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Nielsen, Lene; Madsen, Sabine

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The Usability Expert's Fear of Agility – An Empirical Study of Global Trends and Emerging Practices

Lene Nielsen
IT University, Copenhagen
Rued Langgaardsvej 7
2300 Copenhagen S
lene@itu.dk

Sabine Madsen
Roskilde University
Universitetsvej 1
4000 Roskilde
sabinem@ruc.dk

ABSTRACT
This paper contributes to the HCI literature on usability practice with insights about the empirical challenges and global emerging practices caused by the advent of agile software development (ASD). In the paper we report from a worldwide study involving 12 usability professionals from 12 different countries. The findings show that the usability professionals share a forced development and innovation in their practice that stem from their clients' adoption and use of ASD methods. The ASD methods challenge the way usability testing is performed, the abilities of the usability expert, the usability deliverables, and the experts' assumptions about the importance of validity.

Author Keywords
Usability testing, agile methods, usability professionals, global trends, practice study.

ACM Classification Keywords
H.5.m [Information Interfaces and Presentation]: Miscellaneous;

General Terms
Usability, agile methods, usability practice, usability practitioners.

INTRODUCTION
On a global scale Agile Software Development (ASD) methods are becoming more and more widely used in practice [1], [8]. ASD methods, such as Scrum and eXtreme Programming, structure the software development process into short-cycle time iterations (typically of 2-4 weeks durations) [4], [6], [13]. For each iteration the activities of analysis, design, coding, and test are carried out within the 2-4 week time span. In other words, these software development activities are performed *much faster* than in "traditional" systems development and they only focus on *a small part* of the required functionality. The aim here of is to be able to deliver *working software*, which the customer can see, give feedback on, and possible use at the end of each iteration.

This places new demands on traditional usability methods and the way usability tests and the results here of are being incorporated into the development process. In this paper we investigate these new demands and their influence on usability practice and the practitioners.

EXISTING RESEARCH
ASD has received much attention from both the practitioner and research community over the last 10-15 years [3]. First as a novelty and later as a development approach that has become widely used in practice [8].

ASD is often referred to as high-speed development [16]; as an approach for dealing with change [1]; and as characterized by intensively iterative processes [2]. Moreover, in the agile manifesto from 2001 a number of values and principles for conducting ASD were specified (agilemanifesto.org), and numerous ASD methods emerged. These values and methods are now being used to develop many different types of systems, such as, e.g., web-based systems for consumers and citizens as well as legacy and life-critical systems [16].

Despite the increased adoption of ASD methods in practice only a few studies report on the integration of ASD methods and usability. The studies that do exist focus on the agile method incorporating user-centered design as carried out in a single company practice (e.g. [14]), or on trials performed in the meeting between academia and practitioners (e.g. [12]). To our knowledge no one has studied the influence of ASD methods on the usability industry and the usability professionals' identity and practice.

A key usability practice is think-aloud testing (TA). TA is widely used and valued by usability professionals. Prior research has studied TA in terms of best practice under lab conditions (e.g. [10]) and with regard to how professionals perform the test [5]. The studies of usability professionals tend to focus on practice and the discrepancies between theory and practice. According to [11] studies of TA is done within: 1) Real-life usability evaluation through observation and interviews of usability specialists and other stakeholders in software development projects. 2).With a

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focus on tactical issues of usability evaluation. 3) With a focus on the process of usability evaluation. 4) Or the studies deal with professionals' descriptions of how practical circumstances have forced them to adapt and develop the evaluation procedures they use.

Our study is in line with these latter studies as we address the circumstance that ASD methods force the usability professionals to change and develop new ways of performing usability evaluation. We look at this phenomenon in a global context.

Global studies of usability have focused on how cultural differences between moderator and participant influence: the test situation (e.g. [15]), the data collection (e.g. [7]), global remote testing, and culturally adaptive interfaces. However, little has been done to study the usability professionals changing practices worldwide.

