DO WE REALLY EMPHASIZE THE USERS THAT MUCH?  
EXPLORATIVE INTERVIEWS WITH  
INTERACTION DESIGNERS

Hanne Sørum  
Westerdals – Oslo School of Arts, Communication and Technology  
Faculty of Technology  
hanne.sorum@westerdals.no

ABSTRACT

During the technological shift and decades of online experience, we stress the importance of satisfying the users on the Web and in the use of information systems. In this regard, many organizations outsource activities for design and development to consulting companies that are experts in these areas. In such cases, the interaction design process is highly critical in the creation of a system of great quality. The present paper investigates how practitioners (i.e. interaction designers) explain the interaction design process, including user-centered activities. Qualitative interviews were held with experienced designers in large consulting companies in Norway. The findings reveal that the design process varies a lot, mostly depending on the client. Interaction designers perceive that their role in this process is found not to be as important as perhaps it should be. Furthermore, the users are involved in activities such as testing to just a limited extent. User testing and similar activities can put the development process on hold, resulting in consequences for the time schedule and budget. The concluding remarks stress the need for more in-depth research to facilitate great user experiences and the role of an interaction designer. Additionally, we should strive for a common understanding of testing as a vital part of the design process and more emphasis should be placed on how to include such activities.

Keywords: Interaction designers, design process, design team, design principles, usability, user testing, user involvement

1 INTRODUCTION

The use of information systems and Web technologies has dramatically increased during the last decades, and the users today are more knowledgeable and uncompromising compared to some years ago. A huge amount of online information and services are available 24 hours a day and can be reached from almost every location with an Internet connection. The importance of interaction design is becoming increasingly important, while solutions are becoming more complex and technically demanding. Through the use of technology, a lot of traditional face-to-face interaction has today gone, in comparison with just a few years ago. An important key concept now, therefore, is interaction, and the design and knowledge related to this discipline. Fulfilling the user’s requirements is not always that easy, despite the decades of experience, and, at the same time, users have become increasingly demanding. Although existing knowledge, for instance best-practice examples and guidelines concerning design and system development, is publicly available (through textbooks, wikis, blogs, forums) we still find many examples of systems that lack quality and user friendliness.

In this regard, Löwgren and Stolterman (2004) state that usability issues are vital within the field of human-computer interaction (HCI), and that one of the main goals is to provide more usable digital artifacts and systems. HCI is a multi-disciplinary subject (Dix et al., 2003), consisting of various disciplines where different types of knowledge and expertise are important. However, usability testing
is time-consuming and costly (Lindgaard and Chattratchart, 2007), but still important within system development and quality improvements. When designing a great user interface (GUI) with a high level of usability, what is required is in-depth knowledge and varied experience. Designers and system developers need to ensure that the requirements and interests of various stakeholder groups are taken into consideration. Consequently, they need to prioritize activities such as user testing and other great opportunities for receiving user feedback. Grounded in our talks and discussions with both practitioners and academics, we can speculate different practices here, despite the fact that there is a common consensus that the users should be in focus.

According to Zhang and Wakkary (2014): “Recently, researchers in the field of interaction design have begun to advocate practice-based research to produce outcomes that can effectively support interaction design practice. In part, this is due to observations of the mismatch between HCI research and its influence on interaction design practice” (p. 897). Although previous studies have emphasized the role of interaction designers (e.g. Brown, Lindgaard and Biddle, 2012; Stolterman and Pierce, 2012), usability designers (e.g. Boivie, Gulliksen and Göransson, 2006) and provision of practical recommendations – we find a lack of research that focuses on the interaction design process as perceived from a designer’s point of view. Additionally, there is also argued a mismatch between how interaction designer’s work in practice and the research conducted in the field of HCI (Goodman, Stolterman and Wakkary, 2011). Grounded in this and own experience within the area, this topic has piqued our curiosity with respect to current design practice.

