out our interpretation out for validation and feedback. The transcriptions were carried out by both of us, and then combined, to allow a higher accuracy of the interview (Kvale & Brinkmann, 2009). More about quality and ethical issues will be discussed in the next sub-chapters. In addition, we have numbered each row in our transcript tables to better allow traceability of quotations.

Kvale and Brinkmann (2009) argue that the data analysis method should be decided early and especially before the interviews are conducted. Postponing that aspect till

after the interviews may pose hard problems for the research. Keeping that in mind we developed our coding scheme before any interviews were conducted.

We decided to use open coding as a tool for analysis since it is described as a suitable data categorising method for qualitative interviews (Creswell, 2007). It would also allow us to get a better overview of what was said, and thereby ease our analysis. The coding was performed using out themes and categories, identified in our research model (chapter 4). Since the coding was made in our interview transcripts we used acronyms to represent the categories, seen in the right column of Table 5.7. The code acronyms are set up in the following way: The first letter of the words in respective categories, for instance ‘Creative Process’, has the corresponding acronym ‘CP’.

Table 5.7 - Coding scheme for data analysis

<i>Themes</i>	<i>Categories</i>	<i>Code acronyms</i>
Personal relation to creativity	Definition	D
	Creative process	CP
	Influencing factors	IF
Creativity in HCI	Role	R
	Goal	G
	Components of creativity	CC
	Freedom and Structure	FS
Creativity Methods and Tools	Purpose of methods	PM
	Methods	M

Before beginning the actual coding of the transcripts we read through them to get a better view of what was said. Then both of us performed the coding separately and later compared how we coded it. Performing coding will also allow an efficient analysis process, thus it is easier to see what parts and discussion that is relevant for a particular component in the analysis. To get a better overview of the coding we made the transcripts in tabular form with a column specifically for the codes. Through a discussion we merged the coding of our own assessment of each transcript, into one final coding.

5.4 Research quality

Regarding quality in qualitative research there are three issues that are commonly discussed: Validity, reliability and repeatability. There is not an explicit definition of quality or a method to measure quality in qualitative research, but it is still a highly

important aspect to consider (Seale, 1999). In the following section we will explain how we have worked with aspects of quality.

5.4.1 *Reliability*

Kvale and Brinkmann (2009) describes reliability as whether a result is reproducible or not, meaning if another research would give the same output as a previous one. We have taken this into consideration and decided to cope with this by having several interviews with people within HCI but in different organisations, and thus get a broader view on the topic. To ensure reliability of our research, we also decided that both of us would do each transcript directly after the interview had been conducted, so that we later could compare and see if there were any differences in our interpretation of the interview (Kvale and Brinkmann, 2009).

5.4.2 *Validity*

Seale (1999) states that an expressed thought regarding choosing a qualitative approach of research is that external validity can become difficult. This claim is based on the limitation of interviews that is conducted in qualitative research. External validity refers to being able to generalize the propositions derived from a scientific research. If you have a quantitative research approach this becomes easier since you have a larger sample, while in a qualitative approach this is more limited. Kvale and Brinkmann (2009) also elaborate on the subject, expressing the number of interviews needed to achieve this level of validity cannot be specifically stated, since it highly depends on the context of the research. Then there is however the related question of what is the maximum number of interviews. Kvale and Brinkmann (2009) argues that a researcher in this situation faces the conflict of increasing the number of interviews or conducting penetrating analyses, in relation to the timeframe of a research project. Considering our problem statement we decided that conducting six interviews would be appropriate. By conducting six interviews, we would have enough perspectives to establish a good discussion and at the same time have a manageable amount of interviews.

Based on that we were conducting interviews we also considered member validation (Kvale & Brinkmann, 2009) in concern of validity. Using this method helped to improve the accuracy of our study, by giving the report to the interviewees to assess our interpretation of the interview. If we have interpreted something said during the interview in a different way than what the interviewee meant, he or she will have the opportunity to inform us about it.

5.4.3 *Bias*

A more simple way of looking at issues concerning validity is to break it down into error and bias (Norris, 1997). Bias is said to be a common and still growing phenomenon in social science, but also that it is easier to detect bias in the judgement of other people rather than in that your own (Hammersley & Gomm, 1997; Ehrlinger, Gilovich & Ross, 2005). To deal with this we decided to have people, friends and supervisor, to look at the inquiry as it proceeds and give feedback on the content.

5.4.4 *Research ethics*

The data collection approach chosen for this study was as said qualitative interviews, thus interviewing people would raise some ethical considerations in our research. Using a recorder during an interview is one important element that had to be considered before the interview, consequently before starting the interview we asked if we could record and our purpose of recording it. By doing so the interviewee knew how we meant to use it and what would become of the recording.

The important concern while conducting interviews is confidentiality. To deal with this aspect we asked as a first question if they wanted to be kept anonymous and if the name of the organisations of which they worked for also should be kept out of the research. Dealing with that aspect initially would allow the interviewee to speak more freely and not consider the aspect during the rest of the interview. We also decided to ask an ending question about it as well, because we wanted to respect the confidentiality and remind the interviewees that they still had the opportunity to be anonymous if anything mentioned in the interview would prompt that choice.

There was also the aspect of confidentiality in our transcriptions developed from our interview recordings. Consequently the transcripts were sent back to the interviewees for validation, and also giving the opportunity to remove anything that they did not want in our research or that could give away confidential information.

6 Empirical findings

In this chapter we will present the information that was collected through the interviews. We will go through each of the themes that we presented in our research model, explaining the discussion that each of the interviewees have had within that theme. We have decided to keep the interviewees answers separate when there are differences in their answers, in that way giving better overview of who said what and how their perspectives differentiate from the others.

6.1 Personal relation to creativity

Initially we will begin with the theme concerning their view on creativity. Their explanation of what the notion means and how the creative process proceeds will be presented, often related to their work, but also which factors that according to them influence the ability to be creative.

6.1.1 Definition

Interviewee 1 means that creativity is a notion that can occur in several different situations. To be creative does not necessarily mean that you start with blank paper and develops something entirely new, instead creativity is to find a solution to what is desired and what needs to be achieved. So if you work with a customer in a project, you have to identify what the customer want to achieve with the product that is being developed, and therefore work within the frames and restriction that then arises. In contrast to the information presented in chapter 2 regarding the relation between creativity and innovation, the interviewee considers this as somewhat incorrect. Because what we call innovation or innovative products on interaction level rather are tests of combining technology or methods that has existed for some time. He also states that innovation is a trite notion that is not explicitly related to creativity. To support his reasoning he relates it to the first iPhone. “[...] If you look at the iPhone when it was first released, it seemed very innovative, but on an interaction design level it is old technique, how to speak model, it is nothing strange really” (interviewee 1, Appendix 2a, R28, translated).

Interviewee 2 basically has the same view on the concept, stating that creativity relates to finding new opportunities that earlier was not considered or not visible. The interviewee further continues on interviewee 1's argument concerning the relation between innovation and creativity, stating that innovation rather involves putting two things together with an outcome that is greater than the two parts had individually. Instead creativity could be seen as a large piece of innovation.

Interviewee 3 states that creativity as a notion refers to the ability to find solutions to challenges or problems. Regarding the relation between creativity and innovation, what often are done are small creative adjustments, while innovation instead would mean revolutionary new products. The interviewee then suggests that innovation, would involve major changes but that this aspect of creativity is not always desired.

Our fourth interviewee believes that creativity is often linked to the design-area. The informant also deems that creativity is more than that so therefore it is not just about coming up with new ideas. Creativity can thus be seen in several areas, such as the more production-oriented ones. A good creative-capability is therefore to be able to see needs and solutions in these areas, both big and small. Our fourth informant points out that a creative individual can not only focus on the obvious solutions, but also need to think outside the box in order to challenge the rules, methods and old assumptions about how a particular thing should be. Creativity can result in small changes, such as incremental improvements, and thereby do not have to be big creative breakthroughs. These incremental improvements can be seen as inventions, whereas innovations instead mean entirely new technical solutions, never before considered.

Our fifth interviewee argues that creativity is when you try to develop different solution to a problem within certain restrictions, by thinking in new ways. The interviewee means that creativity is very human, and is established when a person is inspired. Creativity is also related to innovation, thus innovation must begin somewhere. There is always something that sparks innovation, and this process may involve some creativity. Innovation could however be either incremental or radical, meaning small steps forward or a big step forward in the development.

Interviewee 6 maintains that freedom and creativity is closely connected because without freedom creativity is withheld and similarly when there is creativity, freedom will also come. Innovation can be seen as a subset of creativity, a product does not need to be new to be creative. On the contrary you can take something that already exists and further develop it. Interviewee 6 maintains that this could still be considered creative but not necessarily innovative. “[...] I do not think that they necessarily are related, I have met people that I would consider as innovative, but that I do not perceive as creative” (interviewee 6, Appendix 2f, R30, translated). The two notions are thereby not fully related, where one would automatically imply the other.

Technically oriented people daily develop new types of processors and other technical innovations, which might not automatically be linked to creativity. This development could instead be seen as pushing an already existing product into new usable areas.

6.1.2 *The creative process*

In discussion of how creativity occurs as a process, interviewee 1 means that initially you would have to discuss the topic a lot in order to understand what it is you would want to achieve. This also includes having an understanding of the organisation's values. When you have that understanding you could look for inspiration in other areas, and possibilities that you may use in your idea. An important aspect in this process is to not look to a certain way of thinking or doing things. It should also be seen as an iterative process, where it is allowed to start over and develop several possible ideas. The process is never entirely over, you should strive towards developing the idea and details of it.

Interviewee 2 describes the creative process as beginning with an analysis of data. The analysis of the data should then be turned into knowledge and developing an understanding of the situation based on the needs. Once you have the understanding and the knowledge, the process for creating ideas based on the findings has to be developed. Then finally is the presentation and implementation of the idea that has been developed in the process.

Interviewee 3 elaborates on the creative process in their work, where the process often is influenced from two sides. Where there at first is a need from a customer that is analysed through posing questions and establish understanding between both parts and a description of the problem. Then there is a second side where you aim at finding a solution to this problem. Important during this part is to develop several solutions on problem and in that way find several approaches. In agreement with interviewee 1, there should also be a stage where you find inspirations in other areas and what is going on in the industry, which later could be used in the solution. To improve the idea you could also go back and do the exact opposite from the proposed idea, and in that way find things that you previously did not consider. The process could in this stage be seen as iterative.

Our fourth interviewee argues that creativity can appear everywhere in an organization but in different forms. Often it is associated with the interaction design department, but creativity as such is broader than simply coming up with new ideas and ways of designing interfaces. To have great creative capability is a way to have a disruptive view on things and thus find out needs of improvement and solutions to these things. It does not have to be the most obvious but something that questions old methodologies and assumptions in a specific area.

Our fourth respondent further argues that in the technical part of the creativity process it is more about finding a problem for an already given solution. Often creativity starts in the other end. Innovation is not just about finding a solution, but focusing on specific valuable problems that must be solved. It is a whole chain of finding relevance, problems are solved and innovation is the specific solution itself.

When asked to describe the creative process, interviewee 5 states that it should be seen as vastly iterative. In the establishment of creativity you are continuously moving between a detailed level and a high level of focus. The interviewee states that you jump between these focus levels and try to understand a problem from different angles. The creativity process is actually a process of problem solving or a process of idea creation, based on the point of view.

Interviewee 6 argues the creativity process often starts with a very type specific task or an idea, it can be a task or idea that the group is given or something that comes from within the group. The creative process can start in both of these two ways, dependent on the current area of the project. An artist or a graphic designer does not have the need to collect materials. Inspiration may come from movies, online information or similarly. In quantitative work, rather than qualitative work, statistical data and other sources is needed for inspiration. One of these methods is to provide user testing in order to analyze how they interact in different environments. The respondent further describes that Massive have a good cooperation with Malmö Högskola and other universities where researchers gathers information in this area on fulltime. But the best type of testing is the mentioned user scenario analyzes, which gives direct connection in the current context.

6.1.3 Influencing factors

In this creative process there are different factors that may either impair or improve the process. In the HCI-sector this could be when there is no opinion from a customer or user. An additional aspect that improves a person's ability to be creative is the working environment. If you are comfortable in the environment it is easier to be creative. That also includes having someone to collaborate with. If you work alone you would lose the essential input that you may get from a co-worker. Because that input is also something that triggers a person's creativity. However this discussion with some other person should not be constant, there should be opportunities to be alone and focus on something and then later get input on it.

Interviewee 2 reasons that a factor that could have influence is fear of failing. What is important in order to encourage creativity is to be allowed to fail. "[...] If you are always on the tip of your toes and very afraid of failing all the time, you will never

take any risks and thereby cannot be creative” (Interviewee 2, Appendix 2B, R8). You should instead avoid killing the creativity by saying no. An alternative approach would be to say maybe to new ideas and thereby allow people to be creative. Mixing people with different experiences and from different disciplines is also an approach to improve creativity.

The third interviewee maintains that an important aspect when developing new and creative ideas is to have a mix of people and not only a certain type. In order to have good creative process there should also be a good dialogue in the group and to customers, if you look to an organisation. To improve the creativity there should also be a possibility to get input on new ideas. Interviewee 3 argues that something that influences people’s creativity is that there is a belief that entirely new products or ideas are finer or better. That then could lead to people focusing a bit too much on that aspect instead of small improvements or adjustments that may be more profitable.

Interviewee 4 states that a process of creativity often involves more than one individual because the outcome is affected positively when various competences are mixed. In order to influence creativity basic needs must be satisfied like salary and good tools to work with, but using bonuses and using money as an incentive has been proved to not work when trying to raise the intrinsic motivation and creative ambitions. Instead an individual should be given space to be creative and be able to think and look at things from a wider perspective in order to see beyond the normal routines.

Respondent 4 further argues that Google has adapted this approach. Their employees can use 20% of the business hours to think outside the box. It is however important not to break all boundaries in pursuit of total freedom, and a framework should neither be too strictly followed. These boundaries can also be characterized in lack of time during work. This lack of time will lead to fast deliveries which means that just the essential parts of the product is constructed. One way to allow freedom could be to accept failure. A possible failure will give you future knowledge and ways of improvement. If you always succeed, then it is just a sign that you do not aim high enough.

“[...] It should be playful and it should be enjoyable and involve some experimentation” (Interviewee 5, Appendix 2e, R10, translated). To achieve all these factors you have to be allowed to test new ideas. Inspiration is also very important, it can be from a product or anything else you see or hear. Not being encouraged or allowed to test idea and experiment would consequently have the opposite effect on creativity. A negative factor on creativity that often may occur is the lack of time and thus not having the time to test and experiment. Creativity is also negatively influenced when you are late into a process in a project, meaning that you have missed the earlier stages of the process.

Interviewee 6 argues that in order to be truly creative it is detrimental to be controlled or restricted my methods and approaches. Creativity is also damaged trough lack of this restrictions or methods because the task-focus will be uncertain. A project group should therefore not have too much, and at the same time not too few limitations. This is something you are currently doing in a business where efficiency, costs, time, and quality is emphasized in order to at the same time be creative. If you compare this with an artist's work, an artist acts on his or her own and thereby can decide the focus. It is because of these factors that there exist so many artists but only a few that are truly successful because it is hard to find a focus. In interaction design there is lots of space for creativity, humans continuously change and adapt to how we interact with things, thereby the development must proceed in the same direction through creativity and innovation.

6.2 Creativity in HCI

Once having the understanding of what the notion and process meant for our interviewee we narrowed our focus on Human Computer Interaction (HCI). In this section we will present a further elaboration of creativity's importance and use in the domain.

6.2.1 *Role*

Interviewee 1 means that when discussing the role of creativity in HCI it is about finding the possibilities to what a customer or user want to achieve, however you cannot just say 'this is how it should be done'. An important element in creativity within HCI is to fully understand the needs and why people feel in a certain way about an interaction. It is after you have done that that you can suggest or convince them of the direction of the solution.

Creativity has a huge role in HCI, according to interviewee 2. Where there are two aspects, Organisation having an HCI department that works a lot of with the analytical part in creativity, resulting in small adjustments of existing objects. There is also the opposite that instead focuses on mainly the creativity and make very interesting stuff, but possibly not as usable as the previous aspect.

Our third interviewee believes that it is the small creative adjustments of existing things that have of most interest in the creative process within HCI. This leads to consequently finding ways to improve the products that already have been developed.

Interviewee 4 reasons that the role of a creative person is often linked to a designer, but it could as well be craftsmen or other professional roles. In the same way as craftsmen's work, an interaction designer's work often consists of routine tasks such as doing storyboards, wireframes, often it is more the initial phases the creative work takes place where to problem must be fixed.

Interviewee 5 maintains that creativity is very important in HCI, but that you also have to have discipline in your work, since there are restrictions. Creativity is often used in HCI to attack a problem from different angles and thereby find new possible improvements, but also solutions to problems and ideas of new products.

Our sixth informant argues that it is important for an organization to fully understand creativity, an organization should therefore not just say 'today we work with creativity' but rather try to embrace creativity in the workplace atmosphere and a culture which allows creativity to exist. At Massive this is currently achieved through facilities, surroundings and processes that allow creativity. Today creativity is a very common buzzword, which every organization emphasis but to do this, the artefact must be fully understood. Sometimes resources for a creative atmosphere are not available but it is important to look in a broader perspective because investments could pay off in the long run. Creativity is a very important area but it is also easier for a smaller company than a bigger one because of less external and internal pressures as well as complex relations.

