Concept Plan for User Testing in Scrum Projects

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ABSTRACT

In this paper, Acato (design agency for interactive media, based in The Hague, ed.) describes a concept plan for user testing in a scrum project. Scrum is a design method in which a multidisciplinary team consisting of designers, developers, a Scrum Master and a Product Owner, design and develop features and functionalities during iterative sprints (i.e., repeated work cycles). The guidelines for user testing by Belk [1] during scrum are:

- High involvement of the project team
- Minimal documentation
- Lean sessions to set up a research plan and analysis

With these guidelines in mind, a concept plan has been drawn up for user testing in scrum. Using the plan, the team analyzes the results based on the research goals identified in it. The tests are kept lean and are ideally observed collaboratively. The points of action from the results are used to plan the required changes for the next sprints. Integrating user testing in a scrum project allows usability issues to be addressed at an early stage in a development, which improves the product gradually throughout the development process.

Author's Keywords

User research; Scrum; User testing; Interaction design; Development; Lean; UX; Agile.

ACM Classification Keywords

H.5.2 User Interface: Evaluation/methodology

INTRODUCTION

Acato has been successfully conducting user tests for over 10 years. With the introduction of new design methods such as scrum, Acato has identified a need for a new, leaner method of user testing. This paper describes a recently discovered approach that Acato encountered during the UX People event in London, 1 November 2013. At the event Nina Belk, User Research Manager at LBi delivered a workshop entitled 'Agile-friendly user testing' [1]. As Acato

had already carried out several scrum projects the workshop attracted our attention. We were able to acquire valuable skills into conducting agile user research, which in turn can also be used well in scrum projects. This report describes how Acato set up a concept plan inspired by Belk's workshop and drew up guidelines based on her instructions for an agile friendly approach.

USER TESTING

Acato has been conducting qualitative user tests [2] since 10 years. This has given us important insight into user experience and user behaviour. Depending on the time and budget available, and in light of the significant advantages to be gained, Acato clients are advised to test designs. This can be done either extensively or pragmatically (e.g. guerilla testing [3,4]). During the past 10 years we have developed a toolkit for user testing internally comprising a research plan, an observation template, a useful setup and a standard routine for recruiting participants.

Publications such as Steve Krug's 'Rocket Surgery made Easy' [5] have become standard reading for Acato employees and several different methods and tips have been implemented. Acato has based some of the ingredients of its own toolkit not only on Krug's methodology, but also on articles to be found in Nielsen Norman Group [6].

The most important components of user tests at Acato are:

- A mock-up of the website or application to be tested
- An observer and an interviewer
- A test script
- A number of scenarios and tasks for the participants to complete during the test
- Card sorting
- Pre-test and post-test questions

Within Acato user testing has the following 7 phases:

1. Research goals & research plan
Approximately 3 weeks before testing: determining the research goal and the research questions. The outcome is a detailed research plan to be reviewed by the client.

2. Recruiting participants
Approximately 3 weeks before testing: recruiting participants representing future users of the product. This is done by either the client or Acato. Shortly before the actual test a reminder is sent to the participants to increase their sense of involvement and confirm their attendance.

3. Pilot test
Approximately 1 week before testing: conducting a pilot test to optimize the setup (mock-up) and the test script.

4. Preparing the venue

Approximately 1 day before testing: setting up the location, testing the camera and recording/screen sharing software.

5. Interviews

The actual tests: the advice is to test 5 to 10 participants [2]. Each interview takes 45 minutes to an hour. User tests can take up to a total of 3 days.

The tests usually consist of:

- An introduction, during which the interviewer introduces him/herself and the observer, and briefly explains the research goal;
- A number of pre-test questions, to break the ice and gain insight into any relevant experience the participants may have;
- A first impression of the look & feel, followed by card sorting;
- A number of scenarios that put the participant in the right frame of mind, combined with a few tasks [7] that implicitly contain the research questions;
- Final post-test questions, often used to find out what seemed most and least useful to the participant, and to get their overall opinion.

6. Results

Approximately 1 week after tests: the analysis of the results. The outcome is a detailed report including recommendations to the client.

7. Re-design

Approximately 2 weeks after testing: making changes to the design, based on the recommendations.

Conducting user tests takes quite a long time and the overall process is intensive. During scrum projects, time is often limited. This led us to search for leaner user testing methods.

ABOUT SCRUM

Scrum has been developed over the past 20 years from a project management method solely for software development, to a method that also integrates design in the process. This evolution has led to the creation of a multidisciplinary team, with designers, developers, a Scrum Master (SM) and a Product Owner (PO). The PO is usually a representative from the client and supported by other stakeholders. Together, they safeguard the end goal of the project. This process and method are explained in 'Get Agile' [8], by Pieter Jongerius, a publication widely considered a useful manual for scrum.

