

Understanding the UX Designer's Role within Agile Teams

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Abstract. User-Centered Design spends a considerable effort on research and analysis before development begins. On the other hand, Agile methods strive to deliver small sets of software features to customers as fast as possible in short iterations. Whereas the two methodologies have tensions regarding requirements gathering and upfront design, they also share similarities. For instance, both approaches are iterative and customer focused. However, there is little guidance on how to integrate these two perspectives and a lack of understanding with respect to the User Experience (UX) Designer's role in an agile environment. Based on four ethnographically-informed studies in two large companies, we aim at providing a better understanding of the integration of Agile development and UX Design by describing the different roles that a UX Designer plays within an Agile environment.

Keywords: Agile, User Experience, Designer, Roles, Stages.

1 Introduction

In an increasingly competitive world, where millions of products compete for attracting users' attention, the User Experience (UX) of a product may determine its success or failure. Agile software development methods have also been proposed for the customer's competitive advantage. Despite having different underlying concepts, Agile methods and UX Design aim at producing high quality software. However, it is known that the integration of UX Design into Agile Methods has not been properly addressed [1]. Agile methods have a distinct culture that at first glance seems to conflict with UX Design [2].

Despite their tensions, they also have similarities [3]. The main similarity is that both approaches are iterative and user or customer focused. Notwithstanding, most of the UX Designers have not been concerned about project

management methods before their first contact with Agile. UX Designers need to be care because, as organizations look for more effective and efficient ways to deliver projects, more and more of them are adopting Agile methods [4].

Frequently, at first glance UX Designers ‘notice’ that there is no design phase in Agile. From the Designers’ standpoint Agile methods strive to deliver small sets of software features to customers as fast as possible in short iterations, implying that design is not a crucial part of the development process. What a UX Designer sees are multiple short deadlines in which working software is delivered and no consideration is given to the many design activities [4].

To the best of our knowledge, there is little guidance on how to successfully incorporate UX Designers into Agile teams. Moreover, there seems to be a lack of understanding regarding the UX Designer’s role in an Agile environment [5]. In this regard, the study herein presented aims at discussing the UX Designer’s Role in Agile teams based on ethnographically-informed studies in two large companies.

This paper is organized as follows: Section 2 presents the background to the problem. Section 3 describes the studies, data collection and data analysis. Section 4 presents the findings and Section 5 discusses some implications and limitations and presents final remarks of this research.

2 Background

User-Centered Design provides specialized skills in User Interface (UI) Design while Agile approaches prefer generalists and discourage extensive upfront design work [2].

Singh [6] proposes an adaptation of Scrum to promote usability. In this adaptation there is the U.P.O (Usability Product Owner) role. The U.P.O. is included in the project effort from the beginning as a peer of a traditional P.O. The two Product Owners work together to first achieve an agreement on the user experience vision for the project. According to the authors [6], the formulation of the vision incorporated the needs of internal customers, developers who have high domain knowledge, and from external customers who would be using the product. Beyer [7] advocates that UX Designers must better understand the Agile principles and presents some practices to the integration of this two fields.

It is not usual to find papers addressing the UX Designer’s role in Agile teams despite there are a bunch of studies addressing the integration of UX and Agile in a higher level. Sy [8] describes adjustments on the timing and granularity of usability investigations, and on how the UX Designer reports his usability findings in an Agile environment. Sy [8] states that the Agile communication modes have allowed them to narrow the gap between uncovering usability issues and acting on those issues by incorporating changes into the product. However, she does not address the different roles that a UX Designers play.

Salah [9] provided a software process improvement (SPI) framework for Agile and User-Centered Design integration with generic guidelines and practices for organizations. Despite this study aimed to achieve this integration, it did not mention the UX Designer roles.

A qualitative study presented by Ferreira *et al.* [10] shows that the nature of iterative development facilitates the performance of usability testing, allowing developers to incorporate the results of these tests in subsequent iterations. They say that this can also significantly improve the communication and relationship between UX Designers and developers, showing hope that these practitioners notice that working more closely may assist them in achieving their common goal.