6.2.2 Goal

Another aspect to analyse is the goal of the creative process in HCI, we now know how it is used and that it should solve a problem. It could also help to achieve something, but is the goal is to develop an entirely new idea or improve an already existing solution.

Interviewee 1 maintains that HCI work often relates to using previously developed assumptions and making small developments on these, which then also means that the users are familiar with a certain method or type of usage. People working with HCI probability should work more with and in a greater detail consider how you should break these forms in the creative process. However, the goal of developing a product may differ. Sometimes it is good to look for entirely new ideas whereas sometimes it is better to keep an existing assumption. When the existing usage or model does not work then you should look for alternative possibilities. The interviewee states that you should be careful when adhering to an existing model, thus it is of great benefit that users are familiar with it. This is done in order to distinguish which the goal should be and how HCI-professional would to be able to see if there is something that prompts

it. It is important to also keep in mind the fact that HCI really is about allowing the user to achieve his or her goals.

In contrast to interviewee 1, interviewee 2 mean that their work often relates to breaking paradigms and development of something new. It should not be blindly focused on rather as something inventive and as an optional accessory to the core product. “[...] Breaking patterns should not be the first and foremost objective. Your primary goal should be to make the user happy and if it comes to breaking a paradigm of patterns along the road, so be it” (Interviewee 2, Appendix 2b, R22).

Interviewee 3 proposes that the goal is to always move forward, and that breaking the previous assumption could thereby be essential. In fields like mobile services you have to continually move forward since the area rapidly evolves. So in that sense you cannot keep repeating what done but instead keep pushing forward. The goal is however also to solve the problems that a customer cannot solve on their own.

Interviewee 4 maintains that a creative approach is about finding problems and later to find approaches and solutions never thought of before, or even in areas where there exists other ideas. For instance, this was introduced with Apple’s iPhone that in 2006 exchanged the keypad with a touchscreen for direct manipulation. Now in retrospect we can see that this change later became the new standard.

Our fifth interviewee believes that the goal of creativity should not be to always break assumptions and paradigms, but you cannot only focus on working with what people are familiar to either. You should try to push the development forward but it is at the same time important that a customer group is familiar with the product, thus it is for them you develop the product.

Interviewee 6 argues that interaction design is about designing ways of interaction between a human and a device. Art on the other hand is only a matter of expression and opinion rather than thinking of the viewer as a customer and is thereby very subjective. Our respondent argues that interaction design thereby demands a more objective view, which in turn requires more analysis. Creativity and methods plays a major role in order to drive development forward but also the breaking of old design-patterns. Breaking patterns is nothing you should fully strive for. It is also important that the core-product that the user wants must be realized. However you should not be afraid to try a new twist on the product.

Respondent 6 continues with that there are certain conventions that should be followed. One if these concern how a PlayStation control works. The user is accustomed to shoot or jump on specific buttons from previous or similar games and therefore the specific way of how to maneuver. In these cases it is better to not make any big differences to the button layout, because otherwise players would have to

spend some initial time to learn and get used to the controls. Other areas that Massive rather focuses on are to present information or in the gameplay itself.

6.2.3 *Components of creativity*

In chapter 3 researchers meant that the creativity in areas like HCI involved more components than just pure creativity. HCI-professional also needed to be more analytical in their creativity (see 3.3).

Interviewee 1 means that creativity could be seen in all parts of an organisation and that creativity actually relates to your knowledge base. If you have knowledge and know how the work in the sector is done than you would also have to be creative and analytical. Creativity could consequently be seen as an own discipline within each domain.

Interviewee 2 agrees that analytical skill is needed in HCI. For instance it might be tempting to construct something in a certain way that would seem like an interesting and creative solution, but you would also have to consider whether that idea would actually achieve the purpose of the product. “[...] It is very tempting to design a curved table just to be original but your coffee cup will fall down so you have to think about that. That is really an easy way to explain it. So you have to be analytical to a certain degree whenever there are users involved” (Interviewee 2, Appendix 2b, R23).

The third interviewee also confirms that analytical thinking in creativity is highly needed. In a field like this one there is not much time for trial-and-error, thus you cannot test an idea and adjust and test again, like you could in some other creative areas. If so it would result in bad product that no customer would buy. Instead you should spend time on the analytical part of the creative process. In this analytical part you should then develop hypothesis and find a way to test this, consequently doing the testing earlier in the process. Doing this testing early would also assess whether an idea is possible or not, without having spent much time working on it.

Our fourth interviewee maintains the roles of art and design is alike in the fact to challenge the assumptions. No matter if it is programming, technical-, design or business models the same mechanisms are in play and there are rather similarities.

When discussing what creativity consists of in HCI, interviewee 5 means that the ideas of an HCI-professional have to be based somewhere. Meaning that he or she has to think of the user, where it should be used, how it should be used and so on. This part of creativity may thereby involve a lot analytical thinking at the same time and consideration of advantages and disadvantages of ideas.

The sixth interviewee means that an important aspect in creativity is to have a goal-focus, which can be maintained through methods to pursue the core product based on target group demands.

6.2.4 *Freedom and structure*

There is a discussion whether constraints are good or bad for creativity. In our interview with interviewee 1, he meant that this relation rather had to be balanced. Freedom is needed in order to focus on your task and feel relaxed with the project you are working on. HCI-professionals would need some freedom to let go and start over with fresh thoughts. However this balance might look differently in different organisations. In a consulting organisation there could sometimes be too much freedom, whereas it in other organisations could be a much more structured plan of what has to be done. “If you have frames for project it is easier to get started, but it is always a balancing act. There is no easy answer in any direction” (Interviewee 1, Appendix 2a, R49, translated)

Interviewee 2 reasons that when looking at people that are considered to have been very creative in history, they all had a lot of freedom and freedom in thinking about the problem. There are however two different aspects to this topic where the first one has a lot of freedom and may lead to major leaps forward. The second aspect is where you would have to be very fast in the creative process with clear restrictions of what should be done.

The third interviewee maintains that the work done in the domain rather is within a clear structure and frame, stating what is required and should be done. If you want freedom with your creativity, you should probably work with something else since that is not how things work in this aspect of development. It is allowed to test the structure and the frame. If there is complete freedom in your creativity it is likely that not much will be done. The interviewee also reasons that having too much freedom would cause boredom. It is the actually the structure that is created in an organisation's work is that triggers creativity.

In interviewee 4's current work, creative processes are hard to establish since they work in long term. This in turn raises their creative approach in matters of freedom and structure. Urgent problems are relatively well defined and what is to be done is very clear. Long-term issues are more flexible but still come with demands that need to be met. Additionally, the structure can affect creativity positively through separating a group of individuals from a team to not be involved in the current day to day work and rather work more long term in order to be creative and test things. Switching the members of these groups can test new perspectives and approaches. It

also creates room for failure, which in turn favors creativity because when individuals dare to take risks great knowledge will be collected.

In agreement with what previous interviewees have said, interviewee 5 states that there have to be balance between freedom and structure. She also confirms that as an HCI-professional you may sometimes wish for more freedom to test several different ideas, since there might be several solutions to one problem, but there have to be reasonable limits to this freedom. An additional factor to this discussion is therefore trust, and the trust in the HCI-professionals to manage more freedom.

As underlined by our previous interviewees, informant six also argues for a balance between freedom and creativity. “You cannot have creativity without a great deal of freedom. A lot of freedom often occur as a result of creativity, so they are very closely related” (Interviewee 6, Appendix 2f, R10, translated). What guides creativity forward is the ability to understand what creativity is, mentioned under influential factors. Creativity is very easy to strangle through strict methods, rules and frames. In the same way it is as easy to eliminate creativity through complete freedom.

6.3 Creativity methods and tools

The focuses will here lie on discussing the current state of organizations on how the organization manages creativity and its significant role in its components such as basic knowledge, experience and structures to work within. We will therefore naturally investigate of how these structures look like in organizations today in forms of methods and approaches.

The interviewees stated in the previous section 6.2.4 Freedom and structure that creativity is rests on a balance between freedom and structure and these two components influence each other. Interviewee 2 pointed out that freedom as well as the structure could have a different focus on creativity, for example described in (Appendix 2a; Appendix 2b; Appendix 2c) which states that the organisation’s current way of working plays a major role in how creativity currently is focused. The interviewees further argues that even the choice of not using a method, is a method, and no method is definite. A method could thereby not work as a standardisation for creativity, even if many companies try to establish a model like this. This all relates to that developing creativity is a difficult thing because of the problem of measuring the concept and idea of creativity.

In our presentation of creativity in chapter 2 and chapter 3, we may conclude that creativity may be difficult and thereby there are several developed methods and approaches to encourage and generate creativity. This discussion is also something

that we elaborated on with our interviewees during each interview. Below you will see a presentation of what they believe is the purpose of using methods and what kind of methods that they are currently using.

6.3.1 Purpose of methods

Interviewee 1 and interviewee 3 reason that using and testing methods must be seen as a process in which the fear of changing a method should not exist. If a method does not work, it is better to change, develop it further or simply replace it. The informants believe that there is no method that works for all types of projects or organizations without the need to try things out and strive for perfection in order to further gain an edge on its solution.

The interviewees at Cybercom (3) and Jayway (1) believe that their development by agile teams very often resolves in them being able to see how they are currently working and how this process works. Considering a method does not become perfect for all team members, the aim is always what is perfect for the team as a whole. Most important is, as mentioned above, to understand what is happening, what works and what does not work and then build it up again. To create a good HCI design processes must be well thought out, if a user or customer cannot understand a specific aspect and what is about right quickly he loses interest and the product is likely to fail.

Interviewee 1 further underlines if you are new to something, then rules and guidelines and to follow a process could be really good. But once you understand why you are following this process then you have right to break rules by experience and build your own processes and methods. Problems arise if you do not get to this level of understanding and still is trying to break the rules or understand why they should or can be broken, and then you have with certainty locked yourself up.

Interviewee 2 argues that what are becoming really important are people and the fact that you have to nurture people's creativity in some way. The choice of methodology is not that important because the ideas will come up in one way or another, since it is impossible to turn off the creativity of a creative designer. At the same time it is important to keep in mind that you cannot just exploit people for their ideas by forcing creativity from their ideas either because this might drain them in the long run. The informant further argues that creativity and talent management is thereby not an easy thing to do, which means that you must find a balance between structure and freedom. Interviewee 2 further reasons that we cannot just say that we should free all boundaries and hope things just works out. By the external and internal pressures of the great corporation, like investors and media the informant explains that you cannot break all boundaries for complete freedom because too much is at risk of being lost. However, in a smaller company you could at least to some degree take the

approach illustrated by informant 1 and 3 in the sense of building actions on knowledge.

Interviewee 3 believes that forcing yourself to see things from multiple perspectives creates a problem because naturally we are very fond of our own solutions, especially the first that often can be seen as fantastic, but it is at the same time rarely the best solution. Interviewee 3 further argues that avoiding this thinking, by breaking patterns, and thereby finding new ways of thinking, is where methods play an important role. One method for doing this could be to use a method where you develop an opposing solution to the one you already have and through this recognize more aspects that you did not see earlier.

Interviewee 4 expresses that methods with different forms of brainstorming opens up and gives you the ability to see various perspectives. Roles and scenarios are just a few among many used methods. These methods of focus are used to develop new ideas and approaches for the project, from these findings a sample is created to narrow the specific focus and find a possible solution.

Our fifth interviewee continues on what the previous interviewees have said, reasoning that the purpose of using methods in the creativity work within HCI is to overcome deadlocks. They help you to see a problem in different aspects, and thus help you to better understand the problem and what it may involve. At the same time you should avoid maintaining the one and same method and instead try several different methods through which you may find new paths and perspectives.

Interviewee number 6 argues that the purpose of methods is to work as guidelines to promote creativity. These methods must work on an individual level in order for the group to be creative. Individuals should not be afraid to come up with new ideas or try something new. The business must therefore have the tolerance for experimentation and thereby also the acceptance that experiments may fail. It is essential that creativity not is bound to roles but instead have a meritocracy which is characterized by a workplace where the best ideas wins no matter who the idea came from. The interview also reasons that this is different in the USA where roles are stricter and only specific individuals are allowed to be creative.

6.3.2 Methods

Some more basic methods are according to interviewee 1 the communication and the ability to consistently discuss new ideas for solving a specific problem as it is often in these cases the opportunity to work creatively and come up with an interesting solution sparks. This communication is not there to convince the counterpart, but rather a phase of listening and reflection. At Jayway where interviewee 1 works they

use methods and working-models like workshops or similar methods. There is however no method that is definite and their choice of method often depends more on the project's design and what is to be created. Methods commonly used during the workshops are for instance brainstorming, whiteboard, and sketches. The interviewee maintains that the most viable tool is still pen and paper.

According to interviewee 2, the phase of communication, listening and reflection is basically the same as brainstorming, except that the phase of brainstorming mainly strives to produce the highest amount of ideas in the shortest given time. This would lack emphasis on the actual creativity. Therefore the interviewee's company rather focus on workshops where the phase of producing ideas is a bit slower and everybody has their own voice without the demand of producing ideas every five seconds. During workshops the team-members has the opportunity to collect various views and gain knowledge in a structured way. Even as of today sketching is the most useful tool, but in contrast to Jayway sketches are done in other forms at interviewee 2's company. Their sketches are instead performed through video prototyping with testing and digital manipulation when working with scenario testing through several inputs in different contexts. Interviewee two further argues that all corporations must experiment with creativity. You cannot choose a standard method; the method has to be developed in the specific project, because the only certain constant is change itself.

Interviewee 3 underlines that creativity sparks at Cybercom Group once the introductory communication stage is initialized. This phase also is set off by working agile in such an extent it is possible and also by mixing their teams together with project managers, system architects, sales persons and the like. This team of different roles links knowledge and different approaches towards a common goal, which in turn requires cooperation and communication. Interviewee 3 further argues that by setting up goals and defining what has to be done as sub goals in an early stage a theme is established. This theme makes it easier for the team members to work more accurately with a clear goal-focus.

One method used by interviewee 4 is to have specific days when the organisation can operate with a variety of scopes and approaches for outside the box thinking. These are procedures that the personnel not are used to work with and this highlights essential perspectives and problem areas for further investigation. During this day the staff is able to solve their problems in their way, using coding, video recording, or developing prototypes and the like. The respondent further argues that creativity can be developed through simple frameworks, which creates ways of thinking, approaches and focus as through various forms of brainstorming and low-, high-fidelity prototyping, demos or testing proceeded stepwise in loops in order to create substance and sending the issues onwards. The problem formulation might be defined in several ways in order to loosen or tighten the freedom of structure. It can also be managed with roles and scenarios.

Interviewee 5 explains that there are several methods to use and that they actually use numerous, but preferable are methods that are quick and easy. Some of the methods used are affinity sorting, card sorting and brainstorming. The type of method that is used is based on the problem that needs a solution, meaning that they adjust the method to different types of problems. The interviewee also express that the work is done in groups, thereby they use methods that actually are meant for groups.

Interviewee 6 suggests that no single method is used for every project, but instead a variety of methods that are suitable for the specific project and individuals are used. This is because complexity and environmental factors changes in the same way projects and humans do. Methods that could be used during the project's different phases could be everything from testing with user testing, prototyping and Synectics problem-solving methods.

7 Discussion

In this chapter we will discuss findings from our empirical research in relation to the literature presented in chapters 2 and 3. We will divide the discussion into the three themes that were identified in our research model and have been used throughout the report: Personal relation to creativity, Creativity in HCI, and Creativity methods and tools.

7.1 Personal relation to creativity

By comparing the interviewees' view on creativity we can conclude that there are some differences in their definition of creativity, and how and when it occur. These differences in the definition of creativity could be because they all work in different organisations and they have different views on creativity. Since there is not one explicit definition of creativity (Herring et al., 2009), there is not one right approach towards it. What is interesting is how creativity relates to innovation. As seen in our introduction, and sections 2.2, 2.3 and 3.3, research often relates the two notions, and discusses them as almost a singular entity. For instance saying that creativity and innovation has become an increasingly important role for an organisation's survival (see 2.2) but they also express a usual part in in the work within the HCI-domain (3.4).

From our empirical research (chapter 6) it can be observed that the notion of innovation has somewhat similar meaning to the people who are actually involved in the HCI-processes, but that it not always related to creativity or it is simply a minor subset. Interviewee 1 meant that this notion is trite and did not involve creativity, thus it just is a test of already existing technologies and if it succeeds it will be called innovative. According to interviewee 3 and interviewee 4 innovation would lead to revolutionary new products that is developed through major changes, this is however contradicting to what Norman (2010) said. According to Norman (2010) most innovations are small and simple, but he also adds that major innovations occur but that they are rare (see 3.4). Interviewee 2 has similar thoughts and further elaborates on innovation being when you put two things together that result in a higher outcome than they had individually.