Scrum consists of a sprint 0, followed by multiple further sprints. In each sprint, features and functionalities are designed and developed. After each sprint, iterations on the design can be made, as new insights are acquired.

Sprint 0

The first sprint is essential for the subsequent sprints. In this sprint, preparations are made, the scope is determined and the number of sprints, sprint weeks and sprint days within a sprint are laid down. In fact, sprint 0 forms the framework for the rest of the scrum project.

As scrum is all about eliminating waste and focusing on the creation of a Minimum Viable Product or MVP (formally defined, for example, as: a product that has only those features (and no more) that allow you to ship a product that resonates with early adopters; some of whom will pay you money or give you feedback [8,9]). The Product Backlog is a prioritized collection of known features, functionalities and wishes. In addition to MVP as a design goal, Acato also strives to design Minimum Lovable Products (MLP) [10, 11]: products people love to use.

With scrum, the end user is placed at the heart of the process. All features, functionalities and wishes are therefore documented as user stories: short descriptions of a feature describing the added value for the user. If certain stories do not have an added value, the team may reconsider if a given feature should be in the included in the Product Backlog or not.

If the client wants to include user testing, preparations for this should be made in sprint 0. The actual goal of the tests is determined during the sprints, according to the most important features (as, in most cases, this is what you want to test).

Sprints

In the first day of the sprint, the team defines the sprint with the most important user stories from the Product Backlog. These stories form the basis for the deliverables of that sprint.

The end of each sprint is characterized by a demo, when the team presents the deliverables: a working version of a part of the product. Stakeholders are invited to see the result and give their feedback. Any new insights or adjustments can then form new input for the Product Backlog.

Once all sprints have been completed, the end result is presented to the stakeholders, and the product is delivered.

In short, scrum is characterized by the following benefits:

- Eliminating waste by focusing on the most important features (MVP) facilitates a shorter time to market
- A dedicated team increases focus
- Flexibility: as the PO controls the stories in a sprint
- Transparency: the whole team has insight in a sprint's progress
- The PO as part of the team facilitates direct communication between the scrum team and the client

INTEGRATING USER TESTING IN SCRUM

Prior to conducting user testing in a scrum project, there are a number of issues that first need to be addressed:

Identifying the research goals and analyzing the results

First of all, during a scrum project, there is insufficient time to cover the phases described above. The first phase, setting up and finalizing the research plan can take up to 3 weeks.

This phase would cover an entire sprint. It is therefore important that this phase is kept as short and as lean as possible. In her workshop, Nina Belk illustrates a creative session with the project team to draw up the research plan. Not only can this session be held in one or two hours max. (after which, ideally, the research plan merely needs to be perfected), but it also increases the involvement of project members, which is one of the important characteristics of the scrum method.

This approach can also be used for analyzing the results (after user testing): instead of having the results analyzed by the agency and reviewed by the client, they are analyzed together with the client and the project team (or part of the team). Ideally, the only thing remaining after such a session is to summarize and organize the results, and make sure everyone receives a copy.

It will probably not always be efficient to carry out these sessions with the entire team: to save time and to keep the process lean, the analysis can be done by the SM and PO alone.

Interviews and observation

The tests are normally led by the interviewer. The observer takes notes and may ask additional questions. At Acato, some user tests have been conducted while the client watched the interviews in another room. This has proven to be a useful way of demonstrating the value of user testing to the client, as they can actually see users encountering problems, or giving positive feedback. During scrum, other team members, for example the developers, may be also asked to observe. It is valuable to not only involve the client and team members in the observation, but to also let them keep track of the findings.

However, we appreciate that the involvement of the client and team members to this extent may not always be practically possible. Moreover, there is the risk that the perception of people closely involved in the realization of the product may be biased.

Documentation

Finally, there is efficiency to be won when it comes to documentation throughout the project. The level of detail in documentation varies according to the client and the context: some circumstances necessitate a clear report, due to the number of people involved in a project; other times, an email with summaries and recommendations may suffice. In scrum user testing, it is important to keep documentation to as little as possible: the research questions, together with the most important findings and recommendations will suffice. The recommendations form new (or adjusted) stories that can then be added to the product backlog, which in turn can then be added to a new sprint.