McInerney and Maurer [2] interviewed UX Designers involved in Agile projects and discuss how UX Designers found their role in Agile environments. According to them, the literature does not identify a distinct UX role, so the onus remains on UX to justify and define its role on the team.

Ferreira *et al.* [10] report some implications for the team arrangements. The authors state that the boundaries between the roles of UX Designers and Agile developers are more fluid in the studies where the UX Designer is considered part of the team than in a study where the UX Designers are not part of the team and did not take part in the sprint planning meetings, standups or retrospectives.

As aforementioned, while these studies reported or proposed principles, adjustments or guidelines, and attempted to merge one method to another, none specifically have addressed the UX Designer's role throughout the agile project cycle. However, this role may change significantly throughout the project or product development and it is highly dependent on the context in which it takes place. Agile development and UX Design emerge from the particular problems that practitioners face in the settings in which they work [10].

Our objective is to provide a better understanding of the integration of Agile development and UX Design. We believe it is crucial to understand the UX designer role in an agile environment in terms of the activities and tasks that should be adopted.

3 Cases Description

Four studies in two large companies were carried out to investigate how a UX Designer works in an organizational agile environment. They are ethnographically-informed [10] and, for instance, instead of spending months or years in the field, we spent the amount of time that fit with the development cycles [11]. By adopting the ethnographic approach, we tried to understand practice in its natural setting with minimal researcher intrusion.

We collect our data by observations, interviews and discussions with practitioners, but do not attempt to change or influence practice during the study. We avoid any form of control, intrusion or experiment and so all the data were naturally occurring, as suggested by [11]. Even our interview data may be viewed as naturally occurring, since it was gathered from practitioners reflecting on their practice in their place of work [11]. Finally, the findings and conclusions were confirmed with the teams members involved.

The next sections describe the organizational setting, the projects, who participated in the studies, how data were collected and how analyses were performed.

3.1 Organizational Setting

In Company 1, the team of developers was one of several Scrum teams in the company working on software development¹. The developers and designers were seated in an open-plan office space located in the same building. However, they were not co-located, *i.e.*, they did not share the same workspace. They were spread in the building, but the UX team members were seated close to each other.

In Company 2 there is no separated UX Team and Developers Team. Each Agile team has its own individuals, *i.e.*, a team does not share developers or UX Designer. These teams were selected because they were the most senior Agile teams in the company. The developers and designers were seated in an open-plan office space located in the same building and in the same floor. Each team is co-located.

3.2 Projects

We followed two projects in Company 1; Project X consists of the development of new features for an existing product of the company. Project Y consists of the development of an existing product of the company for a mobile device.

Company 2 is not structured by projects, but by digital products. It is a digital product-driven business. Two different teams developing two different products were studied. Product X consists of a web portal about agribusiness in the country. Product Y consists of a web portal of services and opportunities in which there are addresses and data from companies and services.

3.3 Participants

In Company 1, our study involved a team of seven individuals and one UX designer. The developers were part of the ‘Development Team’ and the designers part of the ‘UX Team’. The developers had been developing software using Scrum for approximately two years. Although they are called developers, individuals in the team have their own role according to their area and skills. The roles were Project Manager/Scrum Master, Product Owner, Technical Leader, Developer and Tester as presented in Table 1.

Information architects, graphic designers and interaction designers compose the UX team. Each project has one UX designer, but a UX designer usually work with more than one development team. The same goes for Project Managers, and they are also known as Scrum Masters in the teams.

The UX member’s role in Project X was to help software engineers to envision new features for this product. In Project Y, the UX member’s role was to prototype and design the User Interface and the User Interaction flow for the product. It is noticeable that the UX Designer plays different roles in different projects, even though in the same company.

¹ The company also develops hardware.

Table 1. Composition of the Teams

Roles played in Projects	Company 1 - Project X	Company 1 - Project Y	Company 2 - Product X	Company 2 - Product Y
<i>Project Leadership</i>	Project Manager / Scrum Master	Project Manager / Scrum Master	Business Owner / Director	Business Owner / Director
<i>Product Leadership</i>	Product Owner	Product Owner	Product Leader / Product Owner	Product Leader / Product Owner
<i>Technical Leadership</i>	Technical Leader	Technical Leader	Scrum Master	Scrum Master
<i>Development Team</i>	Developers –	Developers –	Developers Testers SEO UX Designer	Developers Testers SEO UX Designer
<i>Supporting Team</i>	UX (shared)	UX (shared)	–	– Graphical Designer

In Company 2, our study involved UX designers and their interactions with an Agile team working on the same product. The teams are composed by Product Leader/Product Owner, UX Designer, Developer, Tester and Search Engine Optimization (SEO), with little differences as can be noticed in Table 1.