Furthermore, we have witnessed that many organizations outsource design issues and system development to external consulting companies. Such companies are specialized, have experts with unique knowledge, and have long experience of such tasks. Within a given time limit and budget, they develop a specific product (system) based on the client’s requirements and needs. Grounded in their expertise and experience, we should therefore expect that they create solutions resulting in high quality interactions. However, we can speculate about the reason why many systems lacks quality. In order to dig into the topic of interest, the present paper aims to contribute by taking a practitioner’s perspective.

Thus, the following research question is addressed: How do interaction designers explain the design process and to what extent are the user’s interests taken care of in this?

In order to give an answer, qualitative interviews were held with interaction designers in leading consulting companies in Norway. This paper provides two contributions to information systems (IS), human-computer interaction (HCI) and interaction design (ID) communities: (1) we aim to complement and expand existing research literature about system development, the design process and the role of user-centered activities, and (2) demonstrate the authenticity of interaction designers in this process. We then wish to open up possible research venues in forthcoming contributions within these three research fields.

We stress that this paper aims to investigate the topics of interest by taking an overall approach rather than dig into details and in-depth explanations. As this is an under-investigated research area within the literature, and is also highly relevant to practice, we first need to identify trends and patterns – and then conduct more comprehensive research studies.

The rest of the paper is organized as following: Section 2 provides a literature review concerning the interaction design process, including user testing and design team members, while Section 3 presents the research method used in this paper. Section 4 deals with the findings from the qualitative interviews held with interaction designers, and Section 5 provides a discussion of the findings. Section 6 presents the concluding remarks and suggestions for future research.
2 LITERATURE REVIEW

Within the field of human-computer interaction (HCI), the interaction design process can be seen as a vital component. According to Biskjaer, Dalsgaard and Halskov (2010): “The field of interaction design deals with the development and use of interactive products, systems and services. It is an interventionism discipline in that it aims at transforming the current state of events through the introduction of something novel. Some interaction design projects radically rethink and transform the situation, whereas others incrementally develop existing systems and practices; however, innovation and creativity play a crucial role in most interaction design projects due to this transformative agenda” (p. 12). From this, we find that the use of technologies, methods applied and people involved in the design process are of particular importance in creating a great, high quality solution.

Interaction design can be looked at in three ways, using (1) a technology-centered view, (2) a behaviorist view and (3) the social interaction design view (Saffer, 2010). Thus, we can debate what qualifications an interaction designer needs and who should, ideally, be involved in the design team – as interaction design has a variety of ways of pushing innovation and creativity (Biskjaer, Dalsgaard and Halskov, 2010). According to Sjöberg and Norlin (2002): “Interaction design has become more and more known and accepted in the information technology development sector. Even if developers do not want to add any extra expenses to the development cycle, they have started to realise that expertise is needed to understand how to create something (products) for them, and also to understand how people (customers) will interact with these products or services. However, they often have a very blurred picture of what interaction design is and what interaction designers actually do.” (p. 235). Dix et al. (2004) suggest that the designer of an interactive system should have expert knowledge in various areas, ranging from psychology and cognitive science to computer science and engineering.

After two decades of online experience we can speculate whether interaction designers are perceived as vital contributors in design projects. Designers need to know how to understand the users and their requirements, different technologies and how to create effective user experiences, and how people interact and communicate with each other in various user contexts. Regarding this, “[i]nteraction design is mostly carried out by multidisciplinary teams, where the skill sets of engineers, designers, programmers, psychologists, anthropologists, sociologists, artists, toy makers, and others are drawn upon. It is rarely the case, however, that a design team would have all of these professionals working together.” (Preece, Sharp and Rogers, 2015, p. 10). In most cases we, find that a design team consists of members depending on factors such as the type of project, its size, product line and the client’s choice and influence. Rarely or ever are all aspects (roles) covered by a design team, although this, naturally, would be the optimal combination of knowledge and skills. Benyon (2014) argues that various people with knowledge of interactive systems design should evaluate the interface, with each of the experts providing input on design issues and suggesting how to improve quality for the users.