Guidelines

To recapitulate: to ensure user testing can be applied successfully in a scrum project, it is important to bear in mind the following guidelines based on Belk's instructions [1]:

- The project team should be actively involved, not only during the sessions but also during the drawing up of the research plan and the analysis
- Sessions should be lean and short, focusing solely on those elements requiring attention
- Documentation throughout the testing process should be kept to an absolute minimum

CONCEPT PLAN

Using the guidelines outlined above, the following plan was drawn up for conducting user testing in future scrum projects.

Research goals workshop

As already stated, in a scrum approach, the setup and processing of the research questions is carried out by (at least) the PO and the SM. A brainstorm workshop is held to draw up the research questions; covering elements of the design that are unconventional or uncertain, and hence in need of testing w.r.t. the user experience. In addition to user experience, commercial considerations may also be important.

Some examples of research questions are:

- How is the visual design of the site perceived by the target group?
- How is the navigation perceived?
- What problems do users encounter when using the input form?

The easiest way to identify questions during the workshop is to print and display print screens of the elements/pages to be tested for the team. The designers go through the screens while project team members brainstorm for relevant research questions. These questions are written on sticky notes, together with the page number. Filtering and categorizing these sticky notes leads to a collection of research questions, which can subsequently be processed into scenarios and tasks [7]. These scenarios are pitched to participants, who are asked to complete a task. The tasks should implicitly contain the research questions, while the scenario puts the participant in the right frame of mind. The outcome of this session is the test script.

Recruiting participants

Participant recruitment depends, for example, on the available time and budget. For each sprint, the advice is to test 5 participants. With less than 5, there is a chance that the results will not be representative of the target group, while testing more than 5 decreases the return on the time invested compared to new insights gained, [2]. If the results and findings diverge, stand-by participants may be called upon.

Interviews

During the interviews the interviewer guides the participant through the script. The interviewer's attitude should be sympathetic, skilled and humble, so that the participant feels comfortable and not compelled to achieve. By sticking closely to the script, the interviewer avoids giving away too much information, or steering the test in the wrong direction.

It is also important to ask open-ended questions, to establish the participant's initial reactions and findings [12].

Location

A dedicated test room close to the observation room is preferred. This enables you to ensure the setup is comfortable and productive for both interviewer and participant. It may, however, at times be difficult finding participants willing to come to a given location. In this case, it is possible to interview participants in their own workplace, or even at home.

Observation workshop

During the interviews, team members (including stakeholders) are situated in another room, with the screen prints being tested, displayed on a wall. Each observer is asked to note any findings on sticky notes, including the name of the screen (S) and the number of the participant (P) (e.g. S1P1). It is important that team members not only note the issues they identify, but also to try to interpret what is going on and why.

The outcome of each session is a number of sticky notes with findings noted (per screen).

User testing at the participant's own home or workplace obviously makes observation by the team more difficult. Screen sharing software (e.g. Skype) enables team members to observe and take notes remotely. Where this is not possible, an observer should be present.

Analysis workshop

After conducting 5 user tests, the team comes together for a debriefing workshop to analyze the findings. Instead of drawing up a detailed report with all the findings (as is done in conventional user testing), a brief email with a clear and workable action plan based on the most important findings is sent to the project team.

Making changes to the design

Using the action points from the user tests, the required changes are written as user stories and added to the product backlog. These stories may then be included in the plan for the next sprint.

DISCUSSION

This paper outlines a concept plan for user testing in a scrum project. The hypothesis is that this can be implemented in scrum projects. The involvement of the entire scrum team is an essential characteristic of the plan, and beneficial to all disciplines in the team. It increases the overall understanding during projects, and most probably the efficiency of the problem solving process.

However, a few implications of this high level of involvement are to be expected. The following points should be taken into account:

- Scrum was initially an agile programming methodology. Several articles have been written about the implications of involving the UX team in scrum in general [13]. The preparations for user testing and other UX activities should be well planned and integrated in the scrum process.
- Clear team briefing is essential for each specific task, e.g. taking notes during observation, including not only the 'what' but also the 'format' of the task and 'why' it is important, as well as 'how' the result will affect the design or process.
- Careful selection of team members for each workshop is important. Firstly, the intensity and workload can be high during a scrum project, making involvement of all members sometimes impossible. Secondly, every discipline and team member has their own specialist field which may not always be necessary or useful during a particular workshop.

Throughout the process it is important to consistently evaluate the benefits of high involvement versus keeping it lean.

Minimizing documentation may also be difficult. Most designers spend considerable time documenting. They are paid for doing it and clients often want documentation deliverables [14].

Overall, integrating user testing in a scrum project allows usability issues to be addressed at an early stage in the development, whereby the product gradually improves throughout the process.

The hypothesis is that user testing as described above will add significant value to scrum projects and Acato looks forward to applying this new way of user testing on projects in the near future.

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