Interviewee 3 also argues that creativity does not have a big role in innovation, instead creativity could be seen as a lot of innovation. Our sixth informant continues on this argument stating that innovation is a subset in creativity. However what is innovative does not have to be creative and vice versa. Interviewee 5 means that innovation has to begin somewhere and that is where creativity is needed. This means that the interviewees have somewhat dispersed views on the relation between creativity and innovation, but in their reasoning regarding the two notions they do share similarities and shared perspectives. As a summary of how the interviewees relate to innovation and creativity you could say that creativity is a lot of innovation, whereas innovation involves little creativity. An interesting aspect to this perspective if you relate it to the thought of creativity being problematic to establish, seen in 3.3, it would hypothetically mean that it is easier to be innovative than creative, at least from that perspective. There is yet the standpoint that the test of combining technologies or methods would have to be successful to be innovative. Then if you keep testing you could possibly develop something that will be seen as revolutionary, new and innovative. As an elaboration to this discussion interviewee 6 argues that a new development do not have to be particularly creative, it could just strive to push something existing into new areas of usability.

Something that was expressed in 2.1 was that the creative process never should be seen as linear, thus it will not be used in an optimal manner. By analysing our empirical findings some of our responders expresses that the process actually is iterative. Responder 1 has an essential point to discussion when advocating iteration, maintaining that the process is never over and that you always should try to improve the idea. That is probably what Herring et al (2009) meant as the correct alternative to the creativity process, allowing movements between steps in any direction. The other interviewees that did not mention this aspect of the creative process either do not consider it as an iterative process or forgot to mention it.

If we instead look at what the interviewees considered as positively influencing factors in this creative process, environment, restrictions, input, opinions, and mixing people were mentioned. These aspects all go pretty much goes in line with what was presented in section 2.3. Two additional influencing factors that we had not found much or anything written about in the literature and these were especially interesting fear of failure and the belief that new is better. Tharp and Reite (2003) shortly mentioned that fear of failure was a barrier for creativity, but not providing a broader elaboration on the topic. Interviewee 2 means that not allowing failure causes people to not take any risk, which will result in less progress. An alternative proposed approach is to avoid saying no and instead use the word maybe, which might yield better results and subsequently does not kill off creativity. Interviewee 4 further argues that if you never fail, you are not aiming high enough. As a conclusion this would mean that always succeeding with the work in HCI-projects would indicate low creativity and that it is valuable for future work if some projects fail.

The other interesting negatively influential factor mentioned was that there is a belief among people in development that entirely new is better. This could mean that what makes creativity so difficult is that people primarily focus on finding an entirely new concept or product instead of finding the small improvements and adjustments, that may be more desired for the customer or user.

7.2 Creativity in HCI

By looking at the data presented in our empirical findings the interviewees stresses some different factors. Where interviewee 1 means that you have to be able see when to you need to change something, and that sticking to what people is familiar is not something faulty. Interview 6 also elaborates on the subject reasoning that in some cases it is preferred not to break the assumption or standards of how something has been used or are used elsewhere, since it would ease the learning curve. Interviewee 2 states that much of the work is to break paradigms and develop something new. Interviewee 3 and 4 are also leaning more to finding new methods. In interviewee 3's case this is because the mobile services are rapidly changing so you need to continuously try to move forward, by looking outside the existing paradigms and assumption to find new alternatives. Our fifth and sixth interviewee has a more balanced view on the goal. They believe that you cannot fully strive towards creative breakthroughs and breaking previous assumption, not always because that would be damaging.

Though they have different goals in their creative process, all of them mean that the primary goal is to help the customer make the users happy. From this comparison it is not as easy as saying that breaking assumptions in in creativity is problematic among HCI-professionals, since this apparently is not a primary goal in all organisations or HCI-departments. It was stated by the interviewees that the small adjustments were most important in development, since this where the big profits could be. Interviewee 3 argues that people do not want major changes to often. Summarizing these statements would mean that the duties in the HCI-domain are more seldom entirely focused on finding solely new alternatives through development of previous non-existing technology to the usage of a certain artefact. This definition of working duties proves that the influencing belief "new is better" discussed in 7.1, would counteract the very work of the domain.

The previous discussion also motivates the reasoning made by Ladner (2010), who expressed that when an HCI-professional is inspired by something there is fairly big chance that ide would end up in the final solution. Both Ladner (2010) and Löwgren and Stoltermann (2004) argue that there should be some form of standardisation and analytical aspect in creativity among HCI-professionals. Our interviewees agree on

this as well. An HCI-professional should know and understand what should be achieved and if an idea developed would actually do so. The way of managing this would be to also be analytical in the creativity process and thus know if an idea is good or not. The reason to why this creativity and analytical thinking has to be balanced is so that the solution actually does what it is meant to achieve. Interviewee 5 and interviewee 2 reasons that having an interesting is not enough, you must also consider for instance how something shall be used and in what environment.

There is also the aspect mentioned by interviewee 3 that there is no time for trial-and-error neither will it produce a good product working in that manner. So instead the HCI-professional has to think in an analytical way from the start since no time should be wasted on revising an entire product or idea, because that time does not exist. The analytical part is according to interviewee 3 done by testing hypothesis to see whether something should be pursued or not. The side that has not been discussed as much is how you attain this analytical thinking. Our understanding of this part, based on what Interviewee 1 explained, is that the analytical thinking is related to the existing knowledgebase and understanding of the processes. Also worth mentioning here is the acceptance of failure, discussed earlier, because every fail will add to that knowledgebase and subsidise analytical thinking.

A discussion topic which is very relevant for this research and which has been discussed throughout the research, both in our literature review and the empirical findings is the ongoing interplay between freedom and structure, also described as restrictions or frames. Amabile et al. (1996) argues that lower barriers and greater freedom stimulate creativity (see 2.2). Though Löwgren and Stolterman (2004) explain that some HCI-professionals wishes for freedom in their since they believe that restriction impairs their creativity, they argues for the opposite opinion that it is the tension from the restrictions that makes a person working with HCI creative. Studying our empirical findings, we see some variations in their thoughts of this relation. Interviewee 1, 5 and 6 believe that the relation between the two should be a balance and thus cannot be completely one or the other. An HCI-professional needs some freedom to develop fresh ideas and be comfortable in the project, but at the same time too much freedom is not preferable. Similarly having structure and restriction in you project would ease the process and make it easier to find where you should begin and what you are aiming on achieving.

Interviewee 2 mentions a possibly essential factor to this balance, reasoning that it is the aim of your HCI-department or organisation that determine which of the two fundamentals that should preponderate. With creativity as the dominant factor there is a bigger chance of making big leaps forward. Organisations that have to have to work quickly would need more structure (see 6.2.4). The reasoning corresponds to what was said by the other interviewees and also in 3.4, where structure eased the process and the initiation of the process. If structure indicates where the HCI-professional should start, the process would inherently or at least possibly be rapider. If using this

assumption, it would be preferable to have freedom when the goal is to break previous assumption whereas more balance when there should be smaller creative adjustments to the human computer interaction. There is also the prospect to view the balance as something that you adjust depending on the timespan of the project. The more time you have, the more freedom you could allow.

This reasoning goes in line with what interviewee 4 says, long-term projects can be more flexible and urgent projects need to be more defined. Interviewee 6 maintains that freedom creates creativity, but in the same way it easy to kill with complete freedom. In HCI you thereby have to find that spot in the balance in each project where you can achieve the highest creativity.

7.3 Creativity methods and tools

The method that was presented in 2.3 concerns how you should force yourself to see the problems, ideas and solutions from other perspectives. This is also something that the interviewees had elaborated on, for instance stating that they develop a complete opposite idea to the one that already exist in order to gain more aspects of the case. The interviewees mean that the creativity support method that is used in a specific project depends what should be achieved, which means the HCI-professionals do not use on specific method every time.

In our 2.3 some methods were presented, and there is a growing interest in creativity tools and methods. The purpose of using methods is as said to view a case or situation from several and new perspectives. An important factor that the interviewees in some sense are arguing for is that it is not a bad thing to change method. If it does not work than try something else. One of the expressed thoughts about the use the methods are that you should change method, and not stay with one specific method forever. Since continuously pushing the development forward through small adjustments is an important factor in HCI that also could be related to the methods used. As interview 1 argued, you should not be afraid of changing the method and try something new. The interviewees also believe that changing methods may give an edge in the creativity. Feasibly could a method change or method improvement help to induce that the creative thinking and solutions move forward with the pace of the domain. Interviewee 2 has a somewhat contradictory opinion to the method usage and purpose, and instead states that the method choice is not important since creativity will come up anyway, as creativity cannot be turned off. This would either pose that methods as irrelevant or that creativity will come out of any method.

As for the methods that are in use among the interviewees, we can determine that some of the methods presented in 2.3 are used. Even though they do not always state

the name it is possible to see similarities with the presented ones in 2.3. Examining interviewee 2's definition of what innovation is, it is basically the same as the whole purpose of the Synectics method, presented in 2.3.5 Looking at the core concept of Synectics, to put two odd things together. So suppositional this method is the same as being innovative. Innovation did not involve much creativity, so possibly would the Synectics method not be the best suited for creativity generation since the two have very similar purposes.

Brainstorming is presented as one of the methods in 2.3 that are supposed to generate creativity. It is also mentioned by some of the interviewees as one of the methods that they are currently using in their work to overcome deadlocks. Something that is also mentioned by some of the interviewees is that they use methods that allow them to see a problem from several perspectives, and thus establish a better understanding. Though it is not said we find this description similar to the one of Lateral thinking (see 2.3.4). In lateral thinking you for instance use hats as representations for looking on a problem from different perspectives, and thus using a horizontal approach to the problem. If doing so you will decrease the risk of overlooking anything that can be important in a later phase of the project or process.

Since our interviewees have expressed that innovation means little creativity and rather a subset to creativity, it is possible to state that the theory of inventive problem solving (TRIZ), described in 2.3.2, would be less usable for creative breakthroughs. This hypothesis is based on that TRIZ is meant to generate innovative solutions to problems, and innovation is just a subset to creativity. Instead this method would be more usable for innovation, or tests of combining existing solutions as some interviewees described innovation.

In this discussion we can resolve that there are several perspective on creativity and the tools and methods that are supposed to support the process. Though the interviewees from the different organisations have diverse perceptions on some aspects of creativity, you cannot state who is right since they are not working together. Since the understanding of the process and the methods leads to creativity, a common understanding of creativity and the methods among the HCI-professionals would improve organisational work.

8 Conclusion

After reading literature concerning Human Computer Interaction (HCI), we found a particular interest in creativity within that domain. We wanted to explore how professionals coped with creativity in HCI, in order to push the development forward. To do so we posed the following research question:

How do HCI-professionals cope with their task of creative development of new products, to drive the HCI-design development towards creative breakthroughs?

After having done the literature review and acquired an understanding of the different perspectives of creativity as a notion and how literature concerning HCI discussed the notion, we went out and conducted empirical research. One of the first things that we discovered was that creativity in HCI was perceived as an interchange between freedom and structure. Where structure means the structured work that the organisation need and the restrictions that comes with the work tasks. Finding the appropriate balance between the two for a particular project or task is essential in order to achieve the highest possible creativity. It should both push the professional to be creative and give some initial frames to work with, while at the same time allow him or her to experiment and test ideas. Too much freedom would make it difficult to begin, whereas too much structure and restriction leave no opportunity for creativity.

We can also conclude that the interplay between freedom and structured can be managed depending on the goal of the project. As can be seen in our discussion there are creativity for different purposes, to make small adjustments or to develop entirely new relations and conceptions. In this thesis and in our research question, we are interested in the creative breakthroughs. A creative breakthrough is described as the latter example. So when an HCI-professional aims on breakthroughs, freedom has to be the ascendant in the balance. Where experimentation is encouraged which also indicates that more time is required for the project. For creative breakthroughs to occur, the HCI-professionals have to take a step back and look at the project from a broader perspective, and thereby look beyond the existing ideas and assumptions of a solution or product. This would in turn not be possible if the professionals are restricted to using these existing assumptions. If this kind of restrictions exists, the result would more likely be the smaller incremental improvements instead of entirely new solutions or products.

Important to note is however that the goal should never entirely be to strive towards creative breakthroughs. Some HCI-departments instead have a certain group that focuses on entirely new relation, whereas the major part of employees works with the more common small improvements of existing products. People do not want entirely new thing all the time, thereby it is preferred to vary the goal of the creative process. HCI-professionals have to be able to see when it might be good or there is an opportunity to develop something entirely new. After all they have to make the customers and users happy.

As there are different perspectives on what creativity means and much of creativity processes rely on understanding the problem and creativity process good enough, it is also essential that all HCI-professionals in an organisation has a similar understanding of the notion and what it involves. Creativity is difficult without input from other people, for instance your co-workers. A collective understanding of creativity and its process is beneficial in order to ease discussions between colleagues.

We can also conclude that though innovation has been mentioned in discussion of creativity, it does not involve much creative thinking and is mostly just a test of combining existing solutions or ideas. When something is perceived as very innovative, for instance the iPhone as some of the interviewees mentioned, it does not have to be a creative breakthrough or indicate creativity to any extent. Though creative breakthroughs can be perceived as new none existing relations and conceptions, it cannot be compared to innovation, which involved putting existing solutions together into one combined product, and therefore meant little creativity.

Methods can be useful to achieve creative breakthroughs, since they allow you to overcome deadlocks. Variation of the methods used is good since it leads to new ways to think of problems. Once an HCI-professional understands the creative process more experimentation with methods is preferable, resulting in a new approach to the problem. Experimentation with methods also means continually changing methods between projects. That way every project is seen as new and different, and will not end up in similar results, which in turn allows and contributes to new creative products.

Several authors have when discussing HCI mentioned creativity as an important factor, but also that it can be difficult. It is difficult to break patterns and previous assumptions of products and services. Through our thesis we wanted to illuminate how HCI-professionals cope with creativity to achieve just that. We can here conclude that yes creativity can be difficult and assumptions can be hard to break, but at the same time it is not always the primary focus to develop entirely new products. It comes down to understanding when it is possible and appreciated to experiment with entirely new creative ideas. This understanding relies on the analytical thinking of the HCI-professionals to determine whether something should be pursued or not. Too much focus on being creative and producing completely new idea, with the belief that

new is better, could have the opposite effect. There are times to strive towards creative breakthroughs, but it should not be each time or entirely.

Appendix 1a – Interview guide

HCI = Människa-Datorinteraktion (MDI)

Introduktion

1. Vill du hållas anonym i uppsatsen?
2. Vad är din position i organisationen?
3. Vad har du för arbetsuppgifter?

Personlig relation till kreativitet

4. Vad är kreativitet för dig?
5. Hur skulle du beskriva din kreativitets process?
6. Vad påverkar kreativitet positivt?
7. Vad påverkar kreativitet negativt?

Kreativitet i HCI

8. Vilken roll har kreativitet inom HCI?
9. Det har av tidigare forskare uppgetts att ett utmanande moment inom HCI är att bryta tidigare antagande och uppfattningar gällande en artefakt för att i sin tur hitta nya relationer. Vad är din åsikt om detta?
10. Är det viktigt att sträva efter att bryta tidigare antaganden, eller är det bättre att hålla sig till vad personer är vana med?
11. Somliga forskare menar att den typ av kreativitet som finns inom HCI skiljer sig ifrån kreativitet inom andra områden. Vad är din åsikt om detta påstående?
12. Åsikter har uttryckt att kreativitet kräver frihet, men samtidigt kräver organisationer struktur. Vad är din uppfattning av denna relation?

Kreativitets metoder och verktyg

13. Vilka metoder och verktyg använder du för att främja kreativitet?
14. En annan uppfattning är att kreativitet inte kan genereras genom användning av metoder. Vad är din uppfattning av detta?
15. Hur ska metoder menade för att främja kreativitet användas?

Avslutande frågor

16. Är det något du skulle vilja tillägga?
17. Har du samma inställning till anonymitet nu efter intervjun?

Appendix 1b - Interview guide (English)

HCI = Human Computer Interaction

Introduction

1. Do you wish to be anonymous?
2. What is your position in the organisation?
3. What are your duties?

Personal relation to creativity

4. What is creativity to you?
5. How would you describe your creative process?
6. What affects creativity positively?
7. What affects creativity negatively?

Creativity in HCI

8. What role does creativity have in HCI?
9. It has been stated that a challenging part among people in HCI is to disrupt previous assumptions of an artefact and find new relations, what do you think about this?
10. Is disrupting previous assumption something to strive towards or should you keep to what people is familiar to?
11. Some believe that the kind of creativity found in HCI is different from the kind seen in other domains, what do you think of this?
12. Some has expressed that creativity demands freedom, but at the same time an organisation needs structure, what are your thoughts on this relation?

Creativity Methods and Tools

13. What methods and tools do you use to support creativity?
14. Another belief is that creativity cannot be generated through methods, what are your thoughts on that?
15. How should creativity support methods and tools be used?

Ending question

16. Is there anything that you would like to add?
17. Based on what has been said during the interview, is your position to anonymity the same or would you like to change you answer?