As argued earlier, knowing the users is vital in an interaction design process. In this regard, “[d]esigners and researchers in the field of interaction design and HCI have given much attention to empathy and empathic design in recent years. One reason for this is they believe that the closer designers could get to their users lives and experiences, the more likely that their products and services could meet the users expectations and needs.” (Zhang and Wakkary, 2014, p. 897). This requires that the designers are familiar with and know the user’s interests and needs within a given solution and, at best, can design great user experiences. However, Sjöberg and Norlin (2002) suggest that “[i]nteraction design tends to, even among interaction designers, stop at usability issues and thus miss a lot of important aspects of the interaction usually brought forward by adopting more design oriented perspectives.” (p. 235). Usability testing can be applied by taking various approaches and, roughly, we can distinguish between analytical evaluation, evaluation by experts and evaluation by users (Leventhal and Barnes, 2008). Blomquist and Arvola (2002) state that usability methods have, to a varied extent, included users since the early 1980s.
For instance, within usability engineering, the goals related to usability issues are set in collaboration with the users and the design is iterated and evaluated until the goals are fulfilled.

Stolterman and Pierce (2012) argues that the interaction design process is very complex, including various activities and challenges along the way. Each of these activities within the process can be approached with an almost infinite range of tools that could be used. According to Preece, Sharp and Rogers (2015), the process of interaction design involves four basic activities: (1) identifying the user’s needs and establishing requirements, (2) developing alternative designs that meet the user’s requirements and needs, (3) building interactive versions of the design (prototypes) and (4) evaluating and testing the solution. Various development methods can be applied in this process; however, we always need to focus on one step at a time in order to move the process forward in the right direction, taking into account the users requirements and needs. Within the field of HCl, methods for usability testing and evaluations are one of the successes – and helps improving the quality and produces great user experiences (Nørgaard and Hornbæk, 2006). Moreover, user involvement is seen as vital contributor to user satisfaction and quality improvements in software development (Baroudi, Olson, Ives, 1986; Pagano and Bruegge, 2013). The only way to receive feedback from the users is to include them in the development process and listen to their thoughts and comments. The way they conduct tasks and perform, can helps to guide the development process in a certain (right) direction.

In system development and continuous quality improvements, we also have various types of guidelines and/or frameworks that can help in order to provide helpful recommendations in the creation of high quality interactions. “Simply stated, if the customers can’t find a product, then he or she will not buy it. The Web is the ultimate customer-empowering environment. He or she who clicks the mouse gets to decide everything. It is so easy to go elsewhere; all the competitors in the world are but a mouseclick away.” (Nielsen, 2000, p. 9). Consequently, it is vital to strive for effective and useful solutions. According to Benyon (2014), usability goals can be associated with the follow characteristics: they are efficient, effective, easy to learn, safe to use, and of high utility. This is in line with the usability goals proposed by Preece, Sharp and Rogers (2015): effectiveness, efficiency, safety, utility, learnability and memorability. These are also in accordance with the goals stated by Rubin and Chisnell (2008), which, additionally, emphasize accessibility requirements. To ensure universal access to websites and digital services, we need to know accessibility tools, methods for implementation and user issues (Koutsabasis, Vlachogiannis and Darzentas, 2010). This is found to be of particular importance within the public sector, in order to include all the citizens and businesses in our digital society.

Furthermore, Don Norman’s (1998) design principles are also widely used and cover the following features in a design: (1) consistency, which is the key to helping the users recognize and apply patterns, (2) visibility, related to usability and learnability, so the user easily can see what commands and options are available, (3) affordance, which is a visual attribute of an object that gives the user hints as to how an object or system can be used, and (4) feedback, that suggests you should give the users confirmation that an action has been performed successfully or unsuccessfully, and lastly, (5) constraints (restrictions) preventing invalid actions from being carried out. Although we find numerous guidelines, frameworks and design principles within the research literature and in practice, many similar quality aspects and issues are emphasized. However, different approaches are applied, depending on the context of use, type of solutions (products) and the main target group. Gulliksen et al. (2003) identified 12 key principles in regards to user-centred design in software development. The aim of such principles was to support the development process and focus on the users.

