

# **Designing the User Experience in an agile context**

by  
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# Abstract

With an increasing number of software development projects that follow an agile approach, it becomes more and more important for User Experience (UX) practitioners to understand how user-centred design (UCD) and its techniques can be applied in an agile context. This thesis investigates the UX community's perspective by conducting grounded theory research about the role of UX practitioners on agile projects.

The research yielded two themes that are highly relevant: UX practitioners' identity or self-concept and the need to establish, protect and communicate an overall UX vision. The results suggest that UX practitioners working in an agile context, who have a good understanding of its principles, value agile and are aware that an adaptation of UCD practices is required. The analysis highlighted that UX practitioners' self-concept is attached to the integration of the end user, as an understanding of one's users is the basis for designing a good UX. Equally, user research is a core element of the vision theme, facilitating not only the UX vision, but an overall team and product vision shared by all stakeholders.

Additionally, the thesis discusses approaches for increasing end user involvement and best practices for bringing UCD and agile together. Open issues and potential challenges are highlighted. This research aspires to offer insight for UX practitioners, provide impulses for researchers and add to the current discussion about how designing the UX is possible in an agile context.

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# 1 Introduction

The relationship between User-Centred Design (UCD) and software development has always been perceived as somewhat tense. UCD has become part of traditional development practices (Boehm, 2006), but User Experience (UX) practitioners still struggle to be recognised and valued. Often, the understanding of UCD is limited to the user interface (UI), to “decorating a thin component sitting on top of the software” (Seffah et al., 2004, p.73). UCD activities happen before development starts, resulting in documents and specifications that are passed on, or in form of usability tests after development has almost been finished (Berkun, 2005). This practice has several pitfalls: UX practitioners are decoupled from the development lifecycle (Seffah et al., 2004), documentation is insufficient (Jurristo et al., 2006) and hard to keep up-to-date and, when development starts, changes can’t be implemented easily.

Agile is a different approach to software development that changes the practice of UCD. In contrast to traditional approaches, communication is more important than documentation, development starts as soon as possible and welcoming change is a core value (Cockburn, 2002). On the first glance, agile seems to offer solutions to issues UX practitioners struggle with on waterfall projects. However, while techniques like usability testing have become accepted elements of traditional software engineering, the role of UCD in an agile context has yet to be defined and negotiated (Beyer et al., 2004). This thesis discusses how the UX is designed in an agile context by exploring the UX perspective.

## 1.1 Research motivation

I first came in contact with agile when I was working as a UI designer in a software development context that was characterised by waterfall practices. Frustrated by problems such as the ones described above, to me agile seemed to offer a better way to develop software.

This thesis provided an opportunity to learn more about agile, see it work in practice and explore the challenges UX practitioners face on agile projects. It aims to be of

interest for UX practitioners who want to learn more about agile or seek to compare their experiences with approaches employed by others. Additionally, this research aspires to add a UX perspective to the ongoing discussion how UCD and agile can be brought together and to provide impulses for further research.

As the integration of UCD within agile is an extensive topic, a more specific research question was required. Thus, the focus of this thesis is on two themes, identity and vision. For both themes, the integration of end users is important. However, increasing the level of user involvement is an issue UX practitioners struggle with, also in the context of traditional software development practices. What are the challenges posed by agile? What role do UX practitioners play on agile projects? We hypothesise that a user-focussed approach is crucial for a successful product and for UX practitioners' self-concept as designers. With this focus in mind, we took a grounded theory approach, involving interviews and observations, to explore how practitioners go about designing the UX in an agile context.

## **1.2 Structure of this thesis**

The thesis starts with background information on agile (Chapter 2), including its origins and principles. Two methodologies, Extreme Programming (XP) and Scrum, are presented in more depth. Chapter 2 is followed by a literature review (Chapter 3), that reviews relevant publications and case studies presenting best practices, approaches and tips for fitting UCD within agile.

After that, Chapter 4 provides the reader with information on how this research has been conducted. After a short summary of the grounded theory approach, details about the chosen methods, interviews and observations, are given.

The results of these interviews and observations are covered in chapters 5 and 6. Chapter 5 presents the two main themes that have emerged from the interviews, identity and vision, and discusses strategies to include the end user. Thereon Chapter 6 contains the analysis of the observations in relation to the two themes of identity and vision. Finally, in Chapter 7 the results of this research are related back to and compared with the literature. This final chapter provides a summary of the main patterns that have been identified, discusses open issues that suggest directions for further research and finishes with a reflection on the contribution of the findings.

## 2 The agile approach

This chapter introduces agile by comparing it to traditional approaches and explaining its underlying principles. After that, the two agile methodologies that are relevant for this thesis, Extreme Programming (XP) and Scrum, will be briefly explained.

### 2.1 The traditional approach

Processes like the Rational Unified Process (Kruchten, 2004), the Spiral model (Boehm, 1998) or the Waterfall model (Schach, 2001) offer a formal specific approach to designing software. They are incremental and follow defined sequential phases, that can be iterated and influence each other. Agile is mostly contrasted with the Waterfall model, where a requirements engineering phase is followed by design, implementation, integration and delivery. Verification and validation, i.e. testing, should proceed continuously throughout the process (Schach, 2001). While the original model did not take iterations into account, some level of iteration has been incorporated into currently used versions of Waterfall. Fig. 1 illustrates a basic waterfall process.

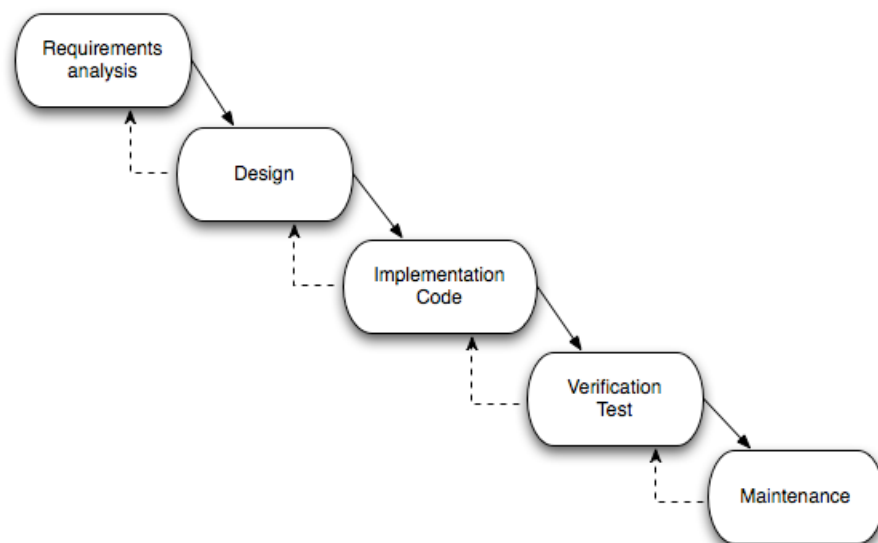


Fig. 1: basic Waterfall model (adapted from Preece et al., 2002, p.187)



An important characteristic of traditionalist processes is that software is specified up-front. The requirements are defined, the design of e.g. the system architecture or the user interface (UI) is documented and passed on to development. This up-front approach results in the need for extensive documentation. Regarding stakeholder management, these documents are often used as deliverables and a basis for negotiations and agreements with the client.

Like these software development processes, UCD processes such as Cooper's goal-directed design approach (Cooper et al., 2007) or Mayhew's Usability Engineering Lifecycle (Mayhew, 1999) start with an up-front requirements phase, which includes activities like qualitative research (e.g. interviews, contextual inquiries), the definition of personas or the development of usability goals.

How to document the outcome of this research phase is a problem User Experience (UX) practitioners face, as their involvement is often limited to the requirements and design phases. While verification and validation is important, the opportunity to review and evaluate with users has not been built into the waterfall model and is therefore often neglected (Preece et al., 2002). Additionally, the need to prepare extensive documentation ahead of development can be a problem, resulting in the designer as a bottleneck.

We see that traditionalist processes have similarities to User-Centred Design (UCD) processes, but the lack of continuous involvement of UX practitioners and users can limit the quality of the UX.

## **2.2 Origin and definition of Agile**

Agile is a different way to develop software – compared to the traditional approach, it can be described as “lightweight”. Agile is not a process or a method, but rather a philosophy, a movement comprising different methodologies. The origin of Agile makes it clear why it is a way of thinking:

A group of seventeen methodologists, known as the Agile Software Development Alliance ([www.agilealliance.org](http://www.agilealliance.org)), came together to discuss their approaches and ideas. The result was the Agile Manifesto ([www.agilemanifesto.org](http://www.agilemanifesto.org)), which starts with the sentence:

„We are uncovering better ways of developing software by doing it and helping others do it.“ (Highsmith, 2002, p.xvii).

Cockburn (2002) points out that the software development practitioners who wrote the manifesto did not invent rules, but discovered the following four values:

- **Individuals and interactions** over processes and tools
- **Working software** over comprehensive documentation
- **Customer collaboration** over contract negotiation
- **Responding to change** over following a plan

The manifesto continues stating that „, while there is value in the items on the right, we value the items on the left more.“ (Highsmith, 2002). The values address major problems experienced with traditional processes: the inability to incorporate changing requirements, the difficulty to plan ahead, the insufficiency of documentation and the cumbersome process of negotiating with clients.

### **2.2.1 Individuals and interactions over processes and tools**

Software is not built by processes, but by people working together (Ambler, 2008). As Cockburn (2002, p.217) expresses it „(...) we would rather use an undocumented process with good interactions than a documented process with hostile interactions.“ Collaboration involves complex team building processes. This thesis explores how UX practitioners interact in an agile context.

### **2.2.2 Working software over comprehensive documentation**

In a waterfall world, the documentation and the system itself often don't match. Agile emphasises that only the working system itself can tell us what has been built. Documents describing requirements or designs are useful tools to guide the development, to reflect on it and to get an idea of the future. Together with the running software, they can help people to understand why and how a system has been built and how it can be used. Agile does not remove documentation. Rather, documentation should be used with care on a level that is „just enough“ or „barely sufficient“. (Cockburn, 2002). The primary goal of software development is not to create documents, but running software. (Ambler, 2008). This thesis covers the impact this reduction of documentation has on UX work practices.

### **2.2.3 Customer collaboration over contract negotiation**

Agile aims to change the relationship to customers from a „them and us“- to a „we“-feeling. A good relationship and collaboration strengthen the development at any stage. (Cockburn, 2002). Ambler (2008) points out that developers have to work closely with their customers to discover their needs and educate them. For this research, the role UX practitioners play in the customer relationship is of interest.

### **2.2.4 Responding to change over following a plan**

Each of the agile methodologies contains specific planning activities (Cockburn, 2002). It is useful to have a plan, but building the system will change the team’s understanding of the design problems. New information, a changing market or financial constraints change requirements or even the whole product strategy. Agile tries to allow room to respond to changes, e.g. by structuring the development into short periods and by an emphasis on prioritisation of features and requirements. (Cockburn, 2002) This research explores what values such as embracing change and flexibility imply for UX practitioners.