Appendix 2a – Interview transcript 1

D = David Wahlström

L = Lars Lindvall

H = Håkan Reis (Interviewee 1)

Interview with Håkan Reis, User Experience at Jayway.		
Date: 2012-04-13		
Row	Conversation	Code
R1	D: Vi kan inleda lite kort med vad det är vi menar att undersöka. Så det vi skriver om är kreativitet och den kreativa processen inom människa-datorinteraktions design	
R2	H: Mm	
R3	D: Så inledningsvis vill du hållas anonym i uppsatsen?	
R4	H: Det spelar ingen roll	
R5	D: Inte med organisationens namn heller?	
R6	H: Nej nej absolut inte.	
R7	D: Okej. Så vad är din roll i organisationen?	
R8	H: Ähm, min roll är väl så att säga team leader för då UX-teamet (User experience) på jayway, men jag håller ju inte bara på med team leading grejer utan jag håller på med interaktionsdesign och en del utvecklingsarbete med gränssnitt och så också.	
R9	D: Ja okej, så om vi går in lite mer på vårt fokus. Vad är kreativitet för dig?	
R10	H: Jag skulle vilja säga att det finns inget enkelt svar, för det är många saker som ska in. Det kan handla om att man försöker vara kreativ i ett möte med kunden för att hitta vad kunden vill ha. Att man får en uppfattning av vad ska man säga, flödesmässigt vad man vill uppnå gentemot slutanvändaren.	D
R11	D: Ja..	
R12	H: Men det kan också vara en process där man tittar på färg och form, mode och såna här grejer för att få en mer grafisk kreativitet.	D
R13	D: Ja.. Hur skulle du då säga att kreativitet inspireras?	
R14	H: Jag ska säga dig att det är lite olika, beroende på. I vissa lägen kan man behöva plocka fram en lite mer designkaraktär på projektet: färg och form, loggor och såna här grejer. Så du behöver i det läget.. inspirationen där är mycket, vad ska man säga, företagets värderingar, vilken känsla man vill uppnå med det. Ska vi ge säkerhet eller ska vi ge trygghet och så vidare.. vad det är man vill uppnå med det och där har vi en detalj, eller en vad ska man säga, en kreativitets startare. Det är att förstå värderingarna för företaget. Nästa steg är när du har den här förståelsen och se till kreativiteten och se hur man kan jobba med den. Att bara säga att nu ska vi göra ett UI är nästan omöjligt..	IF

R15	D: ja.	
R16	H: Har du en färg-/formskala eller ett tänk som är klart. Då går det mycket mycket snabbare. Så jag skulle vilja säga att, kreativitet handlar inte alltid bara om ett ”blankt papper, gör vad du vill”, utan snarare att man sätter en ram, och det kan vara en ganska tight ram, som istället triggas kreativiteten på ett helt annat sätt. Fast det är inget enkelt svar på det.	D IF
R17	D: Sen finns det även de forskare som menar att kreativitet är kopplat till glädje, eller att man är på bra humör, att de stora genombrotten eller riktigt bra idéerna kommer efter dagar som för personen har varit en bra dag, rent humörmässigt. Är det något du kan relatera till?	
R18	H: Det kan säkert spela, men jag tror att det egentligen handlar mer om normal arbetsglädje. Det spelar ingen roll om man sitter som revisor eller så, men har du haft en bra dag och du trivs på jobbet, då är det lättare, då det är roligt, men annars är det inte roligt. Så jag tror att det är mer det som det handlar om. Om du trivs så är det roligare att jobba, och då blir man naturligt också mer kreativ. Så jag tror inte riktigt det, men däremot tror jag mycket på att omgivningen är det som påverkar mest. Du har... Att du trivs inte lika bra när du jobbar ensam. Det är väldigt svårt att vara kreativ om man är själv. Man måste ha den här input:en som triggas. Samtidigt så måste du också du kunna ordinera dig och att ta en paus liksom, och.. för att justera på ett område under en tid. Och sedan återigen.. det måste gå i, vad ska man säga, i växelverkan. Ibland jobbar man och fokuserar ensam på en sak och sen måste du ha input för att komma vidare.	IF IF
R19	D: okej, så vad skulle du säga vidare påverkar kreativiteten positivt respektive negativt?	
R20	H: Negativt är nog egentligen att inte ha.. eller det beror lite på, jag tänkte ofta i de projekten som vi har. Negativt i dem är ofta att kunden inte har någon åsikt, man vet inte eller får inte heller någon känsla för.., nu snackar jag mycket om kunden i och med att vi jobbar som konsulter men ni kan säga slutanvändaren. Man måste ha.. Det kan vara en lång process att jag jobbar med användare för de ska förstå vad de vill uppnå, vilken känsla som de behöver. Och har du inte den kontakten, har du inte kontakten med användaren eller kunden, om nu ser det ur vår vinkel.. har du inte en bra kontakt och dialog där, du står fast redan från början, du startar inte någonting.	IF
R21	D: Kan man inte se det från motsatt perspektiv då också, där kunden/användaren har en egen strikt idé av vad de vill ha och att man istället blir väldigt begränsad till den, gällande vad ni får göra då?	
R22	H: Jaa det kan jag hålla med om delvis. Sen kan det vara ganska.. eller det beror på också om då användaren är på rätt spår eller inte. När man jobbar med interaktionsdesign handlar det om, det är något sånt ofta då med att man har en bild av att: ”ja så här, det blir jättebra för användaren”. Men sen kan man inte bara säga att ”så här borde vi göra”, utan man måste också förstå kundens behov, och förstå varför de känner på ett visst sätt och man måste förstå hur vi ska öppna kommunikationen till kunden eller användaren. För att sedan kunna, vad ska man säga, övertyga dem om vilket håll som man ska ta sig. Men då måste man redan ha en känsla för vad de vill eller vilken känsla man vill uppnå. Så det är alltid ett samspel, så det är aldrig det ena eller det andra. Jag tror inte.. Visst i vissa lägen har det bromsats, vissa bromsar det. Jag skulle vilja säga att det ofta är slutanvändaren som är bromsen då för ett kreativt tänkande utan då kan det snarare vara en beställare som är bromsen eller i vissa lägen har det varit en designbyrå i mellan som har sagt att ”nej så här ska det vara”, så försöker vi göra en kreativ interaktionsdesign, ”nej så får det	R

	inte se ut så för det följer inte designen i vissa lägen”. Så det kan vara.. Det är sällan slutanvändaren om är bromsen.	
R23	D: Hur skulle du beskriva den kreativa processen? Vilka komponenter består den av?	
R24	H: Ja.. jag har nog inte sett det som en process, men det kan man göra..	
R25	D: Som exempel så brukar ett inledande steg vara att samla in data och information..	
R26	H: Ja men det stämmer ju mycket. Det första handlar ju egentligen om att prata mycket och kommunicera mycket, för att förstå dels vilken metod man vill uppnå, eller som jag sa innan vilken känsla man vill uppnå. Men sen är det ju även att ta inspiration ifrån andra områden, att inte låsa in sig på något., om det är en viss sak som man ska bygga, och att man inte låser in sig på att man brukar bygga på det här viset. Utan försöker hitta angränsande områden som har liknande slutmål men kanske gör det på ett helt annat sätt. Ibland kan man säga att man kan slänga bort det och börja om på nytt, så man gör kanske flera olika förslag och sen ser man vad det kan blev av det. Så det handlar om att samla men också att ta inspiration ifrån olika källor som kanske inte är så tydliga. Men sen handlar det om att iterera, det är nog en av de viktigaste grejerna. Man är aldrig färdig egentligen, alltid fortsätta att utveckla och alltid fortsätta titta på detaljer.	CP
R27	D: Okej ja. Det finns även de som relaterar kreativitet och innovation, eftersom kreativitet sägs vara en del i innovation.	
R28	H: Jag tycker det är lite fel. Innovation är för ett lite uttjat begrepp också. Innovation är hela tiden små steg man tar framåt, som driver det framåt. Sen för att det ska kännas innovativt, eller att säga att interaktionsdesign ska kännas innovativ. Men egentligen är det bara ett test. Tittar man på vad det egentligen är, som om man tittar på när iPhone kom, så kändes jätteinnovativ, men interaktionsdesignmässigt så är det gammal teknik, how to speak model, så det är inget konstigt egentligen. Så jag gillar inte innovations begrepp, det har blivit uttjat.	D
R29	D: Om man fortsätter lite på samma spår menar en del forskare att man inom områden som interaktionsdesign har väldigt svårt att bryta tidigare mönster och antagande gällande en produkt. Att en telefon till exempel ska användas på ett visst sätt för den har används så tidigare eller alltid gjort det, och att detta då ses som ett problem. Har du några tankar kring det?	
R30	H: Ja det kan jag tänka mig. Det kan jag faktiskt hålla med om och det kan nog vara ett problem ifrån kunder också. Att kunder eller slutanvändare är vana att se det på ett visst sätt. Där är nog ett område som man måste jobba mer med inom interaktionsdesign, hur man ska kom ur de här formerna så att säga.	G
R31	D: Ja, men är det något som man strävar efter underutveckling eller är det att föredra att hålla sig till vad kunden/användaren redan känner igen och kan?	
R32	H: I vissa lägen ja, men det man måste se är när modellen inte håller längre. Till exempel när menysystemet börjar bryta ihop för att det är för mycket i meny systemet. Då måste man se när det är problem och bryta sig ur den eller när, vad ska man säga.. när en vanligt datormodell inte håller för finger input, då måste man hitta ett nytt sätt att jobba. Och då måste man ta sig ur modellen. Men jag vill säga att man i övrigt inte ska vara rädd för att behålla sig i modellen, då det tillför igenkännande för användaren. Det är tryggt och det är en viktig sak. Så man måste se när det är brinner och man måste göra något.	G

R33	D: vi var inne på det lite förut och även innan, ett område som utvecklas snabbt med nya kreativa idé och teknik är just smartphones, iPhone nämndes tidigare. Lockande skulle ju då för kunder kunna vara just de nya kreativa idéerna gällande interaktionsdesign, exempelvis Siri i iPhone, varför tror den aspekten är lockande?	
R34	H: Det har nog mycket att göra med hård konkurrens. Det är ett område som fortfarande är expansivt. Det är ju fortfarande så att man inte ser något tak på utvecklingen. Så det är ett positivt område, så de som lyckas kreativt gör enormt stora pengar. Om man exempelvis tittar på appar, så ska man ju säga att det är ett fåtal som lyckas. Men det ger ju drivet, att hitta orsaker till att vissa lyckas och andra inte. Jag vill inte säga att det är interaktionsdesignen som alltid är huvudsakliga påverka utan snarare att vad den tillför slutanvändaren. På sätt och vis är det interaktionsdesignen, då interaktionsdesign i grunden handlar om att hitta och låta slut användaren uppnå sina mål. Det är den grund som i så fall..	CC G
R35	D: ja. Det finns även de som menar att kreativiteten som förekommer i HCI skiljer sig från den inom andra områden, att det ingår mer komponenter, att man måste vara mer analytiskt medveten.	
R36	H: Analytisk i kreativiteten menar du?	
R37	D: Ja precis	
R38	H: Ja vad ska man säga, fortfarande så är det ett ganska flytande begrepp, som interaktionsdesign använder man mindre och mindre och mer user experience. Men att user experience ligger inne på interaktionsdesign och grafisk formgivning. Jag skulle säga att kreativitet, är något som egentligen tvärs över hela den här. Kreativitet kan du inom interaktionsdesign, men även inom kodutveckling. Så kreativitet är en helt annan typ av begrepp. Är du duktig inom det och förstår så måste du även vara kreativ och analytisk inom det området. Det är en disciplin inom varje gren.	CC
R39	D: Använder du några särskilda metoder för att främja eller förbättra kreativitet?	
R40	L: För att exempelvis bryta mönster?	
R41	H: Ja alltså det viktigaste verktyget som du har är egentligen kollegorna, att hela tiden kunna diskutera, och då diskutera ny idéer för att komma fram till hur vi ska lösa ett problem. Då det ofta är där som vi måste hitta en kreativ lösning. Jag tror det viktigaste verktygen är att vara lyhörd, inte några speciella metodiker, typ brainstorming och så vidare, det finns ju massor av såna här modeller. Men jag kan inte säga att jag använder någon speciell metod. Grejen nu så kan det vara att man är på ett möte med några stycken och vi behöver göra någon form kreativt gemensamt tänkande. Men vi har även massa olika workshops på sånt här och lägger fram idéer.	M M M
R42	L: Kanske prototyper och så?	
R43	H: Ja, alternativ så whiteboard, skissar och såna här grejer. Jag skulle säga,.. Ja okej, ska jag säga ett verktyg så är det papper och penna, alltså ett riktigt papper och penna, att rita förhand, ha ett papper, skissa, kasta, skissa, kasta. Det är det mest gångbara. Faktiskt.	M
R44	D: om vi går tillbaka lite. Kreativitet sägs behöva frihet men samtidigt kräver arbete inom en organisation struktur, vad är din tankar kring det?	
R45	H: Ja..	
R46	D: En del önskar i alla fall frihet.	

R47	H: Jag ska säga att det också är blandat egentligen, för friheten behövs naturligtvis för att du ska kunna fokusera på någonting, för att du ska kunna slappna av. Det handlar litegrann om olika typer av organisationer. Som vi som en konsultfirma, där vi har så otrolig många olika projekt att jobba med. Så det där med frihet är nästan för mycket, så det nästan är vi som sätter gränserna. Sen kan jag väl tänka mig att i andra organisationer så ska man följa mer utvecklingsstruktur, att ”nu ska du göra detta” och nu ska det vara färdigt här men jag vet inte.. Därför ibland så behöver man kunna gå tillbaka, man behöver kunna göra annat för att släppa tankarna, och få upp det fräscht igen. Då kan jag tänka mig att det kan vara ett hinder.	FS FS
R48	D: okej ja, för då finns en andra aspekt att det egentligen är strukturen som bidrar till kreativitet, att det uppstår när du måste arbeta med strukturen/begränsningarna och att frihet bidrar till problem angående var man ska börja, några tankar kring det?	
R49	H: Ja precis det var det som det här med det blanka pappret, man sitter bara och tittar på det. Om du har ramarna för det är det lättare att komma igång. Men det är alltid en balans, det finns inget enkelt svar åt något av hållen.	FS
R50	D: Om man då går över till metoder och modeller igen så finns det en åsikt gällande att dessa inte bidrar till kreativitet utan möjligtvis begränsar kreativitet, genom att det följs för strikt..	
R51	H: Ja jag skulle vilja säga att även att inte använda metod, är en metod så att säga. Så jag skulle snarare säga att använda metoder, prova metoder, men var inte rädd för att byta metod om det inte fungerar. Att prova olika metoder. Det finns inga metoder som fungerar för alla, utan måste prova dig fram och känna att det funkar för dig.	M PM
R52	L: Ja alla företag är olika..	
R53	H: Ja precis, om man har olika typer av organisationer, så man måste prova.	
R54	D: Men skulle du säga att det då finns en risk att vissa som jobbar med interaktionsdesign, låser sig för en särskilt metod även om den inte fungerar?	
R55	H: Ja det finns en risk. Men jag ser väl att det är väl litegrann det som är erfarenheten, att man förstår.. om du är ny på någonting, så är det jättebra med regler, en process att följa. Om du följer den processen och förstår varför du följer den processen, då har du också rätt att bryta reglerna om du är utanför. Och det är när du har den erfarenheten att bryta regler och vet, och egentligen bygger din egen process och då har du tillräckligt mycket erfarenhet för att driva. Problemet är ju om man inte kommer till den nivån att man försöker bryta reglerna, eller förstår varför man ska/kan bryta reglerna, då har man låst fast sig. Det finns alltid en risk, men det handlar om din egen förmåga att ta till dig av nya idéer, att så att säga vidareutveckla. Men det är individuellt, så det är klart att den risken alltid finns. Men det spelar ingen roll vilken typ av modell eller hur man säger att man ska jobba, den risken får man.. eller den händelsen kommer ske ändå. Den personen som fastnar i ett sådant mönster, kommer att fastna i ett annat mönster också.	PM
R56	D: Så hur skulle man bäst använda sig av metoder och modeller?	
R57	H: Ja det handlar då om att man börjar med att förstå processen och förstår vad som händer. Och nästa steg är ju liksom att vidareutveckla metoden, eller förkasta den och prova en annan metod om det inte fungerar.	PM
R58	D: Samtidigt blir det mer komplicerat om man som ni jobbar i team eller grupp, det kanske passar några men inte andra..	
R59	H: Vi har jobbat mycket med utveckling också i agila team och då handlar det hela	

	tiden om att väldigt väldigt ofta titta på hur vi jobbar, fungerar det. Och då måste man hitta ett sätt som fungerar. Det kan inte bli perfekt för alla, men det kan bli perfekt för teamet som helhet. Så man måste hela tiden anpassa, så fungerar det inte för någon som får man göra en anpassning för den så att det fungerar bättre. Så att totalt sätt blir en bra miljö. Så det är det viktigaste egentligen, att förstå vad som händer, vad som fungera och inte fungerar, och sedan bygga upp det.	PM
R60	D: Okej, då har inte vi så mycket mer att fråga. Är det något som vi har missat som du vill tillägga?	
R61	H: nej det vet jag inte, nej.	
R62	D: okej, har du fortfarande samma inställning till anonymitet så här efter intervjun?	
R63	H: Det är inga problem med den biten, ni kan använda mitt namn.	