According to Rubin and Chisnell (2008), there are reasons why products (systems) fail with regard to successful use, and can be linked to issues such as the development focus on the machine or system rather than on the actual users. It is challenging to design usable products, design team members do not always work in integrated ways, and design and its implementation do not always match. Accepting this as fact is an essential prerequisite for success.
3 METHOD

In order to provide an answer to the research question asked in this paper, we favor the strengths of qualitative data (Miles and Huberman, 1994). Three interviews were held with interaction designers in large, well-known consulting companies in Norway.

3.1 Respondents

They all had the job title of “interaction designer”, though their educational background varied. Respondent #1 was a female in her late thirties. She has a bachelor degree in graphic design (engineering) and has, in total, 12 years’ experience as a designer, with two different companies. Respondent #2 was also a female in her mid-thirties, with a bachelor degree in communication and multimedia, followed by an education in web and interaction design. She has 3 years’ experience as a designer, the last one and a half years as a senior designer. Respondent #3 was a male in his early forties. He holds a master’s degree in informatics and has been a designer for 10 years. All of the respondents provided the researcher with fruitful explanations and descriptions of the phenomenon of interest. They also have experience of working with clients in both the public and private sectors, as well as a variety of digital solutions.

3.2 Data Collection

All the interviews took place in January 2015. The interviews were conducted in person by the researcher and lasted from one to one and a half hours. The interviews were conducted in Norwegian and translated into English for the purpose of this paper. The informants were in the first instance contacted by e-mail. The purpose of the study was explained to each of them and they were asked if they were interested in participating in the study. All of the interviews were held in the informant’s office located close to central Oslo and they were guaranteed anonymity. A computer was used for note-taking during the interviews, none of the interviews were recorded. During the interviews the researcher asked open-ended questions using a semi-structured interview guide, and the researcher asked follow-up questions if needed. The questions concerned topics such as the combination of design team members, the design process as whole, use of design principles, user testing conducted and collaboration with the client. The researcher strived to create a comfortable setting and all the informants were willing to share their thoughts and knowledge.

3.3 Data Analysis

Microsoft Word and post-it notes were used during the analysis in order to organize the findings. None analytical tool/software were used in this process. After the interviews the researchers went through all the interviews and notes were taken, in order to get an overview of the data. Of particular interest was how the designers explained the interaction design process by explaining the various elements and steps, including how and to what extent the user’s interest was taken care of in the process, through user testing and other feedback channels.

During the analysis, we also searched for patterns and trends in the entire dataset, as well as we focused on the individual explanations from each of the respondents. In the end of this process, and in order to fulfill the research objective of this paper, we focused on mainly three topics (see Section 4.1-4.3). These topics where chosen grounded in the intention and motivation for writing up this paper. More precisely, it has been of interest to associate more knowledge of the composition of people in a design team, get a rough overview of the design process and activities including in the design process, as regards user involvement.
Regarding the quality of the data, issues concerning validity and reliability is important to be aware of and discuss in relation to qualitative research studies (Kvale, 1996). Pertaining to this study, the validity and reliability are perceived to be good, taking into account the unit of analysis and handling of data. The respondents own opinion and understanding of the interview topics are emphasized in the present study. Their statements have also been made visible within the text by entering quotes (from the respondents). What concerns the generalizability of the data it is difficult to speculate. However, the findings made in this study show no significant and large differences between the three respondents (companies interviewed), rather the opposite.

Some limitations of the present study are worth mentioning here. This research draws on three qualitative interviews held with interaction designers and more in-depth interviews could have added advantageously to the body of knowledge, along with the unit of analysis (number of cases/respondents). The statements from the respondents also represent their subjective opinion and not necessarily, the attitude of the consulting firms they represent.

4 FINDINGS

The outcome of the interviews conducted is organized using the topics of particular interest: 4.1 The Design Team; 4.2 An Overview of the Interaction Design Process and 4.3 Activities Included in the Design Process Pertaining to User Testing.