### **2.2.5 Twelve principles**

The manifesto furthermore lists twelve principles behind agile (Ambler, 2008; Cockburn, 2002). As these principles help to understand the concept of agile, those that are relevant for the context of this research will be briefly discussed.

The first principle is about producing systems that are useful and have a value: *„Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.“* The focus on delivery, the customer and his needs are core aspects of agile. But who is the customer? Internal stakeholders, the client who pays for the product - or the end user? This has not been specified and thus can be interpreted. The role of the customer in agile teams has been explored e.g. by Martin et al. (2004). Chapter 3 will elaborate why the ambiguity of the customer role can be problematic for UCD.

Other principles emphasise the importance of getting things done and developing instead of documenting: „*Working software is the primary measure of progress.*“ and „*Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.*“

Software is developed as a series of smaller pieces, that can be tested incrementally (Cockburn, 2002). Working software is necessary to get feedback from customers, which can happen more frequently with short delivery cycles. However, to make this iterative and dynamic approach work, planning and discipline are necessary – not only for development, but also for UCD activities. Chapter 3 presents different approaches how UCD can be planned to fit these short work cycles.

Agile is about embracing change: “*Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.*”

Agile methodologies offer mechanisms to incorporate changes, but the willingness to allow change and to give up plans is an attitude people working agile need to take on. Chapter 5 explores if UX practitioners have adopted this mindset.

Most importantly, agile is about people working together. Six of the twelve principles point out that communication and teamwork are essential. Agile methodologies encourage continuous cooperation and colocation: „*Business people and developers must work together daily throughout the project.*“ (Ambler, 2008). For agile, „*the most efficient and effective method of conveying information to and within a development team is face-to-face conversation.*“ With documentation that is barely sufficient, collaboration becomes crucial. Agile methodologies facilitate communication by making things visible, e.g. by using cards or charts that are put up on walls. Chapter 5 discusses how UX practitioners working in an agile context are challenged to find enough time and effective ways to communicate.

The values and principles of agile are the common grounds of the various methodologies and tools that are out there. In the following, an overview of the most important methodologies will be given, but only eXtreme Programming (XP) and Scrum will be explained in more detail.

## 2.3 Agile methodologies

The people who founded the Agile Alliance met to bring together the various methodologies they were applying. The underlying philosophy is similar, but each methodology offers a different approach and supports different purposes. Commonly known, but not relevant for the context of this thesis, are Dynamic Systems Development Method (DSDM), Crystal (Cockburn, 2002), Feature-Driven Development (FDD), Lean Development (Poppendieck et al., 2003) and Adaptive Software Development (ASD; Highsmith, 2002). For UCD, XP and Scrum are most important.

### 2.3.1 eXtreme Programming (XP)

XP (Beck, 2000) is regarded as the most popular agile methodology, as it has been found to work well (Ambler, 2008). One practice is the *planning game*. During this meeting, features are prioritised and selected for the next development iteration. The whole team, i.e. developers and customers, participates. An artefact used here are *story cards*, a story being a particular feature requirement created by the development team and the customer. (Highsmith, 2002).

Pair programming is the most well-known practice: two people sit in front of one computer and write code together. As Beck (2000, 100) expresses it: „Pair programming is a dialog between two people trying to simultaneously program (and analyze and design and test) and understand how to program better.“ Pair programming aims to enhance the quality of the code. Additionally, code is owned collectively by the team, which encourages even more collaboration. Another practice is having an on-site customer. Highsmith (2002) calls it on-site user involvement with the project team. However, it is not defined what qualifies a „user“ and what differentiates him from the customer.

XP has been very successful for teams of less than ten people, but also worked well for bigger teams when combined with Scrum (Ambler, 2008).

### 2.3.2 Scrum

Named after the scrum in Rugby and made popular by Schwaber, Sutherland and Beedle (Highsmith, 2002), Scrum is a project and requirements management methodology. According to Schwaber, it can't be predicted or definitely planned what will be delivered when and what the quality and cost will be (Highsmith,

2002.). Therefore, Scrum is an empirical approach offering explicit monitoring criteria and feedback mechanisms to manage the development process.

As scrum terminology will be used throughout this thesis, the following provides an overview of the scrum process (Fig.2) and it's main elements. Each development period is an iteration called a Sprint, which is about 30 days long. Scrum consists of three main phases: Pre-Sprint, Sprint and Post-Sprint.

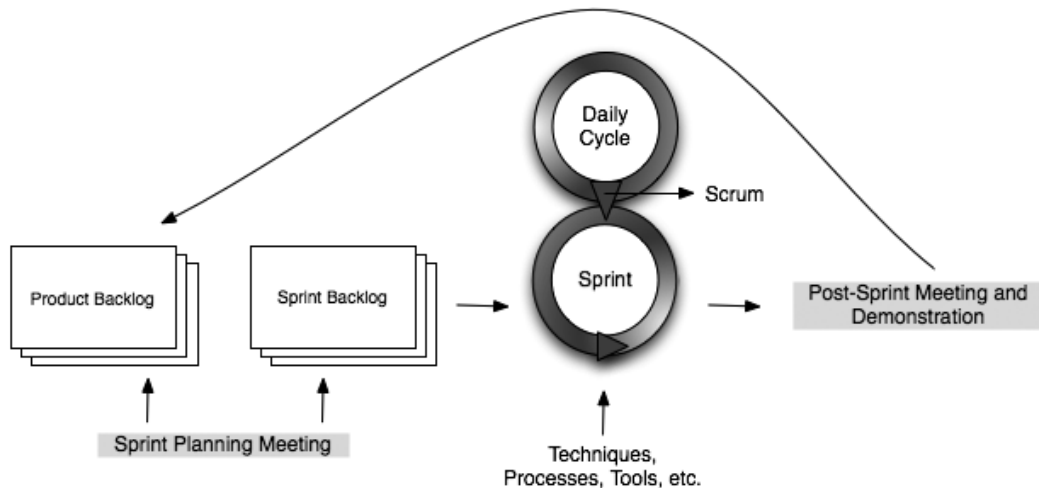


Fig. 2: Scrum Process (adapted from Highsmith, 2002, p.243)

### 1. Pre-Sprint Planning

In this phase, planning and system design activities take place. The documents used for planning are called backlogs. The *Product Backlog* contains a list of requirements and features envisioned for the system. Both functional and non-functional requirements as well as technical requirements are included. The *Product Owner* is the person (or the team of customers) creating the product backlog and prioritising its items. These can be compared to XP's user stories; one item should be small enough to be completed within one sprint. (Highsmith, 2002; Szalvay, 2007).

The *Sprint Backlog* is based on the product backlog and defines the work for the next sprint. It contains selected items from the product backlog and hence identifies features to be developed, while also defining the tasks required to implement those features. The sprint backlog is developed in the *Sprint Planning Meeting* by the product owner, the development team and other relevant stakeholders. Additionally, a specific and measurable goal for the sprint should be defined. (Highsmith, 2002; Szalvay, 2007).

## 2. Sprint

Szalvay (2007) defines a sprint as „an iteration of work during which an increment of product functionality is implemented.” Within a sprint, the team shouldn't be interrupted and tasks and priorities should remain constant, i.e. the sprint backlog is locked and shouldn't be changed.

The *Scrum Master* is a facilitator for the team and the product owner. Often the role is taken on by a consultant, coach or project manager. A key function of the scrum master is to make sure the team can focus on the current sprint by not allowing changes. As Highsmith (2002) points out, this can be difficult in organisations in which stakeholders like product managers or marketing are used to making frequent changes.

A core element of a sprint are the *daily scrum meetings*. Instead of long, tedious meetings the goal of this stand-up get-together is to inform and coordinate. A scrum should be held in the same place every day, is 15 minutes long, facilitated by the scrum master and attended by all team members. During the scrum, the team members present what they have been working on since the last scrum and what they plan to do on this day. This is often facilitated by a task board. Scrum meetings allow to monitor the team's progress, raise issues and give each other feedback.

## 3. Post-Sprint Meeting

At the end of each sprint, a review meeting is held to check the progress and whether the sprint goals have been met. Features are demonstrated to the customer and any issues can be brought forward. Some teams also hold a *retrospective meeting* after the post-sprint meeting, where the team and the scrum master discuss what went well and what could be improved for the next sprint. (Highsmith, 2002; Szalvay, 2007).

Scrum and XP can be combined; in particular, pair programming is a practice widely used when applying other methodologies than XP. Both offer more tools to pick from; the terms explained here are only those relevant for the context of this thesis. More information can be found in the literature and at <http://www.scrumalliance.org/> or <http://www.agilealliance.org/>.

The following chapter presents a literature review, discussing the compatibility of UCD and agile.

# 3 Literature review

In this chapter, a literature review explores the status quo of the ongoing discussion how UCD and agile can be conjoined. We will look at the main similarities, differences and potential challenges before presenting different approaches addressing these challenges. The chapter finishes with an outline how the agile and the UX community perceive each other.

## 3.1 Similarities, differences and challenges

As discussed in chapter 2, UCD processes share characteristics of traditional software development approaches. However, the lack of iteration and the need to write lengthy specifications are only two out of several issues that UX practitioners struggle with.

In comparison, agile and UCD practices seem to be an ideal match – at first glance. Literature (e.g. Sharp et al., 2006; Memmel et al., 2007; Chamberlain et al., 2006; Ferreira, 2007) lists the following main similarities:

Agile is iterative, values face-to-face communication and emphasises collaboration, also with the customer. Iteration is a core aspect of UCD, as are communication, facilitated by tools like personas, and the integration of the end user. Agile advocates regular testing – frequent user testing is a cornerstone of UCD. Agile tools like storycards are opportunities to hook in, e.g. by using scenarios.

According to Beyer et al. (2004), agile understands that developers are not the users and therefore encourages a more user-centred approach. Similarly, Chamberlain et al. (2006) argue that, by encouraging participation, agile also focuses on the user.

Unfortunately, the differences and potential challenges seem to outweigh the similarities. Published by Nelson (2002), the debate between Kent Beck, creator of XP, and Alan Cooper, whose personas have become a core element of UCD (Cooper et al., 2007), is possibly the best-known discussion of the topic. While there was some agreement, their main points of difference covered issues that continue to be challenging:



- focussing on the customer vs. focussing on the user
- delivering working code vs. designing up-front

For the research questions of this thesis these two differences are important and thus will be discussed in the following.

### **3.1.1 Customer vs. user**

In XP, the customer is a role with several responsibilities, amongst others the provision of requirements. The customer should sit with the team, write and prioritise user stories and test the software. The person adopting this role can be e.g. a domain expert or a product manager (Martin et al., 2004). Due to this understanding of the „customer“, participatory design and collaboration do not equal user involvement, which puts the claim that agile also focuses on the user (Chamberlain et al., 2006) into question.