Appendix 2b – Interview transcript 2

L = Lars Lindvall

D = David Wahlström

A = Anonymous (Interviewee 2)

Interview with <i>anonymous</i> (Interviewee 2)		
Date: 2012-04-16		
Row	Conversation	Code
R1	L: What do you work with here at the organisation?	
R2	A: I am an industrial designer	
R3	L: What is creativity to you in your work	
R4	A: Creativity is just about finding new opportunities where there seems to be no new opportunity, very much.	D
R5	L: How does this process look alike?	
R6	A: It starts with analyzing the data; we are bombarded with data during the day. One part of this is to turn this data into knowledge and analyze, understand and filter it according to our needs. The next phase is about the process of creating new ideas based on these findings. Then off course the implementations stage comes with presentation and implementation.	CP
R7	L: What could positively and negatively affect creativity in your work? Like mentioned in research; if you have a really good day this could affect creativity positively.	
R8	A: I do not think so, what I believe in is that the more limitations you have the more creative you are. But more often than not if you are allowed to fail you become more creative. If you are always on the tip of your toes and very afraid of failing all the time, you will never take any risks and you - thereby - cannot be creative. Another part of it is that the organization must nurture creativity rather than kill it.	IF IF
R9	D: How do they inspire creativity.. or how should they inspire creativity?	
R10	A: I think creativity comes from the process of putting together several people with different disciplines and this is where creativity sparks.. or they put people in different occasions or locations where things can suddenly happen so that is why we goes to fairs and stuffs like that. It not just for fun, rather to gain more knowledge and gain inspiration for future work.	IF IF
R11	L: So it is more that you have to be a risk taker in order to gain creativity in your work?	
R12	A: Well I did not say that but in a sense that is also true. Without taking risks you	IF

	cannot go anywhere.	
R13	D: If you take a deeper look into the literature authors relate creativity into innovation in means that creativity is an essential part in innovation as well as the opposite, what are your thoughts?	
R14	A: philosophically I would not say the opposite. But I would say creativity is rather a huge chunk of innovation. For me innovation is to put different things together to achieve an outcome that is greater than the initial sum of parts.	D
R15	L: The role of creativity in HCI	
R16	A: Of course it is huge. There have been a lot of schools of where they try to take creativity from an extremely analytical perspective with a lot of analysis and looking into user data, and making small tweaks. This is A bit more comfortable. If you look at companies that are creative instead of analytical, you can see that they create more exciting stuff, maybe not equally usable but, usable is a very tricky word. Sometimes a too high focus on usability can kill creativity because of the over-analytical approach.	R IF
R17	L: As mentioned before it is all about breaking patterns and make new relations but how..	
R18	D: A common thought about it is how to break this patterns and assumptions of an artefact. As the area of use for a cell phone, one should strive to find new uses; or one should rather focus on improving or staying the older usage patterns?	
R19	A: I would say my work is to break paradigms and give the user something new, more often than to break paradigms. A good example is when we first started this: A camera is a different thing and a phone is a different thing. And they both work in a specific way. We were not the first ones to put the camera and phone together but we simply did not put them together with duct tape. What we did when we first started this. With something as simple as QuickShare. It is simply when you snap a picture you could easy make it into an MMS and send it in not more than three steps which in this time was revolutionary. With this, we increased the revenue per unit so much for operators and it was completely unexpected and people started sending images via MMS all over the place. Later on we made this possible through posting images on a simple blog with subtitle and captions etc. This was breaking a paradigm of “a phone is a phone and a camera is a camera”.	G
R20	L: Is this something you at a first-hand should strive towards or should you stick to things users are more familiar to?	
R21	A: I would say that breaking patterns should not be the first and foremost objective. Your primary goal should be to make the user happy and if it comes to breaking a paradigm of patterns along the road, so be it.	G
R22	D: Researchers believe that the creativity within HCI differs a bit from the creativity in different domains meaning that you must be more analytical in HCI design, is that true?	
R23	A: I am not an interaction designer so I should be careful in answering this question. But I however have a great interest in the area of interaction design. I would say that when you are a creative professional in interaction design - or design in general - when we talk about industrial objects, it is very tempting to design a curved table just to be original but your coffee cup will fall down so you have to think about that. That is really an easy way to explain it. So you have to be analytical to a certain degree	CC

	whenever there are users involved.	
R24	L: Literature expresses the relation of the desire of freedom versus the structure an organization brings, what are your thoughts about this relation, is creativity strangled with too much structure?	
R25	A: I guess what you need is space. When you look into history, as in Steven Johnson’s work (Where Good Ideas Come From). You can see that people that are very creative and good at innovation and invention, they all have one thing in common, they have a lot of free time and lots of space and the space time creates. For example, if you look at Newton, he was a part of a wealthy family and had servants and therefore, time. There are two types of creativity I would say: one type where you need time and space to nurture which may lead to great leaps forward in technology or design. On the other side you need to be very fast, like a company as instagram they have created something amazing with a limited amount of resources and extremely fast. And you have to be able to call that creativity. Did they have a lot of freedom? Yeah but how do you define that freedom? Maybe they did not they just had one app that worked for one platform for a very long time. They only had twelve employees very small budget, I would not call that freedom per se. If you see their daily life at the office it might look very “free”, but still they might have had to work crazy hours so it is a bit of a tough thing to say that freedom nurtures creativity. But if you talk into a more political sense then there it is absolutely true. Political freedom is a prerequisite to creativity. You can find other kinds of creatives that are not politically free. As in the types of creativity that goes into the roadside bombs in Iraq. Every week there is a new explosion of a new type of bomb, the U.S soldiers try to win this constant race. Not the type you might be interested about in your thesis maybe but that comes from limitations and lack of freedom 100%. I would say freedom is just one level. The second level is rather the drive. What kind of drive do you have and what is at stake. That really drives you, if you have a company that is really small. If you put all your money in it and your livelihood depends on it, of course you must be very creative.	FS FS FS FS IF
R26	L: What methods do you use to coping creativity in your work?	
R27	A: We use brainstorming but less and less I would say. Brainstorming is a very old technique which comes from the mad man era (1940-1950). Madison avenue advertising guy invented it. It just focuses on producing the highest amount of ideas that possible in the shortest given time, but it however does not focus on the quality of the ideas. So what we want when we are looking for ideas is quality. Therefore we are focusing more on workshops where the pace is slower and everybody has a voice, but especially the introverts as a voice so we do not force people to come up with ideas every five seconds. Other methods we use are research methods where we come together and collects our various views and knowledge in a structured way. Like in all branches of design sketching is the most useful tool. But when we talk about sketching everybody pictures a pencil and paper, but it is not like that anymore. Sketching can be in many different forms like video prototyping with a hypothetical user performing a task. Or scenario testing with digital manipulation to the video in order to test the situation with several inputs in different contexts and with other objects. One thing that never changes in our methodologies is the fact that everything constantly changes. If you do the thing that you do every year the outcome will be the same.	M M M M M PM / CP
R28	L: There are some authors that believe these methods could strangle creativity, as	

	with too much structure and frames to work within.	
R29	A: It might be so, especially working in a corporate environment. I have been a designer for over ten years, I can see more and more that what is important is people and you have to nurture the people’s creativity in one way or the other. The choice of methodology is not that important because ideas will come out anyway and you will not be able to turn creativity off. But also, you cannot just milk people for innovative ideas daily neither because this might drain them in the long run. You must find a great balance between pressure and freedom. So creativity or talent management is a hard thing to do, off course there is a lot of researchers that have made research within the field of creativity but what is the breath in time? Where do you start and where do you end? If you are ending the research throughout the whole lifetime of a product and ask users externally and deeming it successful that is one thing. But if you just look into the financial success of the product or ask internally in the organization, the result would be tremendously different.	PM PM
R30	L: I have read if you look into the term successful businesses, that these are rather called creative than just an ordinary business but must an fast growing business be creative?	
R31	A: There is a business book ”Good to Great” by James Collins that basically deems businesses as sustainably successful - not sustainable in a green kind of sense but in a way that they always will be successful - because they are focused on one thing. But he is not talking about creativity too much. One interesting thing is if you look into this book today you can see that some of these businesses has in one way or the other failed miserably either financially or in the public eye. (http://en.wikipedia.org/wiki/Good_to_Great). This is very interesting. I would say that if a company is not creative it is almost impossible to survive in our world today. Everyone has to be creative; from the CEO to the receptionist.	
Open Discussion		
R32	L: For our thesis we are discussing like the two sides of research within this area. On one side of the research they talk about models and how to gain greater levels of creativity within an organization with those and on the other side we see research more talking on complete freedom as with absence of frames and rules.	
R33	A: I would say both is true in a way, my own observation is that we can see two types of organizations: the corporates and the start-ups: if you look at the techworld and there is a very clean cut separation between them. And it is a level of maturity classification rather than type. If you look at Facebook today; is it a start-up or a corporation? I would say a corporation. As of now it has passed a certain threshold, but Instagram is a start-up company and they would have been a start-up for another five years if they were not bought up by Facebook. Similar goes for a lot of other companies. If you think about a company like Amazon, if there were no boundaries, probably it would be utter chaos because the bigger you are, the more money is at stake. And there is more people (like hungry investors) looking at what you are doing at a day to day basis so you have to be more careful. You cannot just say that we will free everyone from boundaries and hope things will work... Still, a corporation has to experiment with creativity, too. Right now we are doing a lot of experiments here at our floor and one method we use is to have everyone to grab an empty desk every morning just in able to be fluent in your work. In the other building where there is more engineers, when there is a new project engineers of the different departments come together and sit at the same place to share knowledge and thoughts. For many organizations that is very creative and we have been doing this for many years now. “They just say wow, this is amazing”.. but for us it is normal and	M

	<p>we are currently rather trying to go the next phase.</p> <p>I would say you cannot break all boundaries to strive for complete freedom. That would be though, but in a small company you cannot do the opposite, you cannot just impose a methodology to everybody. But methodology in terms of creative departments is getting less and less important, really we are trying to re-invent the way that we work every year. It is small increments but we try to work from different perspectives. There are some companies that really believe in this methodology approach where they might say: “Mondays are brainstorming days”.. I would really hate that you cannot just milk creativity, you will be drained out fast.</p>	<p>FS</p> <p>M</p>
R34	L: Yeah, because creativity can be something that just pop’s up during the week, so that is a better way.	
R35	A: Mmh.. So if I where you guys I would be careful in reading old papers and old literature because things change so rapidly in this area, so the new literature will be whatever you guys will write. That would be much more near to reality I would say, because everything I have read before, if I read today I will just be like “Oh.. my god, how could they believe this”.. so..	
R36	L: Yeah like old fashioned	
R37	A: Yeah, old fashioned, my area for my thesis was basically innovation and design. I mean how do these two interact? Is one the subset of the other? Or did they have some interaction set? Or were they basically separate things that are coincidentally connected? And so on. So I would say that creativity, innovation, design, they are more or less the same. The same word for different things or the same thing with different names depending on how you see it. Note that the reason why people are very comfortable in corporate environments and in academia finding specific words for specific stuff, comes all the way from Carl Von Linnés time, finding a specific word for a specific plant and nothing else, this is also what social science tries to do. It is really important to find names for everything but when you fly through it everyday it is very tough to define what I am doing? Is it creativity, innovation or design? It is really hard to set the boundaries. Which one gives way to what and which is the prerequisite, it is really hard or almost impossible.	D
R38	L: Yeah, this can also be viewed as because creativity is a quite hard thing to measure	
R39	A: Yeah, there are lot of companies trying to measure that and that is one of the pitfalls because they think if you cannot measure it, you cannot change it. That is what people believe in. or if you cannot measure it, you cannot award it either, some people look in patterns of design and the like to quantify the amount of creativity. But creativity is something that you rather feel when you walk into an office, you get hit by it.	<p>IF</p> <p>D</p>
R40	D: In what sense?	
R41	A: it is tough to explain without seeing it, when I first came for an interview here at this company the whole place was buzzing as if with electricity. Everywhere there were people who discussed things around the water tank, criticizing each other and giving each other critique and sharing ideas with each other all the time. I was on an interview at the same day at another company, and it was like everyone were sitting down staring at their computer and clicking away without even talking to each other. I even thought it was vacation day, because they were so separated with ‘walls’ and I looked around and felt as if there was nobody, not even a sound except the mouse clicking noises. Just you now, you do not feel it. At some places you see that things	<p>D</p> <p>CP</p>

	are happening and buzzing all the time. But it is however not as in a bank where people is in the same working-patterns all day, like “desk-printer-desk-printer-manager- desk-printer-desk-printer-manager” it is very very fixed but here it is more discussion and information is going forward circling around. If you look like email-patterns and the like it is really interesting, some people did that actually. They analysed the email-patterns and the study turned out that on an organization there is a six or seven people throughout the whole organization that is like the hubs of knowledge for information change, they are the go-to-guys and they know who knows what. This is things that you cannot know through browsing on the internet, or at least it will take a lot of time	
R42	L: Yeah, because of knowledge and information-sharing is one of the core-stones of creativity.	
R43	A: Yeah, really informal is very important.	
R44	L: Yeah like a more open discussion without any bureaucratic discussion.	
R45	A: You do not really understand it before you work in a place like this, the discussions you have around the water-cooler literally they are the ones that change the situation. Because that place is where you meet people from the whole organization without any inhibitions because if you would caught me here I would sit down here be interviewed by your guys and I would have some inhibitions as well as you talking more strict with a specific language and the like. But if we would meet in another place outside work it would be different. That is one method that is used on an interview when hiring people, the interviewer takes the interviewee to drink a cup of coffee and first here once they are a bit more laid back the interviewer first than can ask the questions. Because they you let yourself go you know. The talk at the water-cooler has the same effect. There, a manager is just as thirsty as a regular employee. That is the thing I meant before, a small company has only one water-cooler, so they can find something out more rapidly. Instead of as here at my company where my working partners are all over the world. That is why we must have meetings and a more structured dialogue. Technology is widely used for this, I believe it is really interesting as with Wikis. If they are looking into a new technology like NFC they create a new wiki, to find information fast that otherwise could take lots of time to get. That is really interesting. Also in design project we use a forum everyone can post a thread with videos and the like and people can participate, very much like Facebook. Almost as an open discussion except the fact it is online so it transcends the limitations of time and space, that is quite interesting in my perspective. Another thing is off course the thing between the new- and old money companies like Amazon and Facebook, Google, which are all new money companies, they are almost democratic in their structure. This is sometimes called the “New Capitalism”. They are responsible to a lot of people in terms of investors; it would be very different in comparison to companies such as Samsung or Apple per se. Apple is relative open minded I would say but it is very interesting how the creativity is nurtured or killed or.. because no company in the techworld at least want to kill creativity everybody wants creativity.	CP/ IF
R46	L: It is like when you google the word creativity; the first company you might find is Google, with like slides from the walls and the like.	
R47	A: What they do for example is that they do not say no to their employees with creativity, they always say maybe. If someone goes to the CEO and says “I want to create this thing as a social network site”, the CEO says “maybe” and the social	IF

	<p>network is created and thereby tried out, this is a “let us see how it goes” mentality. The amount of money they need for something to go live is not that much for them so it is a viable option.. Gmail is something like that. I was an idea conceived by a few employees which they tried out, and later rolled out. Or like the idea of Google translate, these are just inventions of the Google Labs that is their technique, as a company are they really very creative? Maybe they are maybe they are not. I would say that depends on who you compare it to but some companies that are very innovative are not necessarily very creative also like BMW I can say while BMW and other companies tried out to come up with cars with the least fuel emission as possible, Toyota came up with the breakthrough hybrid idea and they were completely stunned and did not know what that hit them. This does not really mean that I mean that BMW has less market share, companies that were hit the hardest was companies like Ford, GM. But what is interesting there is the fact that whether Toyota - historically speaking - is very creative. Probably not because it is so hard or might even be impossible to measure, it is all about the perception.</p>	
R48	<p>L: It is like comparing companies such as Google and BMW, their focus could be a bit different from each other. Like their different focus on their different types of outcome like BMW has to create new cars as Google has just to be big and grow.</p>	
R49	<p>A: Hehe yeah, they do not need to do anything, their car is really their search engine except that there is a new version every week, everything else is like a hobby for them so they are safe in a way, but in the same way they have lots of pressure. As when the bought YouTube. They did get quite much questions(heat) from investors and media “why buy this thing, because it just sucks up money”. It did not - at the time - turn profit and did not for years and no one could understand, but now they have turned profit and today they own the words biggest entertainment hub. Every minute sixty hours of video is uploaded to YouTube. That is crazy.. so does buying YouTube make Google creative? I’m not sure.. but I think what is good is to identify creativity as knowing when you see it, it is very important. That is a thing that many companies cannot do. There is a lot of stories told in companies, as the one at Apple where Steve Jobs seeing Jonathan Ive with the prototype candy colored iMac. And he said stop what is this, it is just a prototype Ivy said that had never seen the light of day and Steve jobs just said this one is perfect and told him to develop it further. The truth might not be as romantic as this story but what is important is to have the eye to see what is creative or innovative and important to say let us make it happen. That is still what they are milking today and they are life self-contained with everything in one device. The same thing happened to Sony, the company milked the idea of portable entertainment devices for many many years and is still today doing so. Because somebody there recognizes creativity as an asset. But recognizing creativity is less important than nurturing it since you cannot turn it off; if you have creative people around you they will be creative no matter what, they will do something, they will like do graffiti in the toilets or anything just to get it out in some way. It is the leaders’ job to nurture it.</p>	IF/ CP
R50	<p>A: Is there anything else you would like to ask me?</p>	IF
R51	<p>L: No I think it is great, I think we have gained perfect information regarding creativity now for our thesis. Do you still wish to be anonymous?</p>	
R52	<p>A: Yeah, as for now but I will discuss with my manager as soon as he comes back from vacation, I will get back to you guys if something changes, but as for now I want full anonymity.</p>	

Appendix 2c – Interview transcript 3

D = David Wahlström

L = Lars Lindvall

N = Nevenka Silfverhielm (Interviewee 3)