One team – Product X – has two individuals focused on UX, a UX Designer and a Graphical Designer, whereas the other team – Product Y – has just a UX Designer who performs the role of a Graphical Designer as well.

The UX designer’s role in Product X was to perform user research, benchmarking and interaction design. The Graphic designer’s role was to design the User Interface (UI) based on the wireframes provided by the UX designer. Whereas in Product Y, UX designer used to play both roles, performing user research, benchmarking, interaction design and UI design. Again we may notice the diversity of roles that a UX Designer may play in different teams.

3.4 Data Collection

We used two first-degree techniques [12] for data collection: observation and interview.

In Company 1, regarding observations, due to the characteristics of invoking the least amount of interference in the work environment and the least expensive method to implement and still because the company did not allow video or audio recording of the meetings, we choose to manual record the observations of the meetings.

We shadowed a UX person during his activities for 45 days and observed meetings that he was involved, such as meetings of the UX Team of the company and some meetings of two different projects. We also interviewed three members of the UX group that work in different projects and one project manager, as presented in Table 2. The Project Manager was interviewed aiming to define which Agile Method the company uses and how this integration of UX and Agile works from his point of view. The UX Designers were interviewed aiming to understand UX people work on the different projects of the company. In Company 1, our studies were carried out over three months iteratively.

Table 2. Description of the data sources

Data source	Company 1 Project X	Company 1 Project Y	Company 2 Product X	Company 2 Product Y
<i>Observed Meetings</i>	2 Requirements, 1 Planning	3 Planning, 3 Retrospective, 1 Demo, 5 Daily, 2 User Test Sessions	5 Daily	1 Planning, 1 Retrospective, 5 Daily
<i>Interviews</i>	1 Project Manager / Scrum Master, 1 UX Designer	2 UX Designers	1 Scrum Master / Product Leader, 1 UX Designer	1 Scrum Master / Product Leader, 1 UX Designer

In Company 2, as in the first study, we conducted interviews and observations, manually recording our observations. We observed some meetings of two different teams and we interviewed the UX Designer and the Product Leader of the two selected teams, as can also be observed in Table 2. In this company, our studies were carried out over two iterations – 25 working days. The length of the sprints varies from project to project, but for the two teams observed they have three-week sprints.

3.5 Data Analysis

We analyzed data using the open and focused coding techniques. In the open coding, the researcher reads field notes line-by-line to identify and formulate any and all ideas, themes, or issues they suggest, no matter how varied and disparate. In the focused coding, the researcher subjects field notes to fine-grained, line-by-line analysis on the basis of topics that have been identified as of particular interest [13].

Preliminary memos were extracted from the field notes. Having the memos produced, open coding was performed aiming to generate new insights and

themes. Focused coding was also performed and this coding consisted of linking the memos generated to key aspects identified in a Systematic Review previously performed [5]. In this process, some new aspects emerged from the analysis of the observations and interviews. Later, some integrative memos were written to relate the field notes, the key aspects and the new codes from the open coding. Our findings with regards to the UX Designer roles are presented as follows.

4 Findings

In this section we present our findings regarding the different roles that the UX Designer may play in Agile teams. In each of the subsections below, we identified their responsibilities and skills, and provided some relevant passages from the observations and interviews.

4.1 User Experience Designer

The User Experience Designer role is **responsible** for the understanding of users.

It is desirable that the User Experience Designer has the following **skills**: User Research, Ethnographic Studies, User Experience Design, User Profiling, Ideation, Competitor Analysis, Design Thinking, Customer Journey Mapping.

It is worth mentioning that we based our skills' classification on the skills listed in [4].