XP assumes that the customer is able to provide requirements and has enough knowledge to make business decisions. In Scrum, the product owner is responsible for getting requirements from the stakeholders. This can lead to the misconception that close collaboration with the customer is good enough and no end user involvement required (Ambler, 2008). Consequently, XP projects can fail to collect user data and base the system requirements merely on assumptions about user needs (Mommel et al., 2007).

Discussing this issue with Beck, Cooper remarks that, in his experience, neither users nor customers can articulate what they need, as software behaviour is too complex to be visualised (Nelson, 2002). Beyer et al. (2004) agree that users can't articulate their own work practice. Furthermore, they argue that it is impossible for one person to be representative of the user population and that customers lack design skills.

Ambler (2008), who comes from a software engineering perspective, highlights that end users should be involved throughout a project to validate the development done so far and to make sure that the stakeholders represent the user community accurately. But how can this be done? Cooper (Nelson, 2002) suggests that interaction designers should act as a bridge between the customer and the development team. Beck agrees that having a UCD specialist on the team is beneficial, but questions when and with what kind of work this specialist should start. This leads us to the next issue: designing up-front.

### 3.1.2 Working code vs. up-front design

According to literature, an understanding of the end user is crucial for designing the UX:

„In order to design something to support people, we must know who our target users are and what kind of support an interactive product could usefully provide. These needs form the basis of the product’s requirements and underpin subsequent design and development. This activity is fundamental to a user-centred design approach, and is very important in interaction design.“ (Preece et al., 2002, p.169)

To establish this understanding, UCD processes rely on up-front user research. Agile, on the other hand, aims to start delivering working code as soon as possible. While agile practitioners do model, they try to avoid an extensive up-front design phase. (McInerey et al., 2005; Chamberlain et al., 2006).

Constantine (2002), whose usage-centred design approach is well-known in the agile community and applied e.g. by Patton (2002), argues that the required amount of up-front design for user interfaces is small. He lists

- an overall organisation of the information fitting the structure of user tasks,
- a navigation scheme and
- a visual and interaction scheme providing a look-and-feel as essential.

However, these points only address the information architecture, behaviour and visual design – not the overall UX vision. To be able to do up-front design as defined by Constantine, up-front user research is a prerequisite.

Beyer et al. (2004) point out that the stages that are important to define the strategy and scope of a system, system analysis and requirements engineering, are not covered by agile methodologies. Similarly, Santana da Silva et al. (2006) observe that agile methodologies lack a coherent vision of the emerging product, which is essential for designing an adequate UX. Also Armitage (2004) highlights the risk that, without up-front research, the final product could be well-crafted and reliable, but lacking a coherent structure and vision. This leads to the conclusion that UX practitioners believe their involvement should start before the beginning of development.

## 3.2 Approaches to bridge the gap

Approaches presented by the UX community aim to strike a balance between up-front research and an early start of development. An eminent strategy suggested in most publications is **working ahead** of the development cycles.

Ambler (2008) suggests that iteration zero, i.e. the first one or two weeks, could be used to model with stakeholders at a high level to define a strategy. The details can be dealt with just-in-time during development. He argues that, for staying ahead of development, minor up-front design is sufficient. UX practitioners should employ tools that reflect agile practices, e.g. paper prototypes. To agilists, he recommends techniques like personas and scenarios as requirements artefacts.

Beyer et al.'s (2004) process tries to integrate contextual design into an agile context. Based on the minimal amount of up-front research that is necessary for a solid understanding of the users and their work practices, user stories for planning iterations are generated. Like Ambler, Beyer et al. recommend the use of lightweight tools. For testing, they suggest to start with evaluating paper prototypes for each user story, followed by an iteration to refine the design. For the third round of testing, actual code should be used. In generating designs, the UX team should stay one iteration ahead of development.

The approach that Sy and Miller employ at Autodesk, Inc. is one of the best-known. Sy (2007) reports that the goal of their in-house UX team was to conduct usability testing and user research within an agile framework. They achieved this by adjusting the timing and granularity of these methods as well as the reporting of results:

Work is done in two parallel tracks: an interaction designer track, where UCD takes place, and a developer track. The interaction designer track runs ahead of the developer track. Usability testing happens one cycle ahead, so that validated designs can be passed on to development. Research like contextual inquiries is conducted at least two cycles ahead.

A shared vision is developed during cycle one, a brief requirements-gathering phase at the start of the project including activities like interviews or observations. A clear vision is important to allow design chunking i.e. breaking the design down in elements that are manageable within one cycle. Sy (2007) points out that this can be difficult, but is „a skill that comes with practice“ (p.120). To report findings and

communicate with the developers, the UX team uses cards, similar to the development team's story cards, that are also tracked on a board in a public space. Sy reports that, for their UX team, this approach produces better results than the waterfall process they used to follow.

Like Sy (2007), Constantine (2002) and Memmel et al. (2007) recommend index or requirement cards. This is the second strategy shared by most approaches: using **lightweight, agile tools** as means of communication and documentation. In the debate with Cooper (Nelson, 2002), Beck stated that he is „100 percent with the techniques themselves“, but „100 percent against the process that he [Cooper] described for using them.“ Amongst others, Ambler (2008), Detweiler (2007) and Obendorf et al. (2008) recommend that UCD methods should be used in a way that fits agile practices. Thus, reviewing literature leads to the conclusion that UCD processes need to be more flexible and adaptive, while UCD tools and techniques fit well into an agile context.

### 3.3 Getting together

How do the agile and the UX community perceive each other? Back in 2002, Cooper stated that it bothers him that interaction design accepts XP, but XP does not accept interaction design (Nelson, 2002). For Beyer et al. (2004), agile makes sense: “Agile methods are based on sound principles—so sound that when they are articulated, they seem impossible to argue with.” (p.10)

Unlike Cooper, Ambler (2008) believes that both communities are understanding that they can benefit from working closely together. However, he points out that addressing UX concerns on agile projects is possible, but requires flexibility and a willingness to work together from both sides.

Reviewing the literature gives the impression that the UX community is willing to face the challenge and aware that a change of attitude is necessary. Armitage (2004) and Detweiler (2007) both give tips for UX practitioners, e.g. designing for change or active engagement with the development team. Similarly, Lee (2006) highlights that UX designers need to become active participants to be more embedded in agile teams.

McInerey et al. (2005) perceive the fact that agile does not identify a distinct UX role as a chance for designers to define their role themselves. However, UX practitioners can struggle for recognition and face the need to justify their involvement. McInerey et al. (2005) are concerned that the high level of collaboration on agile projects could reinforce the lack of UX ownership. In contrast, Ambler (2008) believes that the collaborative nature of agile can improve the perception of UX practitioners, but argues that designers need to enhance their skill set to be effectively integrated into an agile team. Ferreira et al. (2007) point out that collaboration changes interaction and conclude that “the changing relationship suggested between UI designers and software developers shows hope that these practitioners see that working more closely together may assist them in achieving their common goal.” (p.9).

The work discussed in this literature review resulted in the original research question of this thesis: the role of end user involvement. However, during data collection and analysis, two other research themes, identity and vision, emerged (see Chapter 5). Yet, the integration of methods that include the end users is of particular importance for these themes.

The majority of publications on agile comes from a software engineering perspective. The number of case studies written from a UX point of view is still small. Therefore, this research aims to add to the discussion by focussing on a UX perspective. With these motivations in mind, the research was planned and conducted. The following chapter provides details about the research method.

# 4 Research method

This chapter explains how this research was conducted. After a brief introduction to grounded theory, details about the used data gathering methods, i.e. interviews and observations, will be given.

## 4.1 Grounded Theory

Based on the work of Glaser and Strauss, grounded theory is „a general methodology for developing theory that is grounded in data systematically gathered and analyzed.“ (Strauss et al., 1998, p.158). Charmaz (2006) points out that the guidelines offered by grounded theory are systematic, but flexible. The methodology aims to guide researchers in producing theory that is rich of conceptual relationships. Thus, a grounded theory researcher focuses on „patterns of action and interaction between and among various types of social units (i.e., “actors““). (Strauss et al., 1998, p.169).

A core element of grounded theory is the interdependency between data collection and analysis. Therefore, analysis is started early on by *coding* the data. Coding means attaching „labels to segments of data that depict what each segment is about.“ (Charmaz, 2006, p.3). It allows the researcher to sort and compare data, and subsequently make sense of it. Coding consists of various phases: During initial coding, the researcher studies fragments of data; the most significant codes are then used to look through the data again during focused coding. Axial coding relates the categories and subcategories that have been yielded. Through coding and writing notes, so-called *memos*, analytic themes emerge.

While going through these different stages of analysis, the researcher develops an understanding of the data, which influences the further data collection. During *theoretical sampling*, the researcher conducts additional research with the goal of elaborating and refining the categories constituting his theory. (Charmaz, 2006).

Grounded theory is suitable for this research, as it allows to discover patterns and themes in the data instead of applying existing categories derived from related studies. This research aims to explore the topic without preconceptions, so that previous research can e.g. be validated or enriched by new findings or interpretations. Additionally, grounded theory has already been used successfully to study agile environments, e.g. by Ferreira (2007), Martin et al. (2004) or Whitworth et al. (2007).

## **4.2 Interviews**

As the primary data collection method, ten qualitative semi-structured interviews were conducted. According to Marshall et al. (2006), these kind of interviews resemble informal conversations, where the researcher „explores a few general topics to help uncover participant’s views but otherwise respects how the participant frames and structures the responses“ (p.101). In line with the grounded theory approach, Marshall et al. continue:

„The participant’s perspective on the phenomenon of interest should unfold as the participant views it (the emic perspective), not as the researcher views it (the etic perspective). A degree of systematization in questioning may be necessary (...) when many participants are interviewed, or at the analysis and interpretation stage when the researcher is testing findings in more focused and structured questioning.“ (p.101).

To guide the conversation and to allow a comparison, a set of topics to be covered and an outline of related questions were developed (see appendix A). Based on the analysis of precedent interviews, the questions and focus were adapted in the course of data gathering. With the informed consent of the participants, all interviews were audio-recorded and transcribed for analysis.

### **4.2.1 Choice of Participants**

Following Charmaz’s (2006) definition that „an intensive interview permits an in-depth exploration of a particular topic with a person who has had the relevant experiences“ (p.25), participants had to be UX practitioners with experience of working in an agile context. As this thesis aims to explore the UCD perspective,

participants were required to work in the field, e.g. as a UX consultant, interaction designer or information architect. Through networking and recommendations, ten participants could be recruited. More information about the participants can be found in chapter 5.

## 4.3 Observations

Fontana et al. (1998) refer to triangulation as „using multimethod approaches to achieve broader and often better results.“ (p.73). Denzin et al. (1998, II) point out that triangulation is an attempt to secure an in-depth understanding and hence not a tool of validation, but an alternative to it. Interviews are personal, subjective accounts of a single person. To gain a richer understanding of an agile context and for theoretical sampling i.e. to further explore and revise the already established categories, two days of observations were conducted.