Interview with Nevenka Silfverhielm, Cybercom group.		
Date: 2012-04-17		
Row	Conversation	Code
R1	L: Vill du vara anonym i vår uppsats?	
R2	N: Har det någon betydelse?	
R3	L: Det är mest om du kanske skulle lämna ut något angående kreativitet som du anser är...	
R4	N: Nej det behöver jag inte	
R5	L: Vill du att organisationen hålls anonym?	
R6	N: Nej det behöver den inte vara	
R7	L: Vad har du för arbetsuppgifter idag?	
R8	N: Jag är BU-chef, det är ungefär business unit chef. Ett företag är oftast uppdelat i grupper, med konsulter så att i min business unit är vi 65 konsulter och det i sin tur är uppdelat i olika konsultgrupper, så jag har 4 konsultgrupper under mig med konsultchefer	
R9	L: Okej. Vad är kreativitet för dig i ditt arbete?	
R10	N: Förmåga att kunna hitta lösningar på kunders utmatningar.	D
R11	L: Hur skulle du vilja beskriva den kreativa processen i ditt jobb?	
R12	N: mm, man kan tänka ifrån två håll, den ena är ju då att kunden beskriver sin behov. Det är det som vi lever på, vi lever på att lösa kundens problem som de inte själva kan lösa. Så baserat på dem behoven så är en del av kreativiteten att kunna ställa frågor. Så att man både får fram tydlighet i det de beskriver, men också ställa frågor och belysa områden som de kanske själva inte har tänkt på som spelar roll. Så det är den ena delen, att kunna undersöka och sätta ord på problemet, och sen är ju givetvis en del av kreativitets processen att hitta lösningar på detta. Och där handlar det ofta om att ha lite olika.. kompetensmix, för att se olika infallsvinklar på hur man kan lösa..., inom det området som vi jobbar med så rör det sig väldigt tekniskt man kan alltid hitta flera olika lösningar på samma problem. Och sen är det ju också att mixen av människor, med lite olika erfarenheter och också lite olika infallsvinklar på saker	CP R/G CP IF

	och ting. Och sen är det ju andra hållet, från ren kompetens utveckling om jag uttrycker mig så, vad händer tekniskt? Vad händer i branschen? Vad händer med olika kompetensområden? Hämta inspiration ifrån det, som i sin tur förs in till kunden och väcka behov hos kunden som de själva kanske inte vet om att de har. Så man kan säga att kreativiteten kommer ifrån två håll, det ena kommer ifrån kundens förfrågningar och sen kommer det också ifrån vår kompetens, och så drar vi in den mot kunden och väcker kunden istället.	CP
R13	L: Okej. Vad påverkar kreativitet negativt respektive positivt?	
R14	N: Negativt är ju naturligtvis tidspress och stress. Men det finns också det andra med för mycket tid. Jag skulle vilja säga negativt är ju en, vad ska man säga.. dialogen med kunden i vårt fall är otroligt viktig, så är en negativ del av kreativitets processen är ju en, vad ska vi säga, inte en hälsosam dialogsmiljö. Så ha en bra dialogsklimat med kunden är avgörande. Det vill säga att man få ärliga svar, att de lyssnar, att det inte bara handlar om att pressa priset så att säga, utan så att man kan ha en vettig dialog. Så dialog tycker jag är avgörande. Så dålig dialog ger dålig kreativitet, och bra dialog ger bra kreativitet. Andra delar är ju naturligtvis individerna. Det finns de som blir analytiska och fastnar i analyserna och kommer inte vidare, och kommer inte fram till att kunna komma med lösning. Och det andra är ju att de för snabbt kommer fram till en lösning och har kanske inte analyserat tillräckligt. Så det är också en balans. Både det är ju positivt och negativt, om man fastnar eller om man inte gör det alls, och vice versa. Så där är ju mixen av människor, sitter jag med ett team som ska lösa ett problem och det är bara ”do:ers”, då kan det ju bli att man för mycket bara repeterar det man har gjort innan och inte tänker efter. Vad är det unika i denna situation? Vad är det som gör att saker verkligen kommer att funka? Och vice versa. Har jag för många analytiker, då kommer man aldrig framåt, utan ställer bara frågor hela tiden och kommer inte till någon lösning. Någonstans måste man sätta ner foten, ”nej men nu gör vi så här, för nu tror vi på detta”	IF IF IF
R15	L: Ja. Är det viktigt att sträva efter att bryta gamla antaganden? Som att en kund kanske är van vid att använda en produkt på särskilt sätt sen tidigare och om man inte bryter det antagandet kommer de se ut så framöver med.	
R16	N: mm, det är helt avgörande, för om vi bara repeterar oss hela tiden blir det förvållat i en bransch som våran och det kan gå ganska fort hos oss. Speciellt när man går in på mobila tjänster och så, som i stort rör på sig ifrån vecka till vecka. Så där har du inte tid att stampa och göra saker likadant.	G
R17	L: Nej okej. Många forskare menar att inom just IT och Människo-datorinteraktion så skiljer sig kreativitet, gentemot andra områden.	
R18	D: På så vis att den kräver mer analytiskt tänkande, och kräver mer analys än inom andra kreativa områden.	
R19	N: Andra områden, exempelvis?	
R20	D: Det är då främst andra rent kreativa områden så som musik eller liknande.	
R21	N: Mm okej. Jag tror så här att inom IT finns inte så mycket tid för try-and error. I exempelvis musik då kan du testa saker, du har en idé, testar, ”nej det var inte bra, vi ändrar lite här” och så vidare. Men man kan inte bygga IT-system på det sättet, för då får du ett jäkla lapptäcke som är ganska svårt att underhålla. Och det finns ingen kund som vill betala för det heller. Så på så sätt skiljer det sig åt, men jag tror inte det skiljer så mycket åt om man jämför med ett husbygge till exempel, för man kan inte	CC

	<p>improvisera vid ett husbygge heller. Om man säger så här, utmaningen ligger i att när du fattar dina stora beslut som påverkar din lösning mest, de gör du tidigt i projektet och då har du som minst kunskap. I slutet av projektet har du som mest kunskap men då kan du egentligen endast påverka så lite som möjligt. Här är ju alltid utmaningen, och det gäller ju även andra konstruktionsbyggen. Så det har vi ju gemensamt och det är där som jag också kan hålla med om att behöver man spendera tid på analysen får då du göra antaganden, du får sätta upp hypoteser och du får hitta sätt att provtrycka dessa hypoteser så att du slipper provtrycka en färdig lösning och konstatera att det inte fungerar. Men ett annat sätt som vi också löser det är ju att ha väldigt mycket test längs med vägen, vi testar väldigt mycket under tiden för att kunna rätta till antaganden som vi har gjort fel. Så det är ett sätt att lösa det på och där kommer också in att jobba agilt som ni säkert har hört tidigare. Det är ju också ett sätt att komma undan det, för att fatta för mycket beslut för tidigt har ju visat sig att det inte är lätt för du har inte all kunskap. Och då behöver du spendera väldigt mycket tid och tänka och då är det väldigt lätt att gå vilse och kommer du inte framåt.</p>	CC
R22	<p>L: Somliga menar att kreativitet kräver mer frihet, men samtidigt kräver en organisation struktur. Vad är din uppfattning av den här relationen?</p>	
R23	<p>N: Jag håller inte alls med om att kreativitet kräver mycket frihet, jag tycker tvärtom. Ofta när du får tydliga ramar, det är då du är kreativ. Det finns.. Det är.. Om du alltid utgår ifrån ett vitt papper då är du mer en konstnär en någon som ska producera en lösning för någon annan. Och konstnärssjälar är ju trevligt och sånt, men då ska de syssla med något annat än IT. Eller så här.. Då kanske du mer ska syssla som entreprenör, produktutvecklare och så vidare. Men om du har ett givet case som du ska utgå ifrån då handlar det ju om att vara kreativ inom givna ramar. Och självklart ska du ju alltid försöka ifrågasätta dessa ramar och provtrycka dem så. Men att någonstans hela tiden tror jag att jag.. Att inte kunna vara kreativ utan helt fria tyglar, det tror jag inte på för jag har sett vid flera tillfällen att det då inte händer så mycket. Det är begränsningarna och kraven som egentligen triggar igång, det är de utmaningarna som gör att vi blir som mest kreativa. "hur kan vi ta oss förbi det här hindret". Är det helt fritt blås och det finns ingenting, jag tror att man blir lite stum i hjärnan.</p>	FS FS FS
R24	<p>L: Vilka metoder eller verktyg använder du/ni idag för att främja kreativitet?</p>	
R25	<p>N: Ja en sån är ju då att jobba agilt. En annan är ju att vi mixar teamen tidigt. Vi har designers, systemarkitekter, blandat med projektledare, blandad med säljare och så, som kommer med lite olika erfarenheter och olika infallsvinklar och så. Ja vad gör vi mer? Vi jobbar rätt så mycket med att i olika projekt ta fram.. Vi är rätt så medvetna om, vad är den röda tråden i det projektet som vi jobbar med, i den lösningen, och vad är det som funkar bra? Så det sätter vi ofta ord på och identifierar. Ett annat sätt som vi jobbar med är ju, precis som jag nämnde innan, att inte repetera saker och ting utan att ta varje case som ett nytt case. Och hitta den unika vinkeln i på alla casen. Det är ju där, så att säga, vi hittar också kreativiteten. Om du för snabbt säger att "jaja men det här enkelt, så här, det är bara att göra..", då tappar du edge i lösningen. Och sen kör vi ganska mycket med att folk får bollplanka med mig och redovisa. Jag är inte så involverad i detaljerna, utan jag tar ofta den här lite vid sidan av och stämmer av att "okej, är detta tydligt, är det rimligt det de pratar om, fattar man vad det handlar om." det är fortfarande kunden som ska fatta beslut och då måste den kunden förstå vad visten med detta är. Är det för krångligt, för komplicerat, för mycket ord, då slutar folk lyssna. Även om vi jobbar med ganska komplicerade grejer, men vad en tjänst gör eller vad en produkt gör måste du på ett väldigt kort ögonblick förstå</p>	M M M M

	annars är det inte tydligt.	
R26	L: En uppfattning i litteratur kring kreativitet är att det inte kan genereras genom användning av metoder, vad är din uppfattning kring det här? Metoder likt brainstorming och liknande.	
R27	N: Jag tror att återigen det här med ramar och styra upp, och kunna se det ifrån olika perspektiv och tvinga mig själv att se saker och ting ur olika perspektiv. Vi är förälskade i våra lösningar, speciellt den första vi kommer på och då är den fantastisk. Och då är det inte alltid så lätt att sätta sig och vara kritisk mot den, men ofta är inte den den bästa lösningen. Även om vi är stört förälskade just då och där tror jag att metoder kan hjälpa och tvinga en själv och tänka i lite nya banor. När jag jobbar med interaktions designer så sätter jag alltid principen att gör först en lösning som du tycker är rätt och sen så sätter du dig ner och gör en lösning som är precis tvärtom, med motsatt riktning till den tidigare. Även om du kommer att slänga den sen, men lägg lite tid på att tänka precis tvärtom. Oftast då hittar du grejer som du inte har tänkt på innan och sen därefter säger jag till dem att gör den tredje lösningen och hämta inspiration ifrån de båda. Är det fortfarande så att den första lösningen är den bästa lösning, fine då är det så men då har du ändå provtryckt i en annan riktning. För när vi kommer på en bra idé då söker vi ofta en bekräftelse till varför det är så bra. Då är vi inte lika villiga att söka motsatsen, varför den är dålig och det är det som jag ofta kan tycka, att om man tvingar sig själv precis tvärtom då hittar man andra saker som man inte hittar i den första lösningen och det slutar nästan alltid med att det blir en tredje lösning. Detta eftersom du väcker frågor, du väcker infallsvinklar, du ser saker och ting som du inte såg i första lösningen.	PM PM M CP IF
R28	D: okej, i litteraturen på detta område vill några gärna relatera innovation och kreativitet, att dessa har en särskild koppling. Vad är dina tankar kring det?	
R29	N: Det beror ju lite på hur man definierar ordet innovation. Det som jag tror.. om man tittar rent i samhället för det att funka, så skulle jag vilja säga att det mesta vi gör är ju små justeringar, på saker och ting som redan existerar. Jag tror vi som människor inte hade pallat att ha revolutionerande nya produkter varenda dag, ”do not fix what ain’t broken” på något vis. Och jag tycker att det finns.. Minst lika viktigt är ju det här små justeringarna, för det är ju där som du kan hitta de stora vinsterna. Och det är ofta där som det kan finnas utmaningar i att kunna vara kreativ där. Men det finns en förkärlek till det här, liksom vitt papper, gör en helt ny mobiltelefon. Om man jobbar inom vår bransch och tror att det är det man ska göra hela tiden, kommer man nog bli ganska uttråkad på det ganska snabbt. Det är inte så verkligheten ser ut. Men sen kan jag samtidigt tycka att det finns minst lika mycket respekt för att hitta de här små grejerna som gör hela skillnaden i en produkt. För alla vi har ju haft produkter eller tjänster, överlag 95% är bra men det är de 5 sista procenten som gör att man blir arg på produkten, att den inte funkar, eller som gör att jag inte gillar den. Sen finns det ju saker som gör stor skillnad för en slutanvändare och det finns saker som är ”gör samma som de andra”, för var ska man slösa dit på det. En inloggningsprocess till exempel, om produkten behöver en inloggning, gör då som alla andra, döp inte om saker och ting till något annat, bara för att det ska vara kreativt, just det med username och password till något annat som man inte fattar. Sen kan man ju ifrågasätta behövs det ett inloggning, det kan jag tycka är ett sådant exempel att väldigt ofta ifrågasätter man inte behövs det ens inloggning, kan man göra det på ett annat sätt, ingen tycker det är kul att logga in. Ingen tycker det är kul att komma ihåg ett password. Den frågan tycker jag folk ställer sällan. Så jag tycker att det är där någonstans som verkligheten sitter och att kunna vara kreativ i det är	R FS R G

	oftast vad som gör de stora skillnaderna. Men jag tror att det finns en status som säger att vi bygger helt nya produkter och tjänster, från scratch är mycket finare. Men om det är skillnad däremellan? Ja det är det för det ena är väldigt detaljfokuserad och den andra är väldigt övergripande, och de flesta idéer ser väldigt fint ut när det är på det övergripande stadiet, men när det går in på detaljer inser du att det är ganska så svart. Jag tror att alla vi har suttit och tittat på tjänster och produkter och tänkt ”hur fan kan de vara så dumma och göra något sånt här, hur kan det se ut på det här sättet.” Men när man sen väl sitter i projekten inser man varför de ser ut som de gör. Det är inte så lätt som man tror när man är inne i detaljerna. Men de som är innovatörer vill oftast inte jobba i detaljerna för då har de tröttnat.	IF
R30	L: ja okej, då var vi klara. Du har fortfarande samma inställning till anonymitet?	
R31	N: ja, det är lugnt.	