THE STUDY

In this paper we report from a worldwide study involving 12 usability professionals from 12 different countries: Australia, Brazil, Canada, France, Germany, Japan, Korea, Russia, Spain, Turkey, UK, and US. All professionals are members of UXalliance, an association of user experience companies located in 24 different countries in Europe, Asia, Americas, and Oceania. UXalliance has existed since 2005 and the members share projects and meet twice yearly for common discussions. The interviewees were selected among participants in a bi-yearly meeting and represented diversification in both geography and maturity of markets. The interviews focused on business innovation and new practices. Each participant has been interviewed for approximately 45 minutes, and each interview was subsequently transcribed verbatim.

From the outset the study did not focus on ASD methods, but the subject turned up in all interviews. The 12 interviews have therefore been analyzed in depth for influences of the ASD method on usability testing and the practitioners' work practices. The data was coded, and from this a number of themes were identified [9], such as: *usability practices for agile development*, *micro testing and agile cycles*, *a need to work differently*, *new skills*, *validity and research ethics*, and *loosing the big picture*.

THE EMPIRICAL FINDINGS

The usability professionals explain that more and more companies are using ASD methods. It becomes increasingly important for them to adapt their test practices to the agile way of working in order to keep up with the market and get customers. Thus, the innovations in the usability test practices are driven by the *customers* and their preference for and use of ASD methods rather than by the usability community itself. This creates a double challenge for the usability professionals. Firstly, it means that the usability professionals find themselves in a situation where they have no prior experience, formal methods, and thorough understanding of ASD to draw on to meet the new demands of the market. Second, there are aspects of the agile way of working that challenge the usability professionals' underlying assumptions about what constitutes "good and proper usability testing".

The data shows that there are two ways of dealing with this double challenge. A few of the companies in the study have decided to stay away from ASD altogether because they feel that their employees do not have the right skills for it and, moreover, they consider it out of scope for their business. However, most of the companies in the study have decided to try to meet the new customer demands.

New practices

The interviewees explain that when they work with customers with ASD projects they have to be able to conduct and report the results of usability tests quickly, typically at the end of each agile iteration. To be able to do this they have developed new key practices, which they refer to as *feedback days, user workshops,* and *micro testing*. A typical process includes stakeholder involvement, prototype discussions which focus on the issues to be tested, user tests, oral delivery of results, discussions of design decisions, and new prototype development. The professionals describe the new practices in the following way.

"When they have their turn around or circles we always do these feedback days, which means everything is done in one or two days to close one cycle. This kind of user feedback day in any variation is micro testing." (Participant 5)

"The other sort of thing is agile and this increasing need to think of stuff to spin through, being able to do testing quicker. Rather than you plan something months out: getting a couple of weeks of recruiting, screen designs, testing 2 days, and then a week for reports. [We are] trying to align to the agile processes, their spinning through within a week. So you have got a slot in there where something might happen: so that has to be a day, potentially less." (Participant 11)

The quotes show that the usability professionals have developed a speeded-up way of working where they do all the normal activities involved in usability testing - i.e. user recruitment, testing, and reporting - over one to two days at the end of each iteration. The data analysis shows that the key to making this work is:

A) To do micro tests. Micro tests are online, often unmoderated, usability tests. This involves performing a limited number of tests, e.g. 3-5 tests of a particular set of tasks (1-2) that has been developed during the particular iteration.

B) To report results verbally (rather than in a written report) to the ASD team and customer representative(s) in a workshop meeting.

C) To not only report problems, but also come up with recommendations for design solutions that solves the problems.

Micro testing

In the interviews it was reported that new business opportunities often occur when clients want to have results faster and cheaper. This made many of them look at online solutions for reducing the costs – micro tests. Micro tests can reduce expenses both in connection with the tests and with regard to changes to the systems under development.

"As an industry we need to look at solutions that works properly, cheap online tests." (Participant 12)

"We thought about micro testing before agile methods were used. But when we started to work together with companies with agile projects, it was clear to us that micro testing was perfect." (Participant 12)

"I believe that the future of our world is micro testing. It is much more clever to do a test with a small budget than to do a big test at the end - and sometimes you can't change it." (Participant 9)

Challenges

The interviewees that had been confronted with ASD methods raised a number of concerns that originate from their professional identity as *researchers* and the *skills* and *planning expectations* of the usability professionals.

Professional identify: Researcher

As usability researcher they are concerned with validity and research ethics. Some feel that the ASD methods force them to do so few tests that there is a risk that the tests get superficial.