The observations took place at one organisation and involved spending time with a scrum team as well as shadowing the team’s UX practitioner. As unobtrusiveness was important, field notes – detailed, nonjudgemental descriptions (Marshall et al., 2006) – were the only means of recording. Like the interviewees, all team members were asked for their informed consent.

## 4.4 Considerations

In-depth interviewing is a conversation. Thus it is not a neutral tool, as the interviewer „creates the reality of the interview situation“. (Denzin et al., 1998, I, p.36). Like interviews, observations are influenced by the researcher’s skills and personality and carry the risk of bias and subjective interpretations of data (Adler et al., 1998). Strauss et al. (1998) point out that researchers owe it to their participants to tell them what they have learned and to give clear indications of why data have been interpreted in a certain way. Therefore, to validate the results and to allow participants to review the chosen quotations, the results section of this thesis, chapters 5 and 6, was sent to all participants for approval prior to submission.

The researcher is aware that e.g. a second set of observations at a different organisation or a broader range of participants would have increased the depth of this



study. However, grounding the theory in actual data, constant comparison, triangulation and sharing the results with participants provide an amount of validity sufficient considering the time and resources available.

In the following two chapters, the findings of the interviews and observations will be outlined. In chapter 5, facts about the participants and their job roles are followed by a report of the findings, presenting two main themes that have emerged from the data. Subsequently, in chapter 6 the focus and setting of the observations will be reported. The chapter finishes by presenting the results of the observations and relating them to the interview findings.

# 5 The interviews

## 5.1 Introducing the participants

Of the total of ten participants that have been interviewed, nine are based in the UK, whereas one works in Austria. Only one of the interviewees was female. To protect the participants' identity, the masculine „he“ will be used throughout. Relevant parts of the interview that has been conducted in German have been translated into English by the researcher. To ensure anonymity, these translated parts will be used without being specifically identified.

All participants come from a user-centred design background and work as a UX architect, UX consultant, information architect or interaction designer. The majority of participants, six of them, gained their experience with agile at a design consultancy or digital agency. Two are part of an in-house team, whereas the last two freelance, one of them currently full-time for one client as part of an in-house team, the other one with various small companies working from his own office. While six of them were working in an agile context at the time of the interview, four participants talked about a past project.

The following table provides an **overview** and allows to spot similarities and differences between the environments that the participants are or have been working in.

	<i>Context</i>	<i>UX resources for project</i>	<i>Colocated with developers</i>	<i>Methodology</i>	<i>Experience with agile</i>
<b>P1</b>	in-house	2 people	yes (same office)	Scrum	8 months
<b>P2</b>	in-house	1-6 people	yes (same office)	Scrum + XP elements	1 year +
<b>P3</b>	freelancer	1 person	yes (same office)	own, Scrum-based with XP elements	3 years
<b>P4</b>	digital agency	3-7 people	yes (same room)	Scrum	1 year
<b>P5</b>	digital agency	3 people	part of the time (same room)	Scrum	1 year +
<b>P6</b>	consultancy	1 person	yes (same room)	Scrum + XP elements	1,5 years
<b>P7</b>	freelancer	1 person	no	None explicitly	2 years +
<b>P8</b>	digital agency	4-7 people	yes (same room)	own, Scrum-based with XP elements	2 years +
<b>P9</b>	UX consultancy	5 people	no	Scrum, but not explicitly	6 years
<b>P10</b>	UX consultancy	2 people	no	Scrum	2 years

*Table 1: Interview participants*

As explained in Chapter 4, the data collected in the ten interviews was analysed applying a grounded theory approach. Through coding, categorising and comparing the data, two main themes have been identified:

**Identity** is about participants' self-concept: how they understand agile, what working agile means to them and how they participate. The hypothesis made is that a good understanding of agile and active participation in the process facilitate a UX practitioner's ability to work in an agile context. Additionally, identity also relates to how other protagonists perceive the UX practitioner and the role of UX in general.

**Vision** is about the UX vision: the idea of the experience the end user should have when using the product. A UX vision includes aspects like e.g. usefulness, usability or visual design. The thesis will explore how UX practitioners establish and communicate a UX vision for agile projects. Additionally, vision is also about the team vision, bringing together a technical vision, a product vision from a business perspective and the UX vision.

The third section of this chapter will bring the two themes together by discussing participants' **strategies to include the end user**. An end-user focus is crucial both for one's understanding as a UX practitioner as well as for the development of a UX vision.

## 5.2. Theme 1: Identity

The literature review in chapter 3 has provided a summary of the main similarities and differences between UCD and agile and presented approaches how the two disciplines can be brought closer together. Agile has changed both software development and project management and consequently the environment in which UX practitioners work is a different one compared to the waterfall world. Agile projects challenge UX practitioners to reconsider their role in the development process, their way of approaching projects and their way of thinking. This **process of identity shaping** is a recurring theme in the data and will be defined in the following.

### 5.2.1 An agile mindset

The software development community understands agile as a different approach that also requires a change in thinking. Do UX practitioners share this belief? What does agile mean to them? Looking closely at the data provides answers to these questions and leads to the hypothesis that *how UX practitioners understand agile influences their ability to work effectively in an agile environment*.

#### Participants' understanding of agile

As explained in chapter 2, agile is not a methodology, but rather a way of thinking. The participants explicitly and implicitly enunciated their understanding of agile throughout the interviews. In particular, answers to the open question *Could you describe what agile means to you?* yielded insights into the meaning of agile for them.

First of all, it is perceived by all participants in **opposition to the waterfall approach**, as explicitly stated by P7:

„I don't think there is any one kind of agile, but I think the general principle of it is in opposition to the waterfall methodology. So rather than taking the approach of doing all of your planning at the beginning and then having a design phase and a development phase and a testing phase and then to launch the whole thing at once, the general philosophy of agile is to work

on small pieces and release them earlier, so that you can test whether or not your idea is sound and whether or not the way they are implementing it is sound.“ – P7

In this quote, P7 also talks about the **philosophy** of agile. All participants point out that agile is more than a framework or toolkit of methods. Whereas P10 and P6 see it as a mindset of the project team and the clients, P2, P4, P5, P7 and P9 explicitly state that, to them, it's a philosophy. The following quote illustrates this:

„I guess my first impression of agile was that it's a framework, but it definitely affects your way of thinking, in a kind of philosophical sense in some respect. So that the way that we approach tasks or problems or things within the brief are fundamentally different from how we would approach them in a waterfall manner.“ – P4

The participants perceive agile as a philosophy, but this does not equal living and applying it. Do they commit to the ideas agile is based on? To explore the participants' mindset, we have to look at how agile values and principles influence their day-to-day work.

### Flexibility, change and sufficiency

The majority of the participants had one or more years of experience with agile and hence a good knowledge about its origins and the ideas behind it. Analysing the interview data showed how UX practitioners interpret these values. For them, a core characteristic of agile is **flexibility**.

To begin with, participants experience flexibility as one of the big pros of agile. One aspect of flexibility is the ability to **respond to change** and iterate the UX design:

[Talking about the pros of agile] „It's the right way to do software. (...) Flexibility. The willingness that it causes in the business to go back and fix things is a lot bigger than with a waterfall process. If you put something live with waterfall and then you find, oh shit, we missed something..try telling that to the business sponsors, they will tell you to sod off. With agile, you can make space to do that.“ – P2

P7 experienced a situation where the launch of a competitor dramatically changed the market situation for his client:

„Nobody was expecting it and if they had spent the last 3 or 4 months writing specifications and (...) then this thing would have happened, where would they have gone? (...) This is to me one of the great things about having that level of agility when you're working is that when something like that happens, it doesn't completely blow you out of the water. You can actually respond to it.“ – P7

On a more personal level, the **freedom** to choose appropriate methods and UCD practices instead of following an overdefined approach is perceived as a positive attribute of flexibility:

„We get to rapidly respond to things, we get to be less entrenched in documentation and process. And can be just freer to think and do the things we want to do in the best way.“ – P4

However, the need to be flexible and to deal with change is also seen as a challenge that can be hard to handle:

„That [flexibility] is what makes it really hard to come to grips with, because flexibility isn't easy. Especially for people like UX practitioners or creatives that have dealt with a lot of dogma in their field, like this is the way that you should do something, there is no other way. So to then all of sudden say, let's be a bit more pragmatic about it, let's try and do things in a way that's flexible, that can be a bit of a shock and can be quite hard. – P5

Agile is not about perfectionism, but about simplicity and doing things in a barely sufficient way:

“You may not have time to think a solution through to perfect it, so you just have to be open and accept critique.” – P10

„People who work here [i.e. UX consultants at P9’s company] sometimes have a tendency to make things as beautiful as possible, that's unnecessary. It's requiring a different way of thinking, being really simple, really quick. And really focused and result oriented.“ – P9

**Sufficiency** can be hard to accept, and P8 goes as far as calling it counter-intuitive for design:

„I don't ever believe in the right products, it's never gonna be right. I think that sits at the core of agile mentality, which is actually good in some ways, but it's kind of counter-intuitive design mentality. You can never be a 100 % right, you can't be perfect, it's always gonna have problems and there's always opportunity to improve. (...) It's just the hardest thing for the designer mentality, user experience mentality to think about things not being right and just getting them 80 % there, ok, just good enough.“ – P8

The chosen quotes illustrate the participants’ understanding of fundamental principles of agile. The most important part of adopting a mindset, however, is **believing** in its usefulness. Some participants pointed out that agile is not suitable for every project, nevertheless all agree that the agile approach „makes a lot of sense“ (P3) – for the developers, for the business and for themselves:

„I don't know what it is about agile compared to waterfall that makes developers so happy, but they get really happy. Happy developers is a good thing, because it's much easier to deal with a happy one than a cranky one.“ – P5

„(...) certainly my experience with agile in the past and what I know about it has helped me to work better with these organisations<sup>1</sup> and to encourage them I think to do smarter things rather than dumb things.“ – P7

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<sup>1</sup> P7 works with start-ups.

Although participants are not entirely satisfied, face challenges and experience frustration, the fact that they believe agile is a good way of working allows them to value the good intentions more than the sometimes deficient application of agile.

„I’m a big fan of agile, I’m a really big fan. (...) Did I mention that I love agile?“ – P4

### 5.2.2 Fitting in

An agile mindset is important for UX practitioners, as it enables them to understand where they can fit in. Interestingly, while being aware of the obstacles, none of the participants was negative about agile. Rather, the appreciation of the approach led to the belief that UCD has to be flexible and adapt to fit into agile – making it more agile in itself.