Appendix 2d – Interview transcript 4

L = Lars Lindvall

A = Anonymous (interviewee 4)

Interview with <i>anonymous</i> (interviewee 4)		
Date: 2012-04-25		
Row	Conversation	Code
R1	L: Vill du hållas anonym i uppsatsen?	
R2	A: Egentligen så behöver inte jag vara anonym men det är bra om ni anonymiserar företaget informationen kommer ifrån, eftersom att mitt namn kan härledas till företaget så ka näven mitt namn då anonymiseras. Så ja, om det går bra. Tidigare samarbetade vi väldigt mycket med studenter såsom under ex-jobb och liknande men under den senaste tiden har vi fått hålla mycket på vår konfidentialitet vilket gjort att samarbetet med universitet kraftigt reducerats.	
R3	L: Får vi lov att spela in intervjun?	
R4	A: Jadå, det ser jag inget som helst problem med.	
R5	L: Vad har du för arbetsuppgifter idag?	
R6	A: Jag jobbar, inom en del av organisationen som tittar på nästa generations produkter och användarupplevelser samt funktioner som kunder vill , och kommer vilja ha i sina telefoner. Så vi jobbar tillsammans med ett antal olika liknande grupper i vår organisation som gör allt från hårdvara till användargränssnitt, mjukvara och cloudlösningar och liknande. Men genomgående handlar det om att vi tittar några år framåt i tiden för att kunna estimeras kunders framtida behov och önskemål. Jag leder även en utav dessa ovannämnda grupper.	
R7	L: Vad är kreativitet för dig?	
R8	A: Kreativitet kan uppstå lite överallt i en organisation, ofta förknippar man det med att det är interaktionsavdelning som sitter och är kreativa och att det är mycket, ofta sammankopplingar mellan designers och kreativitet. Men kreativitet är mycket bredare än så att man bara sitter och hittar på nya idéer. Kreativitet kan man mycket väl se inom andra områden såsom de mer produktionsorienterade. Att ha god kreativitetsförmåga innebär att man ser behov samt lösningar på dessa, lösningar som kanske inte är de mest uppenbara, det tycker jag kännetecknar kreativitet. Att vara kreativ innebär vidare att man ifrågasätter metoder och gamla antaganden samt hur saker bör vara. Att göra små förbättringar är också tecken på kreativitet, detta kan ses både inom kodning, design samt i processer. Men vad som verkligen kännetecknar kreativitet är att man tittar helt disruptivt på ett problem för att kunna hitta lösningar på detta problem. Det jag menar med disruptiv här är att man inte bara gör små inkrementella, uppenbara förbättringar på en befintlig lösningar (ofta ganska lätt), utan tittar på problemet på ett nytt sätt	D D D D

	och tar fram en helt ny och bättre lösning (som mycket väl kan göra den gamla lösningen utdaterad och obsolet) vilket är betydligt svårare och kräver mer kreativitet. Man brukar prata om Sustainable Innovation vs. Disruptive Innovation (Innovator's Dilemma – Clayton Christensen)	
R9	L: Hur skulle du beskriva kreativitetsprocessen kring hur du själv arbetar.	
R10	A: Jag anser det är svårt att vara "the lone genius" på ditt rum och bara komma upp med väldigt idéer, kreativitet kräver interaktion såsom under workshops och liknande. En kreativitetsprocess involverar fler personer som jag ser det om man vill nå riktigt bra resultat. Det handlar mycket om att man kan vara i ett tidigt stadie vara väldigt öppen och väldigt obegränsad i sitt tänkande utan förutfattade meningar, under resans gång bör en disciplin bör sedan uppkomma att smala av och sälja in de idéerna som är mest lovande. Dessa idéerna går sedan igenom en iterativ process varigenom idéerna diskuteras genom att man bygger på varandras idéer för att nå en slutprodukt. Det handlar mycket om att kunna ge och ta kritik på ett konstruktivt vis. En idé är väldigt billig ur det hänseendet att det är väldigt enkelt att slänga ur sig en massa idéer, det svåra är senare att förädla dessa idéer och att veta hur man ska prioritera.	CP IF CP CP
R11	L: Vad skulle kunna påverka kreativitet positivt vs. negativt?	
R12	A: Om man tittar på en organisation så den kan fungera och generera kreativa lösningars på svåra problem så behövs det ju en grundläggande vettig lön samt vettiga verktyg att arbeta med för att personal ska motiveras. Har man bara tagit bort det från bordet så är att använda pengar som incitament för att driva på kreativitet ofta en motverkande faktor även att driva på kreativitet är ofta visat att det inte funkar. Att sätta ekonomiska incitament för att generera innovationer är inget bra recept. Folk behöver istället utrymme för att kunna tänka och lyfta blicken lite så de kan se utanför sin vardag med alla måsten som man kan ha i sin roll i verksamheten. Google är ju det klassiska exemplet med 20%:s regeln, att man använder 20% av sin tid för att lyfta blicken och tänka på annat utanför "boxen" detta är en sak även Google applicerat, det har potential att fungera men jag är inte riktigt säker på om de har eller om det bara är en myt men otvivelaktigt kommer denna typen av verksamheter att ge utrymme och möjliga komma fram med fler idéer och liknande. Detta är en metod även vi använder, där vi har avsedda specifika dagar där hela företaget arbetar i olika omfattningar med detta. Inte vad man vill men andra uppgifter än vad vi vanligt är vana vid, inom ett visst område, ofta problemområden vi ser som viktiga. Detta är en dag då vi låter de anställda lösa problemen på sina vis, vissa sätter sig ner och kodar medans andra kanske sitter och filmar eller bygger prototyper och liknande. Denna typ av utrymme bör man ge sin organisation för att kunna kreativitet, jag tror vidare att kreativitet kan genereras genom enkla ramverk, att man lär sig att tänka på specifika vis, såsom genom en brainstorm eller prototyp osv. det kan hjälpa kreativitet, men det får inte bli så att det slår över, att man följer ramverken slaviskt, då inverkar det såklart negativt på kreativitet. En annan sak som är negativt är om alla är 110% allokerade i sitt arbete så att de inte har någon tid överhuvudtaget att tänka på annat då får du inte en ultimativ kreativ miljö, du får folk som såklart levererar saker men de kommer bara leverera det precis du definierat du vill ha, de har med andra ord inte tid att tänka utanför sitt område.	IF IF IF M M IF IF
R13	L: Vilken roll har kreativitet inom HCI?	
R14	A: Det är lite som jag sa innan, ofta anknyter man designers till en kreativ person	

	<p>det är dom ju ofta, men precis som alla andra hantverkare eller yrkesroller så finns det andra delar som är rent hantverk som även dessa svarar för kreativitet. Så att sitta och göra interaktionsdesign består ofta av rutinmässiga uppgifter såsom att göra storyboards, wireframes och sånt där medans i en tidigare fas, det är då den kreativa delen kommer in. Det är som tidigare nämn svårt för en interaktionsdesigner att sitta i ensamhet och vara kreativ, ofta blir det, alltså riktigt bra är om man kan blanda in andra kompetenser. Förväntningarna på en designer eller interaktionsdesigner är ofta att dom ska vara den kreativa beståndsdelen i teamet. Men ibland, det är en lite orättvis föreställning eftersom en stor del, det finns många designers som, det är som en programmerare, vissa gillar att bara cruncha kod medans andra mer gillar de stora perspektiven på vad det egentligen är vad de försöker lösa. En programmerare menar jag har lika stora krav på att vara kreativ, det tar sig bara i olika uttryck för en programmerare, men visst det är klart, om du ställs inför ett nytt interaktionsdesignsproblem och om du inte är intresserad av kreativitet och inte har någon ambition då är det ganska svårt att lyckas.</p>	R IF IF IF
R15	L: Inom design-litteraturen har vi ofta sett att kreativitet och innovation är tätt sammankopplade, vad är dina tankar kring detta, hur anser du dessa är relaterade?	
R16	A: Det är en rätt naturlig slutsats skulle jag säga, invention vs. Innovation kan vara en ny teknisk lösning som inte tidigare gjorts, men det behöver ju inte uppfinningen i sig vara, den behöver ju inte lösa något problem. Ofta ser man det ofta tycker jag att tekniker kanske att man, ofta så ser man att det blir teknik som söker efter ett problem att lösa egentligen, det blir liksom att man hitta på lösningen först för att sedan se vilket problem man försöker lösa. Jag anser lite att kreativitet börjar i andra delen, innovation handlar inte bara om att hitta en lösning, man måste hitta ett värdefullt problem att lösa varigenom resultat sedan genereras fram till kund också, det är hela den kedjan, man hittar relevans, kundproblem man skapar en lösning och levererar den till kund, det är en innovation bara själva lösningen. Inom kreativitet de första delarna där att hitta och förstå ett problem, vad som är ett problem och kärnan i detta, där krävs det mycket kreativitet, kreativitet är därför en fundamental del inom innovation. Innovation är ju inte bara en teknisk lösning, oftast eller alltid är en stor komponent av användarupplevelsen inblandad, även tekniken samt marknaden vilka är tre milstolpar inom innovation. Du kan ju vara mycket kreativ i din affärsmodell. Innovation och kreativitet är ju självklart väldigt tätt sammankopplade.	D D D CP D
R17	L: Forskare inom området menar att en utmanande del utav designarbetet är att bryta gamla mönster och hitta områden för användning, vad är dina tankar kring detta? Då kom vi lite in på fråga 10 också, är det viktigt att bryta tidigare antaganden eller är det bättre att hålla sig till det användare känner till.	
R18	A: Jag tror jag kom in på det tidigare, kreativitet för mig är just det, eller en mycket stor del, att kunna titta på ett problem med nya ögon för att hitta vinklar och lösningar på det som tidigare inte hittats. En sådan väldigt känt brytande av mönster är iPhones utbyte av knappsats mot en pekskärm för direkt manipulation med touch, då inte med penna utan med fingrar. Med detta utmanande Apple konceptet att all input skulle göras med fingrarna till att man kunde arbeta mer fritt direkt på en pekskärm. Det design assumption som var till 2006 att knappar skulle vara mer effektivt motstreds då av Apple och utmanade detta antagande, det ser vi idag lyckades, men touch hade funnits länge så man kan spekulera i om dom var först. Detta är ett exempel på ett tillfälle där det varit status quo vilket sedan ifrågasattes. Ofta är det här de riktigt intressanta innovationerna skapas. Annars	G D

	kan man ju säga att man ska förändra antalet knappar eller dess storlek och liknande, det är ju mer inkrementell innovation. Kreativitet inom en affärsmodell skulle ju kunna vara hur Ryan Air förändrade flygresande genom förändrade betalningsmodeller och liknande. Det är också ett gott exempel på kreativitet.	
R19	L: Många forskare menar att HCI design skiljer sig på det viset från konst i det faktumet att denna är mer analytisk, vad är dina tankar kring detta?	
R20	A: Där finns skillnader helt klart, men de grundläggande grejerna jag tyckte var gemensamma är att challenge the assumptions och att ifrågasätta det normala. Där tycker jag det är oavsett om det är programmering, eller teknik, design eller affärsmodeller eller vad det är så är det samma mekanismer som spelar in. I själva utförandet är det ju klart skillnader, men jag tror det är mer likheter än skillnader faktiskt.	CC
R21	L: Vi kom lite in på det här tidigare, men kreativitet påtalade vi behövde den här friheten, men samtidigt kräver en organisation struktur, vad är dina tankar kring denna relation?	
R22	A: Det är ju svårt, ofta så är det så att kreativa processer, där jag jobbar, det är ju rätt långsiktiga saker vi jobbar med. Om du har ett akut problem som behöver lösas så är det rätt tydligt vad som behöver göras men med mer långsiktiga problem kan man skjuta dom framför sig något, men gör man detta hela tiden så tar utfallet skadas givetvis. Om man har det problemet såsom budgetar och liknande så måste detta accepteras, men skulle man se att man har detta utrymme men liksom står fast så kan man separera ut en grupp individer att inte alls vara inblandade i det dagliga utan för arbete enbart med långsiktiga saker för att tillåtas vara kreativ och prova saker, där det även finns utrymme för misslyckande, du måste ge kreativiteten utrymme för misslyckande, det är detta som ger dig kunskaper för framtiden. Skulle du alltid lyckas, då är detta endast ett tecken på att du inte siktar tillräckligt högt, så har man spelar i någon slags comfort zone. I praktiken är detta ett stort problem företag lider av.	FS FS IF/FS IF
R23	L: Vika metoder använder du i ditt jobb för att ”se in i framtiden” i ditt jobb och främja din kreativitet?	
	A: I de tidigare faserna kan det vara bra med olika former av brainstorming, samt olika typer av approacher till hur du öppnar eller fokuserar, du kan ha olika tydlig problemställning, rollbaserat eller scenariobaserat det finns ju massor med metoder för detta. Detta är ju då som sagt i den tidigare fasen där du utvecklar idéer och möjligheter för projektet. Viktigt sen det är ju att komma vidare och göra ett urval (ett mindre) där man kanske gör ett antal skisser för att filtrera/fokusera urvalet. Här i detta skede arbetar du likadant för att ytterligare smalna av i din fokusering för att gå till botten med problemet samt den eventuella lösningen. Det är viktigt att definiera frågor för att sedan använda sig av olika former av prototyping; low-fi prototyping, high-fi prototyping, demos, körande och hårdvaruprototyper eller vad man nu gör för att stegvis genom ”loopar” besvara dessa frågorna och skapa substans för att föra dessa frågorna vidare.	M PM M PM M PM
R24	L: En annan uppfattning inom detta område är att metoder kan låsa kreativitet eller att den blir reducerad, vad är din uppfattning kring detta.	
R25	A: Att sätta ekonomiska incitament påverkar klart kreativitet negativt. Det finns studier som påvisar detta, så ofta påverkar pengar och liknande kreativitet negativt. Intrinsic motivation, man har en passion kring vad man gör, det är en mycket starkare drivkraft för kreativitet än att man pressar sig själv för ökad	IF

	kompensation, genom pengar, hot eller liknande. Det ska inte bara vara tid såsom random tid för att göra något kreativt utan all tid och allting ska ha ett syfte.	
R26	L: Är det något du skulle vilja tillägga som vi kanske har missat?	
R27	A: Känner ni att ni fått svar på vad ni vill veta..	
R28	L: Jadå det tycker jag. Har du samma inställning till anonymitet nu efter intervjun?	
R29	A: Ja, ha det anonymt, men har ni fler frågor så hör bara av er.	

Appendix 2e – Interview transcript 5

D = David Wahlström

L = Lars Lindvall

A = Anonymous (interviewee 5)

Interview with <i>anonymous</i> (interviewee 5)		
Date: 2012-04-25		
Row	Conversation	Code
R1	D: Okej först och främst vill du hållas anonym i uppsatsen?	
R2	A: Det spelar ingen roll.	
R3	D: Gäller det organisationen också?	
R4	A: äh ja organisationen kanske ska hållas anonym, det är lika bra. Jag kan återkomma med till er sen, om ni skulle tycka att det är tråkigt att det är anonymt, så ska jag kolla vad de säger.	
R5	D: Vad är din position i organisationen?	
R6	A: Jag är interaktionsdesigner här. Vi håller på och växer väldigt mycket som avdelning, så alla här är ganska nya. Men sen förra året, lite mer än ett år tillbaka så har vi en som är UX-director (user experience) och sen är det jag och två till som är interaktionsdesigners och vi är väl typ på senior level. Eftersom vi alla är på samma nivå så har vi inga direkta titlar. Sen har vi nyligen anställt en user researcher här också och sen är det en junior nu anställd. Sen ska det komma in fler sen.	
R7	D: Ja okej. Vad har du för arbetsuppgifter?	
R8	A: Jag arbetar både med att vara med och delta i förstudier om man säger så, lite user research, tolka om den information och analysera den och överföra det till.. diskutera den med business och översätta det till business krav eller användarkrav/behov, tolka det, utforma senarior, user stories, beskriva användarnas behov på det sättet vara med och utforma personas, modellera personas och sen att skapa hela designen från konceptuell modell till wireframes, till detaljerade UX-specifikationer i samarbete med utvecklare, ta fram prototyper och så..	
R9	D: Okej. Vad är kreativitet för dig?	
R10	A: För mig handlar det om att man kan.. Alltså det är lite skillnad mot konstnärer till exempel för de är också kreativa men där skapar man kanske mer i.. Jag ska inte uttala mig om hur konstnärer arbetar men jag tror att som i den designer roll som jag har jobbar man gärna inom några ramar och man har liksom begränsningar och det kan givetvis sporra kreativiteten ganska mycket, kan jag tycka. Att man testat hur man kan liksom, utformas något på olika sätt och genom olika lösningar och möjligheter att tänka i olika banor och föreställa olika saker. Men det ska vara lekfullt och det ska vara lustfullt och lite experimenterande.	D D

R11	D: Hur skulle du beskriva den kreativa processen?	
R12	A: Den är iterativa, väldigt mycket skulle jag vilja säga. Den går upp och ned, från detaljer till hög nivå, och också att man bygger på.. den här vattenfallsmodellen, som ni säkert har hört talas om, den funkar liksom inte så. Utan man kan nästan säga att man gör själv även som designer ett litet vattenfall i flera flera iterationer och studsar då lite fram och tillbaka lite holistiskt liksom hela tiden, och angriper problem då ifrån olika liksom vinklar och många.. du har mer och mer.	CP
R13	D: Vad påverkar kreativitet positivt.. respektive negativt?	
R14	A: Positivt tycker jag är när man får tilltro och frihet, möjlighet att testa lite olika saker. Negativt är därmed om man är alltför begränsad eller om man inte får uppmuntran eller tid och lust. Alltså tid till att göra de.. Ofta det jag har upplevt tidigare men inte här är att man inte riktigt vill ge interaktionsdesign den tid som det behöver. Eller att man kommer in försent i en process, det är väldigt kreativtets dödande på något sätt.	IF IF IF
R15	D: Vad skulle du säga att rollen för kreativitet är inom just interaktionsdesign?	
R16	A: Hur menar du då?	
R17	D: Lite hur det används eller vilken nytta kreativitet har inom området.	
R18	A: Alltså det är ju ett kreativt yrke men det är även programmering, skulle jag vilja säga. Man måste vara jättekreativ för att vara en duktig utvecklare också. Men inom det här är det väl lite förmågan att kunna tänka i andra banor och tänka på flera olika.. att angripa ett sätt ifrån flera olika håll, skulle jag också vilja säga och den rollen är ju jätteviktig inom interaktionsdesign men det är ju minst lika viktigt att kunna vara systematisk och disciplinerad i det man gör för det är ju inte fri konst utan det är ju likvärdigt som i alla andra discipliner i ett utvecklingsarbete.	R
R19	D: Ja. Under vår litteraturstudie nu så några velat relatera innovation och kreativitet, att dessa två kopplas ihop, vad är din tankar om just den relationen?	
R20	A: Jag tror inte att innovation föds i något tomrum och att man bara får en idé och så fick en, utan allting är ju en reaktion på något annat man har sett. Man reagerar och kanske medvetet eller omedvetet. Är man duktig designer, ju mer tränad man är så vet man var man har fått inspirationen ifrån lite och också kommer ihåg tidigare exempel. Och då kan referera och bygga vidare på tidigare idéer, både ifrån om man nu jobbar med, som vi gör, digitala produkter eller inom det fältet men även bredare utanför. Det är alltid referenser, något frö någon annanstans eller något som man stött om lite eller tagit inspiration ifrån. Och där tror jag att innovation för mig.. Jag vet också att man talar om radikal och inkrementell innovation. Den inkrementella sysslar många med och jag vet inte riktigt om man ska kalla det innovation, utan..	D D
R21	L: förbättring kanske?	
R22	A: Ja det är nog snarare en förbättrings arbete. Men det är den radikala innovationen, den är lite svårare för en organisation eller företag och de som utvecklar produkter att våga ta det steget. Att tillåta det att hända för det är lite skakigare att göra.	D
R23	D: Ja lite som en fortsättning på det så är det några som menar att just inom HCI är det svårt att bryta tidigare antaganden eller uppfattningar av hur någonting ska användas..	
R24	A: Ja men precis, därför är den radikala så mycket svårare. Att just släppa det man har trott på tidigare och våga se saker och ting eller låta någonting ta en helt ny form.	