The following quotes represent some of the tasks performed by the User Experience Designer in our studies:

"As we have a set of users (database of volunteers), we can call them and carry out some focus groups. We have 4 different personas with them" [C2 - UXB]²

"Some User Research is performed by the Marketing Team. In general, the Marketing Team knows what they say they need, not what they really need. It's a not a target effort to gather what the user need' It's a sell visit." [C1 - UX1]

"We perform some speculative research, analysis of competitors" [C2 - UXA]

"We have something that we call Discovering that happens before the planning" [C2 - PLA]

The passages above highlight the activities performed by the UX Designer as User Researcher, or as a User Experience Designer itself as we named this role.

We notice activities like benchmarking, conduction of focus groups and definition of personas, for instance. We may also notice that Company 1 has a Marketing Team that provides some data to the UX Team. However, according to their report, the data gathered by the Marketing Team is more about the users' desires than their needs. This observation highlights the need of having a UX Designer carrying out this kind of research. In general, UX Designers are trained to carry out these activities.

² The passages are identified by the Company (C#) and the by the team member of each team interviewed (UX#).

It is noteworthy that this role should work alongside the Business Analyst to create a design vision and design direction from the user experience.

4.2 Interaction Designer

The Interaction Designer role is **responsible** for Designing and Evaluating the users' interaction with products or services, both on prototypes as on the developed system.

It is desirable that the Interaction Designer has the following **skills**: Interaction Design, Rapid Prototyping, User Experience Design, Product Design, Guerrilla Testing Sketching, Usability Testing, Ideation, Collaborative Design, Process Flows, Information Architecture, Service Design, Design Thinking.

The following quotes reflects the tasks performed by the Interaction Designer in our studies:

"We don't need to design everything up front" [C1 - UX3]

"We should work at least one sprint ahead the development team" [C1 - UX3]

"Sometimes we add new user stories based on the results of the User Testing. But it depends on the problem. We also can put as a bug" [C1 - UX2]

"We perform some inspection evaluations, peer review with some UX member" [C1 - UX2]

"We put UX criteria as acceptance criteria at the User Stories, or we reference the behavior of the interface in a sequence of wireframes" [C2 - UXA]

"We perform a lot of informal evaluations. Myself and the Graphical Designer" [C2 - UXA]

By researching from the early stages of the project, the UX Designer may build his own 'UX Backlog'. Afterwards, as reported by [C2 - UXB], the Interaction Designer may use these data to design or even prototype one iteration ahead of the development team.

We noticed that whenever the UX Designer works close to the Product Owner, they achieve better results on describing business or users' needs. Developers better understand designs and User Stories when they are built by two members with different backgrounds. Further, User Stories become more clear when enriched by wireframes, for instance.

By having designs, sketches or wireframes, UX Designers may start an evaluation process. We observed UX Designers performing informal evaluations, peer reviewing their designs by pairing with other Designers or Product Owners or even Business Analysts. These early evaluations are very important because they avoid future rework and helps to define what will be built. The Interaction Designer may also works alongside the developers to figure out how it can be built.

4.3 UI Developer

The UI Developer role is **responsible** for the Development of the Graphical User Interface (GUI) and the Design of Graphical Elements.

It is desirable that the UI Developer has the following **skills**: Rapid Prototyping, Collaborative Design, Information Architecture, Visual Design, GUI Design, Service Design, Design Thinking.

UI Developers are often the link between the front end and designers as they can speak both languages. As the Interaction Designer, the UI Developer also works alongside the developers and testers to figure out how it can be built.

In our studies, this is the role least played by UX Designers. Most of the UX Designers observed did not develop the UI. In Company 1, for instance, there are few Visual Designers who answer to the teams just when they are required. However, the following passage reveal that developing may not be trivial to all the UX Designers. This happens due to their heterogeneous backgrounds.

"It's tricky to UX people to code" [C1 - UX2]

In Company 2, one of the teams has a UX Designer and a Visual Designer. The other one has a UX Designer has the skill of visual designing and also performs the Visual Design, as follows: *"Once the product is defined, I prototype it in two or three weeks. Paper prototype to communicate between us and some HTML to present to directors."* [C2 - UXB]

5 Discussion and Final Remarks

We defined three essential roles that a UX Designer may play in Agile teams. Each of these roles encompasses several skills as described in the previous section.