„It's very important for us as user experience and creatives to be able to talk and feedback and find better ways to work with developers, because that's inherently the problem. They're doing this, we understand how we are supposed to fit it into their process.“ – P6

The ability to work agile is influenced by the adopted mindset:

„There was some intensely frustrating parts to the process. But, a lot of that I realised was my view on things, that if I would have said, hang on a minute, I would just need to be more flexible, if I was more flexible I could do it.“  
– P5

This doesn't imply that UX practitioners have given in and adapt, but rather that, by understanding it, agile could be leveraged, as articulated by P7:

„As designers and UX practitioners, we've got as much right to interpret the agile philosophy as anybody else does. And the way we interpret it, the needs that we have when we come to interpret it are just as valid as a programmer or a scrum master or anybody else who thinks that they have got more kind of authority on the topic.“ – P7



The participants accept that agile requires a different mindset than a waterfall approach. They are willing to be flexible, but they also expect this flexibility from the agile community, as the following quote illustrates:

„(...) They can be so dogmatic about agile. That flexibility within the process doesn't necessarily apply to the process as a whole. (...) I think if there was that flexibility in there to sort of say, well, hang on a minute let's try and bring the two together and educate people in both sides...“ – P5

### **5.2.3 Roles and responsibilities**

The participants' mindset and understanding of agile form the basis of the process of identity shaping. The third main element of this process is the roles and the responsibilities that UX practitioners take on. Instead of producing an up-front specification that is handed over to development, agile emphasises collaboration and communication, which can lead to a blending of roles. The roles that participants take on are related to their understanding of agile and express as well as shape their self-concept and identity.

#### Being a communication hub

P4 sums up his job role as follows:

„(...) Designer, facilitator, don't know, I can't think of a word, it's got something to do with being that bridge between design, tech“. – P4

P6 explains in more detail what being that bridge involves:

„As a UX person, I would spend some time with the creative designers to help them with their work. (...) sitting with both the creative guys and the user experience architects and the frontend developer and discuss ways of doing things better. And then I might sit with the technical architect and the developers to try to get them to understand what I'm trying to achieve technically. So a lot of it is talking.“ – P6

While designing the UX generally is a communicative role, waterfall projects use documentation as a means of communication. On agile projects, interaction with people reduces documentation, which all participants named as a pro of agile, as they experienced documents as insufficient for communicating interactive behaviour. Instead of specifications, the participants use tools such as personas, sketches, wireframes or prototypes to support face-to-face interaction. They dedicate a lot of energy to acting as a communication hub, as the following quote illustrates:

„I did a lot of work with (...) teams, (...) making sure they were in line with what we [UX team] were doing. And to a lesser extent with the backend team, because I was doing frontend UX that was less of an issue. But it helped to have some sort of involvement with them. Just so that they were aware of what was going on and in a sense giving them the feedback as to well, ok, this is how your backend stuff is gonna be used.“ – P5

The need to be an information hub and an agile mindset led participants to getting more involved in the day-to-day agile development process.

### Getting involved

An increase of face-to-face communication and colocation bring a team closer together. However, being part of an agile team requires more, according to P6:

„There's a whiteboard that we use and everyone puts their thing on and they'll say it takes me half a day, this will take me one day. (...) If I'm part of the delivery team I should put my tasks up there. So if there is a line that says: for this user story, these are the development tasks that need to be done, I should add my UX tasks on there as well. Even if it's just to say, I need to create a wireframe, 2 hours. I should have it there and I can tick it off. So they can see that there's a connection to me.“ – P6

Participants did not only integrate themselves into the agile environment, they actively participated. A good understanding of agile allowed them to take on responsibility for turning requirements into user stories:

„We just pinched the responsibility for the requirements, we just did it because it's important to be involved.“ – P10

„We would write them [the story cards] with the client, often. (...) not taking solutions from the clients, actually kind of converting them into requirements. (...) I would have to make sure that I would be helping making sure that the stories were right. So I would be writing them en masse or writing the start of them en masse and they would be detailed later by someone from the team.“ – P8

Additionally, participants facilitated the prioritisation of user stories by considering features from the end users' point of view:

„Prioritisation is not just about how hard something is and how important it is in terms of business requirements. It's also about what it means in terms of the users. That was a bit of a challenge, but that was a role I was responsible for.“ – P5

The participants who took part in creating the user stories and the backlog, in prioritising and planning felt that this enabled them to have more control over the UX. This supports the hypothesis that the *better UX practitioners understand agile, the better they can design the UX in an agile context.*

### Blending the roles

Frequent communication, an understanding of agile and along with that the involvement in agile activities lead to a blending of roles, as articulated by P4:

„In the context of the team as a whole agile means to me the freedom of removing role responsibility, so it's very much not: I'm UX and there's a designer and there's a tech. It's a much more collaborative decision making process. So there's less boundaries between: I have to do something, you have to do something. I guess as an overall thing it's moving barriers between collaboration. – P4

This blending of roles is reinforced by colocation and also driven by the developers:

„They want us to sit with them. (...)They're very user-focused, but they know that they don't have the skills to do it. Even the back end ones, they are totally buying into the whole UX thing. (...) It's not us pushing it, it's them actually pulling us in.“ – *P1*

Being a scrum master helped P6 to stay integrated throughout the process and to control the UX:

„(...) what you're trying to achieve [as a scrum master] is to facilitate a team of hopefully very good people to work well. (...)For me as a scrum master and a UX person, I thought it was very important and very useful. I mean it also diverted some time away from me doing work, but it meant that I could be fully useful, because I always got work to do.“ – *P6*

However, communication and involvement can be stressful and result in UX practitioners taking on too many responsibilities, as the following example illustrates:

„I got roped into doing a lot of other things which normally as a UX person I wouldn't do. So, I was doing, in the agency world what a planner would do, so sort of strategy type stuff, working with the client, even developing some of the business strategy. (...) It kept me away from actually building wireframes. (...) I felt that I spread myself to thin. That meant that everything suffered a little bit.“ – *P5*

Nevertheless, being closer and more involved is experienced as beneficial:

„Having that collaboration with developers and with business people as well I think makes us better designers, which is really important.“ – *P7*

Not only UX practitioners' role is changing, but the blurring of boundaries also affects graphic designers or developers:

„It's blending it all together. Equally developers need to be more skilled at design. As not to say they should do design, I should do code, but we need to be able to speak each others language.“ – P2

Speaking each others language is the point. While collaboration is beneficial and easens acting as a user advocate, the UX ownership has to be clear:

„While you [the developers] own the process, we own the proposition [concept].“ – P4

### Acting as a user advocate and UX evangelist

Participants acted as communicators, facilitators, scrum masters or consultants for both the client and the team. However, the most important role is that of a user advocate and UX evangelist:

“Essentially I was advocate for the user, I was creating the user experience, and in a lot of ways I was a bit of a advisor, a sort of a consultant within the team on UX issues.” – P5

Not for nothing do we speak of user-centred design. Including the end user in the design process is fundamental and part of the participants' self-concept as UX practitioners. Communication and active involvement facilitate evangelising a user-centred approach. A goal of agile is to deliver value for the customer. UX practitioners look at things from a user perspective, but also need to keep their client's business goals in mind:

„Doing user-centred design is means to an end, means to develop good services to sell for the business. Most people in UCD don't get that and they go very pure. But you have to balance the business objectives against user needs.“ – P8

The goal of UX practitioners is to design a good UX. Advocating end user focus is what participants were passionate about and what motivated them to shape their role in an agile context.

To sum up, the identity of UX practitioners on agile projects is shaped by their understanding of agile and their attitudes towards flexibility and change. Participants believed that UCD can be fitted with an agile context, but pointed out that this also requires flexibility from the agile perspective. Participants played an active part and took on various roles, the most important one being advocating the end user. Working agile can be time-consuming and stressful for UX practitioners, therefore more UX resources than currently assigned are required.

## 5.3 Theme 2: Vision

The second theme that emerged from the data is closely related to the first one of identity. Participants agreed that, in order to design a good UX, an understanding of the end user and his needs is necessary. The UX vision is the concept envisioning the experience the user should have when using a product.

P7 points out why a good UX vision is important:

„What’s usually wrong with the stuff that they put out there is really fundamental stuff, it's not a matter of, oh, that button's in the wrong place and it's got the wrong word on it. It's that people don't get what your business is and what it is you're trying to sell them and why on earth they should have anything to do with it.“ – P7

How practitioners try to establish, protect and share a UX vision and the challenges they face is presented in the following.

### 5.3.1 Losing the big picture

Agile is fast and iterative. This makes it hard to keep a big picture in mind:

„As a UX person you're constantly trying to deliver a slice of functionality, but maintain the integrity of a big picture, because if you keep adding slices it may not add up to a coherent big picture. You'd just be a frankenstein monster.“ – P6

The risk of losing the vision in the process of delivering was named as one of the biggest cons of agile, as it makes keeping a UX vision even harder due to the following aspects:

Firstly, some of the participants were working on a project that was part of a product. That meant that the UX team was segmented into different scrum teams. P3 was in such a situation:

„I think where it gets really tricky is, everyone else on the team is doing the same thing for other bits and there's no one who can really kind of step back and say, in 5 years this product is this and here's where we're heading towards. (...)We're just adding a lot of stuff to the interface and it's really starting to creep, we're running out of space to do things (...). There's nothing kind of at the level up to say: hold on, we need to rethink everything that's coming and get a single kind of long-term vision.“ – P3

Secondly, colocation can reinforce this problem. While it is beneficial for collaboration to sit with the delivery team, it impedes the communication of the UX team. P2 was in this situation and struggled managing his UX team:

„Basically I had no idea what my team was working on day in day out.“  
– P2

The third factor relates back to a problem mentioned earlier: UX people tend to be overloaded.

„I would have liked to have another UX person working, because the ratio was not balanced, there were too many developers. There would be times when there were too many wireframes to do, for example. And when you get overloaded, you don't see the big picture, you start looking down. I'm gonna get this done, get this done.“ – P6

Time pressure and a lack of UX resources made participants struggle to include user research and establish a UX vision, as delivery has priority and „the strategic stuff can always be dropped off, unfortunately.“ (P2)

### 5.3.2 Establishing a UX vision

In order to establish a vision, participants needed to understand the users, the context as well as the clients' goals. This was mostly done by an up-front research phase:

„Before we can start, we need time to develop an understanding for the context. We need something like an explore phase before we can start, to develop a vision.“ – *P10*

Many participants referred to this explore phase as sprint zero respectively iteration zero. Generally, sprint zero means planning the release, getting the equipment ready and the team together:

„The original concept of sprint zero as it was presented to me was that it's an alignment exercise. It's basically ramping up the development environment, getting your teams on site, getting together, being ready to (...) hit the ground running with sprint one.“ – *P5*

Participants used the sprint zero phase as „time to get ahead“ (*P4*) and conducted user research. However, as *P5* recounts, depending on the complexity two weeks can be not enough, especially if there is a lack of UX resources:

„I found it really hard to try and build a vision in 2 weeks. (...)I was on my own that first little while. I got more resources as the project went on. And my feeling is that I wouldn't have needed as much. If I had had more in that first 2 weeks, I wouldn't have needed as much resource later on.“ – *P5*

*P6* points out that an understanding of the client's goals has to be considered when establishing a UX vision:

„It's not only about understanding users, but also about understanding clients: If you don't get your foundation right, it's dangerous. Because you need to make sure..how..creative the client wants a solution to be, so how innovative or exciting it can be. Which direction they need to head on. (...) You need to understand or be at least able to judge where the client wants to



be. At least you can feel as if you can think like the clients. If you don't have that connection, you'll be surprised.“ – *P6*

Participants stated that at least a rough UX vision has to be established before the delivery sprints start. Additionally, participants felt the need of interim sprint zeros to keep the vision up to date, to evaluate and develop it.