"It didn't get that level of testing that we are used to getting." (Participant 1)

One of the reasons for not getting a proper level of testing is inherent in the ASD method, the recurrent cycles that focus on one functionality at a time. This focus on single functionalities might prevent an understanding of the user experience of the unity of functionalities and the context in which they are going to work – the bigger picture.

"I think my inherent fear about that is that we loose sight of the context, the bigger picture when you do that." (Participant 1)

"Even in the perspective of agile, there is a risk when you do unit tests. It might work at a unit level, but not at a system level." (Participant 12)

New skills

The unit perspective creates problems, but some professionals report that it is possible to overcome these.

"But if you sort of can run a parallel stream thinking about the big picture and taking it from the perspective of that here are broader scenarios that we are trying to achieve, and prune your testing." (Participant 1)

The usability professionals are challenged on their research approach which values knowledge based on data, thorough analysis, validity, and extensive reporting. The ASD methods force the professionals to create meaning from a small sample and be able to understand the system's overall scope from a few functionalities. To create a broad understanding of the system takes experienced usability professionals that can draw on their knowledge from previous tests.

"(…) it depends on the researchers ability. If we did a website and a user said he didn't notice the label. Why didn't he notice the label? Maybe because of the color? Or the word? The researcher should know what the user thinks in the process." (Participant 6)

Furthermore the role of the usability professional change from a person that focuses on problems – a researcher - to someone who also has to find solutions – a designer.

"On the other hand the need for real user centered design will go up. For what they still do not have internally are the designers, interaction designers." (Participant 5)

Some companies embrace this challenge other companies find it difficult to adjust.

"I think we will need to do design. I would prefer to be a consultancy firm." (Participant 2)

Less time to plan

The professionals also report having to change the ways they plan their work, which makes them insecure.

"(…) our consultants don't want to work with those methods. So if the clients say they want to use agile methods, our consultants understand it as: more commands and requests, more frequent changes, and no time to plan or think." (Participant 7)

"The biggest strain is that you have to let go of some of the formalities. You might not know the package you are going to test until 48 hours before. There are ways to plan, but it gets very complicated because you don't know what you are going to test, the depth of what you going to test, and what the problems are. (…) The era of big deliverables is dead." (Participant 12)

From the study we conclude that if usability tests are to play a role in agile software development they have to be performed as part of the iterations. This in turn means that the time available for recruiting end-users, performing the tests, and for analyzing and reporting the test results becomes very short. It seems that these circumstances challenge the usability practitioners' professional identify, were they see themselves as researchers that conduct thorough tests, with an emphasis on test validity and documented reporting of the test findings. The usability professionals' way of thinking and working are further challenged by the agile paradigms focus on customer

collaboration and fast results over end-user involvement and long term planning.

Embracing the challenges

Despite the concerns most companies in the study embrace the challenges and see benefits in this new way of approaching usability issues. This new approach might also impact on traditional usability testing.

"We want to do some good things about agile. As I said it has been a case of adapting what we did so far. What other people have been doing is similar." (Participant 11)

The reported benefits are the *fast decisions*, the *flexibility*, the *oral reports* that consist of both problem finding and solution generation, and most important tests conducted *repeatedly during the development process* instead of tests sessions at the end of the development process where changes are difficult and expensive to implement.

"You have this agile method where it is a quit or approve process. Quick back and forth." (Participant 3)

"Customers start to understand that they need to test, and they need to test not when they have all finished, but more or less in the middle. And this is related with agile development, because the agile development is saying don't develop a big, big thing, but develop small things." (Participant 9)

"The benefits are the flexibility. And to sacrifice methodology." (Participant 10)

CONCLUSION

This study of emergent praxis in 12 countries shows that the demands and pressure the usability professionals feel are alike worldwide. Thus, all interviewees report that they feel threatened on their professional pride and attitude and that they currently are striving to come up with solutions. However, as a group of professionals they can also see benefits in the new practices that the ASD methods force them to develop and apply. These new ways of working do not stem from studies of literature or well-researched methods. Rather they emerge as a result of the usability professionals' trial-and-error attempts to meet the new demands the ASD paradigm impose upon them.

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