4.1 The Design Team

From the results in this study, we find that the design team consists of various people representing different roles within the project. However, this might vary, depending on the individual project, the time limit, budget available and other details related to the individual project (case). The general approach is to share the responsibility between the design team members. As one of the respondents interviewed explains: “We use an interaction designer and a graphic designer, and sometimes we have a project leader, but not always. Later in the process a development team comes in (2–3 people).” What we see from this is how each of the team members contributes in each of the stages (phases) of the development process.

Furthermore, the findings reveals that the design process can be quite lonely sometimes, because each of the members within the team works independently on a given task and/or part of the project. To a varied extent during the project, each of the team members involved has contact with the client. Sometimes there is a need to discuss different aspects of the project and one of the respondents stated that, ideally, two interaction designers should work together on a given design feature (task). This would provide additional space for discussion and knowledge-exchange between team members – along with opportunities to comment on each other’s work before they have meetings with the client and/or present design suggestions.

Regarding the ideal combination of team members within an interaction design process, one of the respondents gave the following explanation: “The ideal combination is one interaction designer, one graphic designer and one front-end developer. However, in most cases there is one graphic designer and one developer that knows about front-end design. The challenge is that developers are not that design-focused and the graphic designer is not technically oriented.” This statement shows that each of the members within the design team has their own knowledge and focus area, and there is a minimum of overlap of knowledge and experience of the working tasks. However, by including both an interaction designer and a graphic designer, design issues can be discussed from various individual viewpoints, but with a shared design-oriented focus.
Another respondent, explaining the combination of the team members, like this: “We have one project leader, one interaction designer, one graphic designer, and aim to cover both back-end and front-end. We also have one that only works with concept development and branding.” From the statements we find that design teams consist of people with different areas of responsibility and insight knowledge and, in most cases, the interaction designers are not in a complete design team where all the members work together on a given task. They have different areas of responsibility, which to some extent overlap. In one of the companies there is also a single person who takes care of concept development, branding and marketing exposure – related to a specific product/solution.

4.2 An Overview of the Interaction Design Process

From the findings, we see that an interaction design process can vary in time, combination of design team members, resources available for a given project (solution) and the needs and requirements of the individual client. Most likely, there is no design process that fits all cases but, rather, that each project is unique. This is confirmed by the respondents in the present study, as all of them explain that the interaction design process varies from client to client, depending on the type of organization they work in and the people that are involved in the process. Moreover, the findings in this study also reveal that some clients are more demanding to work with than others. Sometimes this can be quite challenging and the consulting companies (design teams) must adapt to the clients and their preferences.

As one of the respondents explained: “We start by identifying insights and analysis in requirements and user groups, and after that we create personas and scenarios (although this could have been done more often). These are good tools to use in collaboration with the system developers, in order to create a common understanding of the solution, concept and strategy.” Inclusion of personas and scenarios in system development is witness to the amount of research the design team conducts and discusses before they actually start to develop the solution. The use of such tools plays an important role in the agreement among the team members about the user’s requirements and needs, and what to be aware of in the design process. It is also valuable to have potential users in mind, in the personas developed in meetings and discussions about design issues and technical features.

After the initial phase of the projects is over, a new phase in the development begins. As one of the respondents explains: “Then we go into a wireframe phase where we make hand-drawn sketches and sketches in different tools. The wireframes are tested on users; prototypes are developed, as well as concepts. For instance, if the solution is a responsive app, we use mobile first principles. Working as an interaction designer, I am most often not involved at the start. The role of interaction designers is a bit misunderstood and, from my point of view, we are not included as much as we should be.” This claims that designers with knowledge in how people interact with a given solution should be a part of the whole process – and not only in parts (phases) of the project. The respondent continues: “Then we develop clickable prototypes with html/css, often developed by the front-end developer. After that, we conduct user testing, but unfortunately, this does not always happen.”