„Maybe three-monthly sprint zeros. (...) tech team off for a week and literally just give us time to make sure that we are happy from a user perspective, that things are getting done in the right way and everything's prioritised correctly. (...) Sit down with the client and say right, where are we, where are we going. Let's do some user research, let's review the personas.“ – *P4*

P7 and P9 both conducted generative and evaluative research at the same time to not only test what has been developed, but to get input for the overall vision:

„I do evaluative and generative research pretty much at the same time. It tends to be like an hour session and probably the first half is just getting information about them and how they relate to whatever it is that we're researching. We can do things like build personas, understand what the critical characteristics are and develop mental models and an understanding of how people are approaching tasks (...) the second half is more about saying, here's some prototypes that we've developed, getting some feedback on those, running through some tasks on those and trying to use that session to get as much out of it as possible.“ – *P7*

### **5.3.3 Communicating and protecting the UX vision**

The best UX vision is useless if it's not being communicated. The whole team has to be aware of what the UX team is trying to achieve:

„When the vision isn't visually articulated, the motivation of the team can be lower, because they don't know what they are working towards.“ – *P10*

Participants named **personas** as an effective tool to communicate who the end users and what their needs are to the team and to stakeholders. If the whole team shares an understanding of the user, this makes it easier to implement the UX vision.

„I fundamentally believe that the personas are massively key. I wouldn't have wanted to do that project without that [research] phase. I don't think it would have worked, the client wouldn't have bought into it, the team wouldn't have bought into it and a year later, the fact that these personas still work goes to show how valuable that user-centred approach is to it.“

– P4

However, personas have to be based on enough valid user research to be effective. If this isn't the case, like on P3's project, personas will not be believable enough to be used.

To communicate the UX vision, participants preferred face-to-face communication, facilitated by personas and scenarios and other tools like sketches, wireframes, user journeys or prototypes. All agreed that the more **flexible and lightweight** a communication tool is, the better:

„Doing lots of sketches is good because it's cheap. The more hi-fi you go from Visio to wireframing to HTML, the more expensive it is to change. If you can communicate your vision and ideas on paper, that's quicker and cheaper and you can change that.“ – P6

Getting the whole team to understand the UX vision makes it easier to protect. Being close to the team is important, „so that we really understand what the developers are doing and we can intervene when we need to and make UX decisions.“ (P1)

P6 has been a scrum master and emphasises that the more involved a UX practitioner is in the agile process, the better he can protect the UX vision:

„Being the scrum master, I have a very close contact with the clients, so that helped me to protect the vision of the project. (...) If the technical people ask me about things, I can give them an angle which is also UX. Like, why

are we doing this, it's taking a long time, so I can explain, oh, we're doing it the hard way because it's really good for the user. (...) If you're very disconnected from the backlog as a UX person, the more likely it is that you get requirements that don't make sense. (...) But if you can control or rather provide guidance on what is a good feature, because these personas or these scenarios, this is what you're aiming to, at least you got a stable direction and you're not going everywhere.” – P6

It all relates back to actively advocating the end user, which seems to be easier with an agile mindset and a good understanding of agile. Again, the need to communicate, collaborate and be involved together with a lack of UX resources can be too much to handle. P6 acknowledges that being a scrum master requires at least one other UX person on the project. P5 wished for more resources during sprint zero. „Fitting user research in is the hardest thing“ (P8), but essential for participants’ self-concept and the UX vision. The next section presents how participants tried to make it work.

## 5.4 Strategies to include the end user

To bring the two themes together, this section will focus on the core point that is relevant for both UX practitioners’ identity and for the UX vision: the **inclusion of end user research**.

### 5.4.1 Working ahead

Similar to approaches presented in the literature review in chapter 3, e.g. Sy (2007), participants highlighted the need to **work ahead** to be able to feed into the development process. However, depending on the amount of UX resources, it can still be hard to include user research due to the time pressure to deliver:

„We tried to work one sprint ahead, which would give us two weeks, but in the end that wasn't enough. As soon as you slipped by a day, you'd lost 10 % of your sprint, it was a real challenge.“ – P5

## 5.4.2 Splitting it up

Therefore, another strategy adopted respectively proposed by participants was to have a UX person as a **satellite on the team**, who is supported by more UX resources who are not part of the delivery team. While the satellite person focuses on the relationship with the developers and supports the process, the rest of the UX team feeds into the process by e.g. conducting usability testing or producing prototypes or screenflows. P6 describes this strategy as follows:

„The ideas team spends their time creating ideas, prototyping, just coming out with concepts and for me that goes into the backlog. So basically they're visualising the backlog items and maybe testing and prototyping it. And then you got the delivery team, which is wireframing and creating the things needed for that sprint. (...) If you have only one person trying to do both or everyting, then it's not possible. So I think that's maybe a part solution to trying to incorporate more UX, more research, more design.“ – P6

Participants who outsourced user research or usability testing indeed had a higher amount of end user involvement. However, from a UX vision point of view, this can cause problems. A satellite person who is disconnected from the team and the results of user research will also be disconnected from the UX vision:

“The issue I had is that [satellite] in the [scrum team] didn't know all those things, so he was making lots of design mistakes.” – P8

P1 was a satellite, but only part of the time, as different UX team members would rotate. According to P1, this worked well. Possible issues to explore here are:

- how involved the satellite has to be in user research activities to still feel connected to the user (identity),
- how the satellite and the rest of the UX team can develop a mutual understanding (UX vision), and
- what effect changing UX resources could have on the delivery team.

### 5.4.3 Sprint zero

As mentioned earlier, **sprint zero** was perceived as an opportunity to conduct user research. However, depending on the length of the sprint cycles, two or three weeks can be too short, especially if there is a lack of UX resources and if the user group is hard to reach, e.g. in health care or finance.

For P6, two days of observations were sufficient, as he was designing for a specific user group in a stable context. Still, an opportunity to do further research would have been good:

„I think whether you do it all in sprint zero is questionable. I think you do enough in sprint zero for you do confidently plan sprint one, do sprint one. But what I think you should always have the option to do is do further research when you think it's necessary.“ – P6

Participants working on more complex projects, especially those with user group that was hard to reach or very large, conducted user research before development started, i.e. outside of the sprint cycles:

„The first one was not a sprint. We agreed to do some initial research, which was focused on contextual inquiries with users (...).I believe it was about 2 and 4 weeks, maybe 3 weeks. We called it proposition and concept testing, the key was proposition testing, the concept only on a very high level. The key deliverable from that was personas (...) and high-level scenarios.“ – P9

Research activities could also happen outside of the delivery cycle, either before development starts at all, or as a separate process feeding into the sprints:

„ (...) Sprint zero is about alignment and it's not necessarily about setting the vision, so in a lot of ways there needs to be something outside that process in a way that's going to contribute to that. (...) it's this waterfall-type bit at the start and you go and do a nice agile bit and then you come out and finish off in waterfall. And I can see the appeal in that, definitely, because the...agile can deliver the most value in the middle bit. (...) It doesn't mean that you don't revisit some of that, but it just means that you have a vision at

the outset rather than starting off in a direction and then changing direction every two weeks.“ – P5

„You could actually have [research projects] that basically are feeding in along the way, so there's always an overall grand design piece, restructuring, whatever. And the stories out of that might end up over here into this [sprint] or into this [sprint]. You're always thinking ahead. You are constantly feeding the client.“ – P8

However, the direction of the project, the target users and the business goals have to be clear before sprint zero.

„If it [sprint zero] is more than a month then it means you're undecided, you don't know what you're doing. Which means that it's potentially not part of the delivery phase. You should just go away and work out where your market is, what your business opportunity is and it's a separate piece of work.“ – P6

UX could become more strategic, providing input on a higher level. UCD methods can help to define a business strategy; ethnography or in-depth interviewing can inform the development of novel products or services.

#### **5.4.4 Including users throughout**

For **including users during the sprints**, the majority of participants stated that especially testing activities should be planned in advance, no matter if the slot would be used (i.e. there is enough to test) or not. Participants suggested that the preparation of these sessions should happen only a couple of days before the tests. The results should be reported in a light-weight way, so e.g. a few powerpoint slides instead of lengthy documents. Additionally, many of the participants made use of a user group or panel, especially those who were working on a Beta, to access end users quickly.

„We talked about having a user panel that we could pull from or at least having a regular slot every 3 months or every month that we would test whatever we had.“ – P8

“Let's assume we're going to do user testing every week or every sprint or whatever it happens to be and book people in and then, the day before, let's plan out what we're gonna do in those user test sessions and do it. Because sometimes if you don't, you just won't do it.” – P5

P7, who works with very small teams, does research and testing on his own and uses social networking services to recruit users. P2 and also P5 used in-house people to evaluate their design. All participants agreed that, rather than having no users at all, they would make do with dogfooding, a smaller number of users or with user panels. A potential con of the latter could be bias. However, participants strongly expressed the necessity to be flexible, practical and sensible, which relates back to issues of identity discussed earlier. As P7 puts it:

„I think that's a big thing about agile, isn't it, that there are so many problems to solve that we don't really need to get tied up in how methodologically sound is it. It comes down to being a sensible researcher.“  
– P7

## 5.5 Summary

This chapter has presented two themes that emerged from the rich data collected:

The **identity section** discussed participants' explicit and implicit understanding of agile, reported their willingness to work agile and covered the roles and responsibilities of UX practitioners. Besides perceived pros of agile, e.g. more face-to-face communication and less documentation, potential problems and challenges were pointed out. Agile was experienced as demanding and stressful, especially when there was a lack of UX resources. Most importantly, it was highlighted that UX practitioners' self-concept is attached to the integration of the end user, as an understanding of one's users is the basis for designing a good UX.

Equally, the need for user research as a basis was one of the main points of the **vision section**. Participants saw the risk of losing the big picture as a con of agile and used different tools, e.g. personas, to communicate and protect the UX vision.

As end user involvement was shown to be crucial, the chapter finished by discussing participants' strategies to integrate end user research methods.

In the following chapter, the observations will pick up these main points and add insights gained from spending two days with a scrum team.



# 6 The Observations

After the analysis of the interviews, one round of observations was conducted to enrich the data gathered so far. As the goal was to scrutinise and examine the themes that had emerged from the interview data, the observations were conducted in consideration of the categories of identity and vision.