R25	D: Är det något som man ska sträva efter eller ska man ha kvar det som användare är vana vid?	
R26	A: Jag tycker inte att man kan säga att man alltid måste sträva efter det ena eller det andra, men ibland kommer det ju vissa produkter som iPhone och så vidare som är liksom radikal innovationer, eller sony walkman på sin tid, och liksom verkligen tar ett jättesteg framåt i en helt oväntad riktning. Och naturligtvis om man bara tar steget rätt och gör rätt så är det klart att man ska göra det. Men alltid? Nej man ska inte göra det för många gånger, skulle jag vilja säga. Gör man det hela tiden alltså då förlorar man ju också. Har man en kundgrupp så måste de ju också känna igen sig i produkten.	G G
R27	D: Ja. Vi var inne lite på det här förut också, just att vissa menar att inom HCI så krävs en viss typ av kreativitet, som skiljer sig ifrån kreativitet som förekommer inom musik eller konst eller så, att man då måste vara mer analytisk..	
	A: Jag skulle vilja säga att kreativiteten inom .. att är man en duktig designer så är man också ganska.. till skillnad från att vara konstnär, eventuellt då, man är en yrkesmänniska och man har som en verktygslåda med metoder och tekniker som man applicerar, liksom en snickare eller vad som helst, en programmerare eller en arkitekt. Det är liksom inte bara att sitta och så poff, det poppade upp en fräck idé. Det är istället ofta bottnat och det ska vara bottnat, om man är en duktig designer så det liksom inte bara att.. Design ska inte utgå från mitt eget utan det ska utgå från vem det är jag designar för, vilka miljö ska det användas i, på vilket sätt ska det användas, du måste väga in alla dessa parametrar och utifrån det kunna finna en god lösning, så det är ju mycket analysarbete. Nu vet jag inte om jag tappade tråden på frågan?	CC CC CC/G
R28	D: Nej men det är bra, det stämmer. Det finns även de som menar att kreativitet kräver frihet, som du tidigare också nämnde, men samtidigt kräver en organisation struktur, vad är din uppfattning av den här relationen eller balansen?	
R29	A: Jo men det är väl just det att det måste bli en balans. Som designer kan man ju ibland vilja ha hur mycket tid som helst för att göra flera olika, testa olika lösningar och idéer och olika teser liksom. Det är ju aldrig heller en rätt lösning, utan det handlar ju alltid om att vi har flera olika lösningsalternativ eller idéer, produktidéer. ”Den här har de fördelarna, men några nackdelar”. En annan har några andra fördelar, styrkor men några nackdelar, men det måste man väga mot vilka nackdelar vi kan leva med? Vem är det vi designar för och så vidare? Vilka nackdelar blir mest kännbara för den eller de användarna och vilka fördelar är viktigast, för att sedan välja en lösning där. Sen är det ju naturligtvis vad de kostar och de ekonomiska parametrarna kommer ju också in och hur lång tid tar det och så vidare. Vad säger marknadsföring liksom och marknadsavdelningen, även om vi ser utifrån våra studier eller undersökningar och tror att det här kommer att behövas, men det är det ingen som tror att de behöver det därför kommer ingen heller att köpa det, men detta tror folk att de behöver, då är det det som vi går på. Men nu tror jag inte att jag svarade på frågan va? Vad var det ni frågade om?	FS CP CC
R30	D: Balansen mellan frihet och struktur..	
R31	A: Ja just det den balansen. Jag personligen vill ha ganska mycket frihet och få lov att testa lite idéer och lite.. men inom rimliga gränser givetvis, det är inte det jag vill göra någon extravagant som kostar väldigt mycket eller usability test eller annat som kostar väldigt mycket, men det handlar mycket om tilltro. Så förtroende..	FS

R32	D: Okej. Använder du några särskilda metoder eller verktyg för att främja kreativitet?	
R33	A: Det finns ju en del såna här, kan jag tycka. Men det är så många, och det finns ju det metoder och tekniker som är jättebra som man kan göra i grupp eller så för att få det att lossa liksom och för att försöka komma ifrån låsningar. Det finns en hel uppsjö och jag tycker att det finns väldigt många som är väldigt bra. Jag är själv förtjust i de som är ganska snabba och enkla, som inte kräver för lång förberedelse. Men det är lite beroende på var man är och vad det är för typ av problem som man ska lösa, så det är ju sånt som affinity sorting, card sorting och sånt som man kan göra för att förstå ett problem område eller för att förstå.. cardsorting för innehållskontentet på något sätt. Men sen någon form av strukturerad brainstorming och liknande i grupp. Jag kan inte säga att jag har några favoriter så utan vi försöker att använda oss av lite olika och testa nya vägar.	M PM M M M PM
R34	D: Ja. En annan åsikt från en forskare är att just metoder kan ha motsatt effekt på kreativitet, att man istället begränsar kreativiteten..	
R35	A: Ja men det beror nog lite på vad man menar med metoder där, skulle jag vilja säga. Vad du än gör så är det en metod i det, du kan ju alltid se det eller vad definierar en metod, att man har gjort likadant mer än en gång? Vad är egentligen definitionen på metod och så..	
R36	L: Ja man kan ju se det som så också att även att inte ha en metod är en metod.	
R37	A: Ja det är det jag menar lite. För det beror på vad man menar med metod att gjort en sak på ett sätt och sen gör det likadant en gång till, är det en metod då eller ett mönster. Men jag tror att man alltid har ett angreppssätt och det är det som är din metod kanske.	
R38	L: Mm, när tror du att kreativitet uppstår?	
R39	A: Ja det är en bra fråga. Jag tror faktiskt att det är väldigt mänskligt när man känner sig lite inspirerad eller.. Fast ibland är det ju fullständigt oväntat också.. Det kan ju lossna med hjälp av vissa metoder ibland för att man lyckas trigga det och därför det ganska många bra tekniker, kan jag tycka som kan hjälpa en att liksom tänka eller komma igång med att tänka, få igång det. Men ibland är det ju bara ett intryck någonstans som via någon produkt, man ser eller hör något. Ni vet själva och sen.. Som med all problemlösning. Mycket av interaktionsdesignen är ju liksom mycket annat en problemlösning process, eller en idéskapande process, om man nu vill vända på det positivt eller negativt. Det är en svår fråga det med kreativitet.	D PM IF CP
R40	L: Ja men det är ett intressant ämne, men samtidigt svårt att mäta.	
R41	A: Ja det är svårt att mäta och hur man kan se att en lösning är kreativ eller just det förslaget, men det är kanske om det är lite ovanligt eller att det är något oväntat. Och så men det behöver inte betyda att den är bra. Att vara lite nytänkande är väl egentligen av kreativ är, att tänka i oväntade banor, tänka på nya sätt, att bryta invanda mönster.	D
R42	D: Ja	
R43	A: men har ni något mer sen så kan ni höra av er, om ni har följdfrågor eller kommer på något, så går det bra	
R44	D: Javisst, då vill vi tacka för att du ställde upp	
R45	A: Inga problem	

R46	L: Har du fortfarande samma inställning till anonymitet?	
R47	A: Organisationen vill vara anonym, med det får mitt namn också vara anonymt.	

Appendix 2f – Interview transcript 6

L = Lars Lindvall

D = David Wahlström

M = Martin Hultberg (interviewee 6)

Interview with Ubisoft, Massive Entertainment - Martin Hultberg, Head of communications and user research.		
Date: 2012-04-27		
Row	Conversation	Code
R1	L: Vill du vara anonym i uppsatsen?	
R2	M: Nej jag behöver inte vara anonym	
R3	L: Även företaget, behöver det vara anonymt?	
R4	M: Nej	
R5	L: Vad är din position i företaget idag?	
R6	M: Jag är kommunikationsansvarig för studion samt projektledare	
R7	L: Vad har du för arbetsuppgifter idag?	
R8	M: Det kan vara väldigt mycket, jag ansvarar för all social media, jag ansvarar för hemsidan, jag ansvarar för relationer med journalister samt kommunikation med Ubisoft internt samt mellan dess kontor vilka finns över hela världen.	
R9	L: Kreativitet vad är det för dig?	
R10	M: Frihet, kreativitet och frihet är samma sak, man kan inte ha kreativitet utan en hel del frihet, mycket frihet uppstår ofta som ett resultat av kreativitet så det hänger väldigt tätt ihop. Kreativitet är att kunna agera självständigt, inom ramar för, det måste i regel finnas ett ramverk att arbeta inom, men inom detta ramverk bör individer ha utrymmet att använda sin egna kompetens och sin egna inspiration. Det är kreativitet.	D FS D
R11	L: Hur skulle du beskriva kreativitetsprocessen?	
R12	M: Kan du ge ett mer specifikt exempel? Eftersom att processen den varierar ofta med vad man jobbar med.	
R13	D: Många menar att det innebär att man först samlar in data på problemområdet..	
R14	M: Oftast, antingen börjar processen med en väldigt specifik uppgift eller idé. Antingen att vi blir tilldelade en så har vi själva en idé kring något vi vill göra. För mig kan denna processen börja på dessa två sätt. Detta beror helt på vad man arbetar med. En konstnär eller en grafiker har inte samma behov av att samla in material, han kanske ser någon film eller samlar in material på nätet eller vad det nu kan vara. Jobbar man mer kvantitativt snarare än kvalitativt så jobbar man mer med data och försöker titta på andra källor till inspiration.	CP CP
R15	L: Vad skulle påverka kreativitet positivt eller negativt i ditt arbete?	

R16	M: Jag kom lite in på det tidigare, jag tror det är farligt att vara för styrd eller begränsad, då är det mycket svårt att vara kreativ. Samtidigt som kreativitet skadas om man saknar detta ramverk vilket i sin tur påverkar uppgiftens fokus. Du bör därför ha lagom mycket begränsningar, och det är det man arbetar med i en affärsverksamhet där effektivitet, kostnader, tid och kvalitet vägs upp. Samtidigt bör vi kunna vara oerhört kreativa. Det är egentligen skillnaden mellan en konstnär som agerar fritt, för att han bestämmer själv sitt egna fokus. Det är därför det finns så många konstnärer men endast ett fåtal verkligen framgångsrika. Därför att hitta fokus är väldigt svårt.	IF IF
R17	L: Vilken roll har kreativitet inom HCI vs. Konst? Bland våra teorier så fann vi att en utav dessa var de ökade kraven för HCI designers på analytisk förmåga, hur resonerar du kring denna relationen?	
R18	M: Jo det gör den ju.. Interaktionsdesign handlar ju om att designa något användare ska kunna interagera med. Medans konst endast handlar om att framföra din åsikt utan att egentligen bry sig om andra människors åsikter. Du gör de med andra ord mer för din egna skull, mer subjektivt, medans att skapa ett gränssnitt användare ska kunna interagera med kräver en mycket mer objektiv syn, vilket i sin tur kräver mer analys. Det är lite här ramverket kommer in, man måste se åt målet och liknande. Just inom detta område tittar man väldigt mycket även på målgrupper man ska arbeta för att passa. Det finns ju såklart mycket utrymme för kreativitet inom interaktionsdesign, vi som människor(grupp) förändras hela tiden och vi förändras ständigt kring hur vi interagerar med saker och ting. Därför måste även utvecklingen och inom detta område gå i samma riktning, genom kreativitet. Man kan ju hjälp till att driva denna utvecklingen genom att vara kreativ.	R/G CC IF G
R19	L: Hur arbetar ni idag med att bryta mönster för tidigare antaganden inom spelbranschen?	
R20	M: Vi tar in mycket folk och testar hur de interagerar med olika miljöer, vi läser mycket avhandlingar och tar del utav mycket statistisk data. Vi har även ett gott samarbete med Malmö Högskola och andra universitet där folk forskar om detta på heltid. Men det absolut bästa sättet är att se folk använda det själva under testningsfasen för att få direkt anknytning till det.	CP
R21	L: Är detta en viktig grej att sträva efter? Att bryta nya antaganden med en produkt?	
R22	M: Jag vet inte om det är något man ska sträva efter, men man ska inte vara rädd för att prova. Ett visst mått av innovation är alltid uppskattat i vår bransch, samtidigt som det alltid finns vissa användarmönster vi inte kan bryta. Jag antar att ni spelar spel någon gång?	G
R23	L: Jadå	
R24	M: Då vet ni att det finns vissa konventioner som är riktigt sköna, alltså sättet hur en playstationkontroll fungerar. Till exempel Call of Duty har ju gjort riktigt bra kontroller. Om ett annat spel använder samma kontroller då uppskattar jag det som spelare eftersom att då slipper jag ägna en massa tid åt att lära mig, vilket knapp var hoppa och vilken sköt jag på etc. Detta är ett exempel på ett sådant område man inte vill vara innovativ kring, utan vi kan acceptera det befintliga sättet att manövrera med som vi vet fungerar. Samtidigt finns det andra områden som vi hellre kan fokusera på och var lite nyskapande inom, såsom hur information presenteras eller själva gameplayet, sättet man spelar på liksom.	G G
R25	L: Du var lite inne på detta också tidigare, men, men vår litteratur menar att kreativitet kräver frihet, samtidigt som en organisation kräver mycket struktur, vad är	

	din uppfattning kring denna relation?	
R26	M: Min uppfattning är att de som leder projekt måste förstå vad kreativitet är. Det är väldigt lätt att döda kreativitet genom att strupa den såsom att införa regler och ramar, liksom det är lika farligt att försöka släppa den fri genom att inte ha detta ramverket. Därför är det mycket viktigt att du som projektledare har denna förståelsen kring hur kreativitet funkar, förstår du detta så har struktur och kreativitet, det är inget problem, eller något som måste motsäga varandra, utan båda behövs för att kunna genomföra ett projekt med ett specifikt syfte.	FS
R27	L: Vilka metoder använder ni idag för kreativitet?	
R28	M: Jag vet inte om vi har specifika metoder. Det är mycket upp till individerna, det måste ju funka på individplan eftersom att inte alla fungerar på samma vis, tänker likadant osv. Det viktigaste för att gynna kreativitet är att individerna att inte vara rädda för att komma med förslag, eller försöka nytt. Företaget måste ha en hög tolerans för att folk ska kunna experimentera och komma med nya förslag. Vi har försökt väldigt hårt att ha något som kallas meritokrati, det är alltid bästa idéerna som vinner oberoende kring om han varit anställd längst eller har någon specifik titel, utan det är idén i sig som är viktig. Detta är ett sätt för oss för att bibehålla kreativitet, att folk som kommer med bra idéer blir då belönade, utan det handlar inte om att ha varit här i 15år. Han måste därför fortsätta prestera trots sin långa anställning. Detta är något vi kan se är annorlunda i länder såsom USA och liknande där roller är mer strikta och endast vissa individer får vara kreativa samt till olika grad.	M PM M/IF FS M
R29	D: Som du nämnde där vill man ofta förknippa kreativitet med innovation, hur ser du på denna relationen?	
R30	M: För mig är innovation en form av kreativitet, som ett subset av kreativitet-familjen. Det behöver inte vara nytt för att vara kreativ, du kan ta något som finns och vidareutveckla detta. Det tycker jag fortfarande är kreativt även om det inte nödvändigtvis är innovativt. Så att jag tycker inte nödvändigtvis att de hänger ihop, jag träffat på människor jag skulle kunna se som innovativa men som jag inte direkt uppfattar som kreativa, många väldigt teknologiskt inriktade människor kommer ofta med innovation, pressar fram nya processorer eller andra tekniska uppfinningar men det är inte så att man nödvändigtvis kan förknippa dessa med kreativitet på detta sättet eftersom de puschar en existerande lösning till nya områden, så nej det är inte samma sak för mig även om de ofta hänger ihop.	D D
R31	L: Är det vidare du skulle vilja tillägga?	
R32	M: Det viktiga är att för ett företag att förstå kreativitet. Så att de inte bara säga idag ska vi vara kreativa utan att de vidare försöker gynna en kreativ miljö och kultur som tillåter detta att existera. Vi till exempel lägger mycket pengar på till exempel lokaler och omgivning och processer som ska tillåta kreativitet, det är jättepulärt bussword idag, alla chefer vill ju säga att de har kreativa anställda och att det är kreativa miljöer, men det är ju inte alltid så eftersom det kräver stora resurser. Kreativitet kan därför vara väldigt kostsamt, men ofta om man kommer fram med något nytt innebär detta ofta att man får igen de pengarna, investeringen, tid eller vad det nu kan vara. Man måste därför våga satsa på kreativitet för att det ska kunna existera, det är inget som bara uppstår, man måste jobba på det liksom på allt annat. Därför kan det lättare för ett mindre företag att vara kreativt än ett större eftersom dess ökade externa och ökade interna tryck. Och mer komplexa miljöer.	R R R
R33	L: Har du samma inställning till anonymitet nu efter intervjun?	

R34	M: Absolut!	
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