Another interaction designer explains the design process like this: “It is difficult to describe the design process, because there is not a concrete template and process we follow. However, in general the process involves the four steps; (1) insight phase (2) concretize/conceptualization, (3) implementation and, finally, (4) evaluation of the solution. In some cases, it is challenging to find the most appropriate methodology, because our clients are so different. In some projects we do everything (and then we control the process), while in other cases we are only involved in parts of the process (e.g. front-end design).” This explanation also shows the extent to which the consulting company is involved in the whole design process. However, when they are involved in the process from start to finish, it is easier for them to control the phases and carry out the different tasks and activities in the right order.

The respondents explain that, typically, the clients set the agenda from day one, depending on the time and resources available for a specific project. The design team and/or the clients start by having an
analysis phase where they identify the requirements and needs among various stakeholders groups. In this phase, they define personas that represent typical users and which helps understanding within the design team of what to develop and for whom. The use of development methodic (e.g. SCRUM) also varies, depending on the design team and the clients. Concerning the use of design principles and predefined guidelines, the findings reveals that this also differs in various projects. As one of the respondents explained: “We do not have any concrete principles that we use and agree on. However, personally, I spend much time reading articles on the Web and blogs, and then I create my own principles.” From this, we can learn the importance of being updated on relevant techniques and discussions that takes place within the field of technology and design.

Consequently, great pressure is placed on the individual designer, who needs to have accurate knowledge of design issues and user challenges. Another explanation was also given on this: “I use what I learned at school (when I studied interaction design), but it is pretty much up to the individual designer to decide. We have discussed creating our own principles (a typical checklist), because the one we use today is found on the Web.” The use of design principles was also explained like this: “For me is best practice “keywords”. Many things in the design are obvious and the principles can also depend on the client. But I would like to have some concrete principles, but it is hard to apply in practice.” We also find that design principles may vary within different business domains. For instance, one of the respondents explains that within the public sector – accessibility requirements are of particular importance, in order to ensure that all the users have equal access to digital information and services provided on the Web.

In summing up the use of design principles, the findings reveal that consulting companies do not have a standardized set of criteria, and that much responsibility is given to the individual designer. Although they have some practical guidelines that are included in the design process, the findings confirm that designers do not on the whole stick to a predefined set of criterion and/or measures.

Furthermore, the fact that interaction designers largely are not included in the whole design process faces some challenges: “I have experienced getting into the design process at a late stage (much technical and design was in place)... and they had not taken into account the user’s requirements and needs. The design sketches should have been tested much earlier in the process and there should have been more focus on concerns regarding interaction design.” In such cases, the interaction designer has a predefined prototype that they cannot dramatically change, and they need to stick to the design suggestion already developed. This demonstrates that the role of interaction designers is not always prioritized – which is worrisome and frustrating from a designer’s point of view. Again, they know how important their presence should be in this process, and what a lack of knowledge can lead to in the usability. This takes us to the next section (4.3).

4.3 Activities Included in the Design Process Pertaining to User Testing

In the interviews, the respondents were questioned about how and to what extent the users are included in testing. In general, the findings show that users are involved only to a limited degree, although there is a common agreement of the importance of the provision of user friendliness in providing successful interactions. Concerning this, one of the respondent’s states: “We conduct less user testing and it is for financial reasons (for instance time limitations). We create prototypes but, due to time, we are not able to test them. Another fact is that 98 percent of the clients do not talk about user testing. They have no knowledge of how to conduct testing or the effect of such testing. For many large solutions we only conduct testing once. The reason for that is anchored to the design process and bad planning. Certainly, testing should be more integrated in the process.” From this, we find that the interaction designers are not quite satisfied with the small degree of user feedback during the design process, especially not in the early phase where there are still opportunities to make considerable changes and improvements in the design. The respondent explains that, at the stage when prototypes are developed, it is often no longer
possible to start again and make new suggestions due to the interface design. The information architecture, menu structure and content (services) available need to be decided upon in an early phase, in order to move on to the development phase.