## 6.1 Setting

The researcher spent two days with a scrum team based at a large organisation with a substantial in-house UX team and several in-house development teams. The project the observed team was working on was a feature to be integrated within the organisation's extensive website, which therefore required a considerable development effort. The methodology used was Scrum.

At the time of the observations, the colocated team comprised about nine people, but some of the developers were on holiday. Besides the project manager, who also was the scrum master, the product owner, frontend and backend developers as well as testers, one interaction designer from the UX team was sitting with the scrum team. The team shared an area of an open-plan office.

The interaction designer (IxD) was supported by a graphic designer and two other people from the UX team, one in charge of usability testing, the other responsible for the information architecture. Additionally, the UX team comprised a prototyping team, who also supported this project. On the first day of the observations, a new interaction designer (IxD2), who will be supporting IxD, joined the UX team.

At the time of the observations, the developers were working in 10-day-scrums and focused on tasks that didn't require much UX input. Therefore, the IxD and the rest of the UX team were working on the concept, planning usability testing and further research that was required:

„At the moment, UX and the developers are doing ground work. We are solving basic issues, trying to study the user group, while the developers are solving technical backend issues.“ – *IxD*

During the two days of observations, the researcher sat with the team, attended the daily scrums and several meetings, and shadowed the IxD. The latter also involved meetings with UX team members only.

## **6.2. Results related to identity**

### **6.2.1 Comparison with interview data**

The interviews led to the conclusion that the identity of UX practitioners on agile projects is shaped by their understanding of agile and their attitudes towards flexibility and change. IxD had a good understanding of agile and its principles and stated that his way of working fitted with agile, as he prefers face-to-face communication to documentation. Like the interview participants, he believed that UCD has to be flexible and adapted to fit with agile. IxD pointed out that one has to be less proprietary about one's design and ideas and emphasised the importance of collaboration and negotiation:

„To get people to buy in into the project we talk to them. I meet the developers, get them to agree, they come up with issues and it will be a dialogue to work things out.“ – *IxD*

Regarding his roles and responsibilities, the observations coincided with the interview data. IxD was a communication hub and acted as a gateway between the UX team and the delivery team. To align his activities with the other UX practitioners, he attended a lot of meetings, e.g. to plan the user tests or to discuss the visual design. Additionally, he participated in a general weekly UX meeting. IxD managed to stay connected to user research activities and the UX team, but struggled as he felt it was „just too much for one person. I feel all over the place at the moment, running around, not doing anything.“ This matches the interview results, as participants reported stress due to a lack of UX resources.

IxD was well integrated into the team. As not only IxD, but also other team members were spending a lot of time in meetings, colocation was the glue holding the team together. Compared to some of the interviewees, IxD was less involved, mostly due to the current stage of the project. He wasn't feeding into the sprints, therefore the UX tasks weren't on the task board and he also didn't take part in the sprint planning sessions. However, on one of the two days, he attended the scrum meeting. IxD planned to put his tasks up and get more involved later on in the project. Colocation was important for him: „I have to make sure that the team knows what I do, that that fits.“

Additionally, IxD collaborated with the product owner (PO), who checked the stakeholders' requirements with IxD and left it to him to specify requirements. PO described the process as follows:

„IxD comes up with something. For some requirements we don't know enough, so there will be some research looking into these issues. Then it's validated with users. We need to do what's best for the business and for the users.“ – *PO*

The most important role was again being a user advocate. IxD actively pushed the amount of user research and felt he needed to increase his understanding of one user group. Colocation was beneficial, as it allowed IxD to join conversations and answer ad-hoc questions, adding a user-centred perspective. He felt that „the developers don't argue with arguments that are grounded in user needs, but accept them.“

### **6.2.2 Insights**

The interviews led to the hypothesis that how UX practitioners understand and experience agile influences their ability to work agile. The observations have made it clear that an understanding of agile and an openness to work this way are required – but from both sides.

An important point to highlight here is that identity is not only the self-concept, but also the concept others have of a person or the person's role. Every member of a team brings his previous experience and preconceptions to the project. IxD's integration into the team and his interactions were influenced by the understanding

others (including developers, other UX team members as well as stakeholders) had of his job role and responsibilities. Additionally, identity is defined by the context, e.g. IxD's job role was influenced by the structure and practices of his organisation.

To shape one's role can necessitate changing how one is perceived by others. This requires an understanding of the different aspects of identity pointed out here as well as communication skills. The ability to negotiate and a certain flexibility about one's beliefs are essential. This is not necessarily a topic connected to agile. How developers perceive UX and vice versa is a general issue that can also cause problems on waterfall projects. The benefit of agile is that it facilitates establishing an understanding and respect for each other due to colocation and collaboration.

The observations helped to understand how a UX practitioner can change his team role by communicating and being involved. The team seemed to have a high opinion of each other and respected each others' areas of competence. IxD had joined the team two months ago and took over from another designer. According to the scrum master (SM), this change wasn't easy for the team. IxD was taking a slightly different design approach that was questioned by the team. However, at the time of the observations the team appreciated IxD's work:

„He has brought new ideas, has a purist design approach, so that's good, he is a very good designer.“ – *SM*

This example emphasises that agile brings UX and development closer together. For UX, this is a chance to raise the awareness for the importance of UCD and change the perception of the UX practitioner's role.

Additionally, the observations allowed the researcher to experience what being a communication hub really means. Section 5.4 covered strategies to include the end user. IxD and his team applied a satellite approach, where one person is sitting with the delivery team, while other members of the UX team support the satellite by e.g. planning user tests. The observations showed that the possible challenges of a satellite approach raised in 5.4 were relevant: a satellite can still lack time to do "actual design work" like wireframes. This leads to the conclusion that, as demanded by the interview participants, more UX resources than currently available are

required. IxD was relieved that the new interaction designer, IxD2, joined the project and suggested to take turns sitting with the team. In 5.4 the effect this could have on the team was pointed out as a possible challenge. Talking to the scrum master and a developer confirmed that changing UX resources can be difficult for the team. It would be interesting to explore the effect of rotating UX resources on the team and if two satellites sitting with the delivery team could be a solution.

## **6.3. Results related to vision**

### **6.3.1 Comparison with interview data**

As discussed in section 5.3, establishing, protecting and communicating the UX vision is challenging in an agile context. For IxD, it was important that the feature he was working on would fit with the overall UX of the website. The researcher could observe several meetings with other UX team members – in all of them, coordinating the vision was an issue, as the UX vision combines different aspects addressing the user needs, e.g. usability, usefulness, interaction design or visual design. Therefore, in the course of the two days, IxD interacted with five other designers. This relates back to identity, as the required communication with the UX team resulted in a lot of formal and informal meetings, cutting in on IxD's time spent with the team, doing design work.

To communicate the UX vision, IxD relied on face-to-face communication facilitated by sketches, wireframes, user journeys, high-fidelity designs and a prototype. While many of the interviewees were using personas, IxD wasn't using them, partly because of a lack of user research, partly due to a lack of time. He stated that personas could have been beneficial, especially in meetings, where they could have saved time: instead of describing the user group one is talking about, one could just use the persona, which would make it clear for everybody what one actually means.

It was claimed earlier that end user research is crucial for establishing and protecting a UX vision. The observations confirmed that: IxD and both the delivery and the UX team lacked a sufficient understanding of one of their user groups. Therefore, they struggled to make design decisions, as their discussions were based on assumptions. To the observer, the concept of the end user felt intangible and ill-defined. This also

increases the risk of talking at cross-purposes and misunderstandings. During a meeting in which IxD, two other UX team members, the scrum master, the product owner and developers participated, the team agreed that further user research was indispensable for making progress. The observations highlighted that an understanding of the users and their needs makes it easier for all stakeholders, while uncertainty and guesswork end in fruitless discussions that slow the project down.

### **6.3.2 Insights**

The observations added a key aspect to the concept of vision: it is not only the UX vision that is important, but the team vision: a mutual understanding about what the product should be, what the goals are from a technical, a business and a UX perspective. These different aspects of a team vision influence each other, e.g. business goals can constrain UX goals, or user needs can contradict the technical vision. Uncovering and negotiating these visions is important, but difficult, as different perspectives are often implicit and not articulated. Learning about and understanding each others' goals facilitates working together and reduces the time wasted when talking to each other at cross-purposes.

Additionally, a team vision is also important for dealing with stakeholders. The observed team was working on an in-house project. In order to negotiate effectively with internal stakeholders, the team needed a consolidated opinion on important issues. The team had come up with a tool that facilitated discussions about these issues and subsequently the development of a team vision: the question board.

The question board had been started by a frontend developer two weeks prior to the observations as a tool to facilitate the discussion about open questions and unclear issues. On the left, unanswered questions could be written down on question sheets. In the middle, these questions were discussed by putting answers and comments on post-it notes and sticking these next to the question sheet. As soon as a question felt answered, it was moved to the right section. One of the backend developers explained the question board as follows:

„There is no other place to discuss these issues. It helps to get the team on the same page, to clarify and discuss things. Some of us are more user-focused, some just want to produce a good product, from a technical point

of view, for whatever users come along. It shows where what team members think is important clashes, so it facilitates discussion. And it helps to find out who to talk to about things.“ – *Backend Developer*

The IxD used the question board to communicate the UX vision and advocate end user needs, especially when questions seemed to be his responsibility, e.g. the following discussion about wording:

Question: To a user, is it <phrase 1>, <phrase 2>, <phrase 3> or <phrase 4>?

Answer Dev2: <phrase 2>, <phrase 3>

Answer Dev3: <phrase 3>

Answer IxD: It's whatever is understood by users. Currently <phrase 2>, <phrase 4>

IxD appreciated the question board as a useful communication tool:

„User arguments are accepted, the developers don't argue with that. The board helps to clarify responsibility and ownership.“ – *IxD*

By documenting discussions and decisions, the board helps to reduce recurring debates about the same topics and can also be used to facilitate conversations with stakeholders. Most importantly, it triggers conversations about perspectives and viewpoints that otherwise could remain implicit. Therefore, the board could bring a team closer together and help to establish a mutual understanding, a team vision.

## 6.4 Summary

The observations validated claims made in chapter 5 and confirmed the interview results. Moreover, shadowing a UX practitioner and observing the daily work of a scrum team resulted in insights that helped to further develop the categories of vision and identity.

Identity is therefore not only the UX practitioner's self-concept, but also influenced by the other team members' self-concepts and their perception of UCD. The organisational context affects these factors. Agile offers a chance to bring the two

disciplines closer together, as working and sitting together facilitates communication and understanding. How successful a UX practitioner will be in an agile context is influenced not only by his mindset, but also by his and other team members' personalities and soft skills.

The observations highlighted that not only the UX vision, but a shared team vision is important for a successful project. The user-centric perspective of the team vision can facilitate decision making and help to advance the project. To establish a shared vision, communication is essential. Collaboration helps teams to come up with their own artefacts and tools for enabling discussion about issues that otherwise remain implicit. The observed team established a question board as a useful tool for negotiating a team vision and documenting discussions and decisions.