We do not aim to define these roles as an absolute truth. It is just a simple way of defining UX Designers' roles. In contrast, Ratcliffe and McNeill [4] state that UX Designers may be: User Interface, Interaction, and Usability Designer; Experience Designer; UI Developers and Front-End Developers; Information Architects; Visual Designers; and/or Design Researchers. We assume this fine-grained system of seven role may be too detailed to reflect reality in many projects, bearing in mind that based on our experience a UX Designer is usually a single person playing several roles.

Nevertheless, to make these roles happen, it is important that the UX Designer be a full member of the Agile team. One of the reasons is the amount of work accomplished by this role, such as: user research, market research, user-centered design, prototyping, usability inspection, user testing, visual design, coding, providing feedback and so forth.

This workload laid on the UX Designer is highlighted in Figure 1. This figure reveals how the different roles – 'User Experience Designer', 'UI Developer' and 'Interaction Designer' – may be played in the different stages of an Agile cycle.

As we could notice, it is absolutely essential to spend some time before development begins on thinking holistically about the design vision.

Thus, the UX Designer cannot work on too many projects at a time. As a team member said in the study: *"UX Designers must be pigs!"*³[C1 - PM1],

³ This is a fable told by Scrum practitioners about a pig and a chicken who considered starting a restaurant. *"We could serve ham and eggs,"* said the chicken. *"I don't think that would work,"* said the pig. *"I'd be committed, but you'd only be involved".*

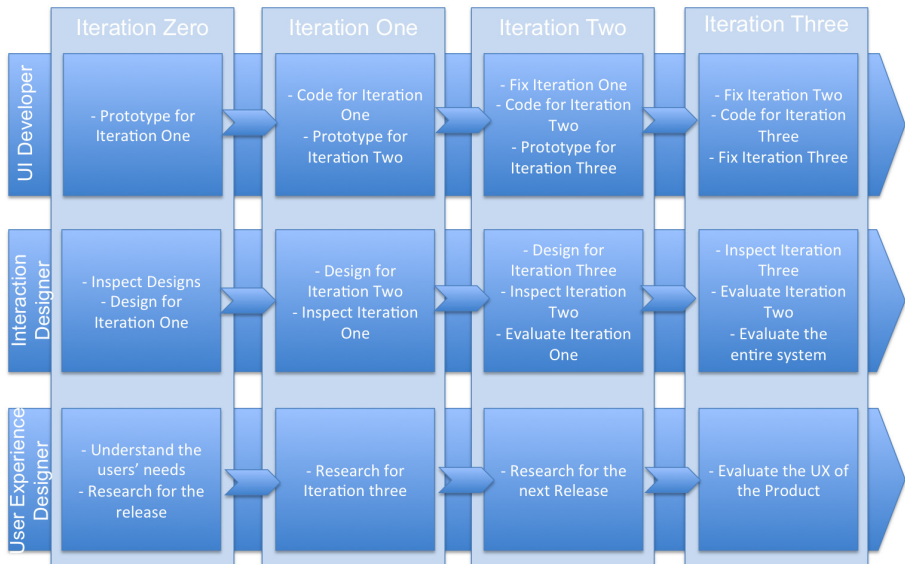


Fig. 1. UX Designer's Roles in the different Stages of an Agile cycle

expressing the importance of role accountability and involvement in projects. However, many organizations still do not consider UX Designers as full-time part of an Agile team. Thus, they keep working on too many projects at a time. This decision does not depend only on the UX Designer, but on the organizational design choices.

Notwithstanding, we should be careful on generalizing from our findings. Although the teams analyzed in these studies are considered to not be atypical, these studies do not cover all the possibilities and the contexts can vary widely.

The major contribution of this paper is to provide a better understanding of the roles played by a UX Designer within an Agile team in the different stages of Agile development.

Finally, we argue that the integration of UX Design and Agile development is a matter of culture. As UX Designers must understand the Agile culture and care because Agile adoption is on the rise and it is a completely different way of working, which requires a new approach and a new attitude toward design [4], Agile developers must understand the importance of having design in the process and how it delivers value to the product.

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