From the respondents’ point of view, user testing with real users should be more integrated in both the planning and continuous process as another respondent said: “It is an advantage to start with testing early (a prototype level). Often we start too late and then it is hard to make changes. We conduct little user testing. It varies how much focus the clients have on user testing, but in general, I do not think they pay enough attention to this. Most likely, they find that they do not have time and money for this.” Moreover, the same respondent stated: “The customers focus mostly on the actually design (graphical interface) and not the users, and what they think.” From this, we can learn that the clients do not have sufficient knowledge of the effect of such testing and that they would rather emphasize the design than how the users actually experience it. The clients take it for granted that the design they agree on, in collaboration with the experts in consulting companies, will also work perfectly for the users.

Various methods are applied when conducting user testing, but there are also some challenges concerning this: “When (if) we conduct user testing, the development process is set on hold. But when we do conduct testing we make observations, gerilja testing, usability testing, and to a small extent eye tracking (but we have equipment for that).” This confirms that usability testing is a separate part of an evolutionary process and separated from other activities in the sense that the process is on hold while conducting testing and the possible need for creating new prototypes (based on user feedback and analysis of test results). From this, we see considerable potential for improvement concerning user-centered activities in interaction design.

We can speculate about the many reasons for that, but the findings in this study reveal that there are two main issues: (1) there is not enough time for testing, as the development process stops during this process. In many cases, user testing is not included as a vital element during the development process, and (2) the clients do not find user testing important as they are focused on the actual design and less user feedback and evaluations.

5 DISCUSSION

This paper aims to gain insight knowledge of the whole design process perceived from an interaction designer’s point of view and, additionally, investigate how and to what extent the user’s interests are taken care of in this process through activities such as user testing. Consequently, the following research question is addressed: How do interaction designers explain the design process and to what extent are the user’s interests taken care of in this?

The findings reveal that the design team consists of team members with varied knowledge and experience, depending on their role and working tasks within a given interaction design project. This is in line with existing literature (e.g. Preece, Sharp and Rogers, 2015), showing that people involved in design projects should have a mix of knowledge in different disciplines. In addition to the interaction designer, system developers (e.g. with expertise in programming) are also involved in the process in order to take care of technical development and implementation. In some cases, the project also includes a project leader, which can be one of the developers or designers, or a person solely dedicated to the leader role. To a varying extent, the team members have knowledge that is additional to their main responsibility area(s). By this, we mean that a programmer in some cases has design knowledge or a designer has experience in programming and can make digital prototypes and suggest technical changes and/or improvements. As we find that most interaction design projects consist of multidisciplinary teams (Benyon, 2014; Preece, Sharp and Rogers, 2015), we need to include people with different expertise and focus areas. This is largely done by consulting companies using teams that consist of different types of technologists, designers and others with unique expertise in a specific area.
An interaction design process is highly complex and can be challenging (Goodman, Stolterman and Wakkary, 2011; Stolterman and Pierce, 2012) and therefore a need to ensure that the development process is a result of good planning and great teamwork. In this regard, the findings show that a mix of different specialities is included within the design team. However, additional emphasis could be placed on the role and the tasks performed by an interaction designer and a designer of interactive systems should ideally have knowledge of various aspects of system development and user interactions (Dix et al., 2004). To a varying extent, we found that the designers are included in the whole development process and, in most cases, they play a central role at the beginning but their role is faded out later in the project. From an interaction designer’s point of view, this seems to be rather frustrating, and we suggest that the designer’s unique knowledge and experience are not prioritized as much as they should be.

Moreover, we need to highlight how important interaction designers are in order to take care of the user’s requirements and needs, especially concerning usability issues (e.g. Benyon, 2014). The findings also reveal that working as an interaction designer can be a lonely job. In some cases, they work largely alone without having someone to discuss and share ideas with. Coming up with great design recommendations requires extensive knowledge of and insight into the users needs, and in most cases, system developers (e.g. programmers) tend not to be that much design oriented.