# 7 Discussion and conclusion

This chapter contains a discussion of the results of this research in relation to the literature presented in Chapter 3. After pointing out open issues and suggesting further research, the thesis finishes with a reflection on the contribution of the findings.

## 7.1 Relating the results to the literature

Let's return to the discussion between Beck and Cooper (Nelson, 2002). Cooper argued that interaction design is closer related to requirements planning than to interface design. Beck countered that a responsibility for requirements engineering could put the designer at risk of becoming the bottleneck for decision-making. We will see that, in the light of the two themes of the results of this research, identity and vision, both have a point.

### 7.1.1 Identity

The literature review suggested that UX practitioners who have experience with agile projects are willing to be more flexible and change their work practices to fit with agile. The research results confirm this impression and, moreover, have shown that UX practitioners, who have a good understanding and some experience with agile, have a positive attitude towards agile.

Ambler (2008), McInerney et al. (2005), Detweiler (2007) and others claim that UX practitioners need to become embedded in agile teams, participate actively, be flexible and use the right tools to bridge the gap between UCD and agile. This research has shown that participants meet these requirements, but face several challenges in doing so. UX practitioners may not become the bottleneck for decision-making, but a bottleneck for communication. Detweiler (2007) as well as Williams et al. (2007) point out that agile projects require more UX resources than usually available to allow individuals to work effectively. Our results indicate that the lack of a sufficient number of UX team members is a big problem and could be a major

source of frustration. Delivery has priority, so user research is the first thing to be compromised.

### **7.1.2 Vision**

The interviews have put forth the importance of a UX vision. The observations have reinforced this by showing what happens when both the team and the stakeholders lack an overall product vision: decision-making is difficult and inhibited, the project is slowed down. In order to run fast, you don't need to know exactly where the goal is – but you need to know in which direction you should be headed. Otherwise, you will be running in a circle.

Literature (e.g. Armitage, 2004) also regards the lack of a UX vision as a threat to the product's success. Sy et al. (2008) provide a summary of common problems experienced by UX practitioners. For „missing the big picture“, they suggest sprint zero as a solution. Similarly, Beyer et al. (2004) or Ambler (2008) recommend barely sufficient, high-level up-front research.

Conflicting with this, the claim made here, based on the research results, is that sprint zero is not enough to solve this problem. A strategic vision is necessary to determine what should be developed in the first place. We agree with Cooper: interaction design should be part of requirements planning and not limited to the delivery phase. Designing the UX involves not only the UI, but the experience the user has while using a product as a whole. For a basic understanding, two weeks can be sufficient. But to guide decisions and strategic activities such as the development of new services and products, in-depth user research methods like ethnographical studies are better placed outside an agile project.

### **7.1.3 Best practices**

In a recent article that provides a summary of the current discussion and is based, amongst others, on work by Sy (2007), Patton (2008) points out that patterns for integrating UX with agile development are emerging. In line with some of these best practices, the research results presented here suggest that:

- UX practitioners need to become design facilitators and should participate in generating and prioritising features and user stories.
- The UX work should be broken down into manageable chunks and done in a parallel track that feeds into development. Some UX team members could work in this track, while others sit with the team, as satellites.
- To include end users, strategies like a user panel or scheduling user testing no matter what have been successful. Sessions with users should be generative as well as evaluative and include multiple activities.
- The use of lightweight tools makes UCD more agile. To communicate the UX vision, personas and scenario-based approaches have been used successfully.

Like others mentioned earlier, Patton suggests that a barely sufficient amount of research, modeling and design can be done up-front. This research claims that it is often hard to determine up-front what research will be required to inform the project. Issues or changes that arise during development can make further research, what participants called interim- or mini-iteration-zeros, necessary. To allow room for reflecting on and advancing the product vision, time needs to be allocated respectively the number of UX resources needs to be increased.

## 7.2 Open issues

Like any research that is finite, this thesis has its limitations and therefore leaves us with a couple of open issues.

The first issue, related to identity, is the impact of **colocation**. To allow UX practitioners to bond with the developers, sitting with the team is crucial. We claimed that agile makes it easier for UX practitioners to improve the perception of UCD and push for the inclusion of end users. To validate this claim and to observe identity shaping and team building processes, a longer-term ethnographic study of a colocated agile team would be interesting. Additionally, the research results lead to the conclusion that it is very hard to make agile work when the team is big, not colocated or even sitting in different timezones. Further research could explore the impact scaling agile out to larger teams has on the UX role.

As discussed, colocation is challenging. It possibly disconnects the satellite on the delivery team from the world of UX, makes it harder to manage UX teams and complicates the development of a coherent UX vision. This research is unable to suggest a solution to these problems. A second satellite on the delivery team could be an option, but the impact alternating UX designers could have on the team is unclear. Further research could explore these issues by observing and comparing teams that have adopted different approaches.

The second issue, related to vision, is how UX practitioners participate in **shaping the project, defining the strategy and generating requirements**. To explore these aspects, a researcher would need to accompany a project from very early on. Possible questions to ask include:

- How is up-front strategic research, used to generate a vision, carried out?
- Where do requirements come from and how are they handled?
- How are UX practitioners involved in generating and transforming requirements? What is their relationship with the customer respectively product owner?
- Do UX practitioners succeed in advocating a user-centred approach?

The final issue to explore is the **different environments** in which UX practitioners work. The majority of best practices recommended in the literature is based on in-house teams' experiences with agile. While many of the interview participants were working in an agency environment, the observations were conducted at a large organisation. Further research would be necessary to explore how UX consultancies or freelancers can use agile and how it affects their work practices.

P5 posed the question if using an agile methodology provides a better UX than other approaches. Sy (2007) reports that, in her case, it does. Research will not be able to give a general answer, but shows that not only developers like agile, but that the approach has potential to increase UX practitioners' satisfaction. Agile UCD is still young and evolving. Values like flexibility and collaboration offer a chance to solve problems known from waterfall practices and to ground the importance of end user involvement. Currently, the Agile Usability Yahoo Group (<http://groups.yahoo.com/group/agile-usability/>) discusses how users can be part of agile, e.g. by adapting the agile manifesto. UCD changes agile – and agile changes UCD. To conclude with a quotation from P7:

„Traditionally as UCD practitioners we've lived in a little bubble at the beginning of a project (...). Whereas now we have to work out ways that we can fit the things that we need to do into short turnaround times (...). What comes with that are a whole raft of new ways to work that are a lot more efficient and that help us to get involved throughout the whole process (...). For me, a lot of that came about as a result of having to work in a more agile way. I think that's a benefit to our practice in general.“ – P7

## 7.3 Reflection

The issues that this research has highlighted are of crucial importance to understand how UX practitioners work on agile teams. The results have reinforced the importance of end user involvement, as it is an important aspect of vision and identity and hence fundamental for a successful product and for UX practitioners' satisfaction.

The interviews were an appropriate method to get an in-depth understanding of how participants go about designing the UX in an agile context. The two days of observations have not only enriched the interview results, but highlighted how the findings presented in this thesis could guide further observational studies. Therefore, this research hopes to inspire researchers studying the role of UX practitioners in an agile context to pick up and further explore as well as challenge the claims made.

Apart from this contribution to academic research, this thesis aims to provide useful implications for practitioners. The ongoing discussion taking place both in the agile and in the UX community of how UCD and agile can be brought closer together has resulted in different approaches and strategies, some of which have been discussed in this thesis. The outcome of this research could have been merely a report of strategies that are used in practice, but this wouldn't have been a unique contribution. Instead, by focussing on the question of identity and the challenge of establishing, protecting and communicating a UX as well as a team vision, this research aims to open some new avenues for looking at the relationship between UCD and agile.

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# Appendix A

## Interview questions outline

### Desired outcome - Information that should be gained

- Interviewees understanding of agile. Do they see it as a method, framework, way of thinking, philosophy?
- Use of user-centered design methods. How are they used and do they work?
- Level of end user involvement. How satisfied are the interviewees with the level of interaction with end users?
- Role of customer in the project. Does the customer act like an expert user?
- Satisfaction with the agile approach. Do they work well with their team? How do they feel perceived by the agile community?
- Work environment. Do they work in separate user experience departments only or sit with the developers?
- What they would like to change, what could be improved. What worked well.

### Interview questions

#### 1. General questions to start with

- Could you describe what „agile“ means to you?
- How long have you been working agile?
- Could you describe your job role – are you working as part of an in-house user experience team, as a consultant, on multiple projects...?

#### 2a. If participant is working on multiple projects

*If one project at a time or agile project already finished:* I would like to focus on your current (or most recent) project.

*If multiple projects at the same time:* I would like to focus on one of your projects. Do you have a project you find especially interesting and would like to talk about?

- Could you explain what the project you work on is about?
- How large is the project team you work with?
- Who is the customer in your understanding? How is the customer involved in this project?
- When did you get involved? (stage of project plan, process)
- What agile methodologies and tools are used for this project?
- What are your main activities and responsibilities? Which user-centered design methods do you apply?
- Do any of your activities involve the end user? If yes, which ones? How often are these carried out?
- Do you feel that there is enough end user involvement? If yes, why? If no, why not?

- *If applicable (depending on duration of project):* Do you plan to increase end-user involvement? If yes, how? If no, why not?
- How closely do you collaborate with the other team members? How often do you meet, or do you sit in the same room with them?
- What artefacts do you use (e.g. whiteboards, storycards, use cases, personas, storyboards, navigation maps)? For what purposes do you use them?
- How are UI requirements handled in your project? Are there any deliverables you prepare, e.g. a UI specification? What kind of documentation do you use?
- How satisfied are you with your work on this project? Are there things you would have liked to do differently?

### 2b. If participant is working in-house, on one product

- Could you explain what product you work on?
- How large is the team you work with?
- Who acts as your customer? How is this customer involved in the product development?
- How are you involved? Constantly or periodically? (stage of project plan, process)
- What agile methodologies and tools are used at your company?
- What are your main activities and responsibilities? Which user-centered design methods do you apply?
- Do any of your activities involve the end user? If yes, which ones? How often are these carried out?
- Do you feel that there is enough end user involvement? If yes, why? If no, why not?
- Do you plan to increase end-user involvement? If yes, how? If no, why not?
- How closely do you collaborate with the other team members? How often do you meet, or do you sit in the same room with them?
- What artefacts do you use (e.g. whiteboards, storycards, use cases, personas, storyboards, navigation maps)? For what purposes do you use them?
- How are UI requirements handled? Are there any deliverables you prepare, e.g. a UI specification? What kind of documentation do you use?
- How satisfied are you with your involvement? What would you like to change in the future?

### 3. General questions to wrap up

- What are the pros and cons of agile for user-centered design in your experience?
- Do you think the integration of user-centered design in agile projects could be improved? If yes, how? If no, why not?
- Would you like to add anything?