The interaction design process, from start to end, is vital and is needed to ensure that important phases during this process are taken care of. We see that such a process varies a lot and largely depend on the individual client (case). Another issue is whether the consulting company is responsible for the whole process or only parts. In some cases they are not involved from the beginning and in such cases it can be hard to make design improvements. Some design features are subjects for change but not the solution as a whole. As the interaction design process is related to technology, functionality and social interaction (Saffer, 2010), we need to clarify the important elements in each of these. According to Preece, Sharp and Rogers (2015), the process of interaction design consists of four main activities: establishing needs and requirements, developing design suggestions, creating prototypes and finally, evaluation. From a practitioner’s point of view, we also see that they spend much time on research in the beginning in order to ensure a common understanding of what to design and for whom. However, typically, the client sets the agenda from the start, while, in some cases, they have more freedom to create their own process, based on how they prefer to work with a given solution. Although the design process varies among the design teams, in general, they include many of the same phases (steps) in order to ensure a successful process.

If we search for potential for improvements of the interaction design process, we can stress the importance of taking full control and responsibility over the process and not letting the client decide what to do and when. Although a designer needs to have knowledge in a range of areas, their main focus concerns how to design for successful interactions. The important role of an interaction designer in this must also be made clear. Furthermore, this should be clarified from the very beginning and be in accordance with the time-schedule, budget and the resources available. The findings reveal that designers (consulting companies) mostly do not have predefined guidelines and/or standardized templates but, rather, make use of their own (individual) knowledge and experience. To what extent usability issues are taken care of in the design will therefore vary and is pretty much up to the individual designer. The same applies to the use of design principles.

Within the field of interaction design and system development, user involvement and testing are vital in facilitation of quality, great user experiences and satisfaction (Benyon, 2014; Nielsen, 2000; Nørgaard and Hornbæk, 2006). The more the designers know about their users, the more easily can they create high-quality solutions that meet the user’s requirements (Zhang and Wakkary, 2014). Although the findings reveal that interaction designers find user testing highly important, they conduct such activities to a surprisingly small extent. The reasons for this are many, as are the design implications and concerns. In many cases, conducting user testing is not a priority from the point of view of the client, who may
not understand the negative consequences of not doing it. They may not appreciate the actual benefits (e.g. economic performance) driven by use and user satisfaction.

User testing and analysis of the results take a lot of time and money (Lindgaard and Chattratichart, 2007), and, in the meantime, the system development is placed on hold, which means that the programmers cannot continue working. The interaction designers are aware of this issue and so they conduct less testing than consider necessary. The literature (e.g. Dix et al., 2004; Preece, Sharp and Rogers, 2015; Leventhal and Barnes, 2008), shows that such testing is a critical part of the design process and a prerequisite for success for the users, although it is time-consuming and costly. We also need to be aware of the potential failures and usability problems (e.g. Rubin and Chisnell, 2008), which can be linked to the focus on the systems rather than the users, and the overall importance of design and its implementation.

6 CONCLUSION

Drawing on the outcome of the previous sections and the interviews conducted in the present study, this paper provides the following concluding remarks: First, the role and importance of an interaction designer should be more emphasized within the design process. In under-prioritizing the designer’s role, knowledge and experience, systems may lack quality in vital user-centered design issues and the related technical aspects.

Second, the interaction design process must pay additional attention to user involvement and incorporate testing from the beginning of the project, and be included within the time-schedule and allocation of resources. Third, the effects of user testing should be made more transparent for the clients and be included as a vital part of the design process. Thus, measurable goals that trigger this activity should be identified and followed up during the development process and after release. It would be beneficial if the design team could refer to examples of good practice with which they have experience.

Based on the findings in this study, future research contributions could provide more in-depth studies. Three possible approaches could be of particular interest: (1) a case study following a interaction design project from start to finish, through observations and interviews, focusing on the design process, team members, user involvement, use of development methods, customer requirements and evaluation results; (2) more in-depth interviews with interaction designers, focusing on their unique role in a specific project, how they handle various issues, perform in the team and evaluate the project at the end; and (3) investigate how user testing could be additionally integrated in the interaction design process and any consequences of not doing so.

REFERENCES


designers and software developers”, Proceedings of NordiCHI 2012, October 14-17, Copenhagen, Denmark, pp. 693-702.


