Usability Testing Plan Template: A flexible tool for planning and teaching usability evaluation

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SYNOPSIS

Usability testing is a key research method in human-computer interaction (HCI). When students are designing for others, usability testing is an opportunity to learn how the design is currently working and how it can be improved. This usability testing plan template gives individual students or teams a structure to help plan, conduct, and analyze data from a study. The template walks students through the process of planning a study through a series of questions and planning materials. The template is especially helpful for students new to usability testing and can be adapted and adjusted as needed.

KEYWORDS

Usability testing, user research, evaluation

1 THE IMPORTANCE OF USABILITY TESTING

Usability testing is a key research method in human-computer interaction (HCI). When students are designing for others, usability testing is an opportunity to learn how the design is currently working and how it can be improved. There are a variety of valuable textbooks that step students through the process of designing and conducting usability studies [1,4,10]. However, students benefit from having a template that they can collaboratively complete in teams to better connect the purpose of the design and the needs of users while preparing to collect and analyze empirical data. This usability testing plan template provides a roadmap of each of the steps in planning a study and

allows for flexibility and adaptation depending on the course or product. The template is designed to be lightweight and incorporated into a class focused on design.

2 ENGAGEMENT HIGHLIGHTS

The usability testing plan template helps enact several engagement practices. First, it helps to build student confidence and professional identity by sharing best practices in planning studies with students that are used in industry. Students can complete the usability testing plan and submit for review from an instructor who can give effective encouragement to students by praising effort and offering constructive feedback. Second, the template, enables assignments that use meaningful and relevant content, students can perform usability tests on their own emerging designs or choose an existing system that they are interested in learning more about. In this way, the template can enable student agency and choice by encouraging students to select their own topics of inquiry while creating a standard format for students or student teams to compare their results and outcomes from their usability tests. Third, since usability testing is inherently focused on the users of a design or system, the template encourages students to consider a broad range of people who might be using the product and highlights their needs.

3 RECOMMENDATIONS

The following section includes recommendations for incorporating the usability testing plan into an HCI course.

3.1 Implementation

You can incorporate the usability testing plan into most human-computer interaction courses. Usability testing is one of the most common user research methods. Providing an opportunity for students to learn this method will help them develop their skills as technology designers, developers, and researchers.

While the usability testing plan is flexible and adaptable for many contexts, I see two primary uses of it in an HCI course. The first is conducting a usability test on an existing product. The main goal of testing an existing product is to better understand what usability testing is as a method, when it is an appropriate choice of method, and how to conduct a usability test. By testing existing products, students can start to gain insight into the difference between their assumptions and learning about other peoples' experiences. In this case, the instructor could focus on what usability testing is, what types of data it helps produce, and how testing with representative users can help reveal usability problems. It can be helpful to choose one product that the entire class can investigate or similar products so a class can identify specific challenges across the same domain. While a usability test can be conducted on a variety of technology products, such as software, websites, or mobile apps, choosing one to focus on as a class can be helpful. For example, if the goal is to investigate complex information-rich websites, it can be helpful to choose either one or

an array of government websites (either local, regional, or national). Students can then conduct usability tests and discuss similarities and differences.

Another approach is to use usability testing to investigate how products may be excluding certain audiences. This can be done by conducting an accessibility audit as part of the usability testing to examine how a product may or may not support users with disabilities [8,12] and discuss the connections between UX and accessibility. Further, examining a product to ask who is left out or harmed by the design can be a fruitful area of inquiry. For example, Bartolotta investigates the usability of a document designed by the US Department of Homeland Security communicating about the "Family Separation Policy" which explores the limits of usability testing when examining oppressive artifacts [2].

The second option is to conduct a usability test as part of a class where students are creating or designing new systems, interfaces, or technologies. In this case, the usability testing plan can be used during an evaluation phase of the project. Students can plan the study to test their own design, gather data, and use that data to make changes and iterations to the original design. In this second situation, learning how to conduct a usability test and then also how to make improvements to a specific design is the focus. In this case, students learn about the method of usability testing and can also use the results of the study to make concrete and meaningful changes to their designs based on the results.

In each case, instructors should plan between 2-5 weeks for a module on usability testing. Students will need to be introduced to what usability testing is and then given time to design and plan their study, recruit users, run sessions, and analyze the data.

3.2 Working in teams

I highly recommend that students complete the usability testing plan as a team, both because it is a high-impact educational practice [7] and because it helps to highlight the complex communication ecology present in industry and research contexts. Many of the items in the plan are questions that need discussion and negotiation, namely, who are the users, which users are the focus of the study, and what usability concerns or issues should be investigated as part of the study. In addition, planning and running a study in a short amount of time is a considerable amount of work, and having clear roles and responsibilities on the team can help share the workload. For example, when planning the study, students can divide the workload of creating the materials they need for the study, including a consent form, script, scenarios, and questionaries. When conducting the study, students can choose designated roles: recruiter, facilitator, note-taker, technical specialist. Students can take on more than one role. Alternately, if an important learning goal for students is to experience each role, you can have them take different roles for each participant in the study. For example, if one student is the facilitator for one session, they can be the notetaker for the next session. While this approach might sacrifice consistency or rigor for the study, it provides the students with a broader learning experience.

3.3 Foregrounding ethics, diversity, inclusion

Usability tests can be a rich site for engaging students in conversations about ethics, diversity, and inclusion. When introducing usability testing, make sure to spend time discussing research ethics including how to interact with participants and issues of consent and confidentiality. Start by introducing students to the Belmont report [13]. Review the materials provided by your schools' Institutional Review Board about conducting research with people. In addition to research ethics, it is helpful to introduce

students to ethics specific to HCI and UX. Consider introducing students to UXPA's Code of Professional Conduct [14], Nielsen Norman Group's Ethical Maturity in User Research [9], and ACM's Code of Ethics and Professional Conduct [15]. Introduce and encourage students to use consent forms for their usability studies. A sample one is included with the Usability Test Plan.

Additional readings and resources can help disrupt the idea of an average user and highlight the diversity of people who will be using the products that professionals design and therefore should be included in user research such as usability testing. Examples include, Isaacson's work on Inclusive Research [6], Holmes on how inclusion shapes design [5], and Wachter-Boettcher on the danger of defaults [11]. Reviewing and discussing these works as part of an HCI course that features usability testing would strengthen students understanding of designing for inclusion.

3.4 Recruitment

In addition to thinking about diversity and inclusion, students should recruit a diverse group of representative users for their usability studies. Recruiting can take significant time and coordination, so students should start early. It is tempting to recruit students in the same class or same program, but the experience will be more authentic and robust if the participants recruited are representative users of the product and are not familiar with the practice of usability testing. If students are working with a project partner, like a community group, campus partner, or client, ask them for help recruiting participants. If not, encourage students to consider creative ways to find people who are representative users and strive to recruit a diverse group of users. Ideas include locating affinity groups through online forums, such as social media or meetups, or community organizations like a library or a community center.

3.5 Assessment

Planning and conducting a usability study is an opportunity for students to learn about both design and research. There are several opportunities to assess student work. I recommend a formative approach to coach students in a way that helps them reflect on their choices while also attending to the logistical planning needed for a study. You can ask students to complete specific sections of the plan and provide iterative feedback or ask students to submit the completed plan. In both cases, I recommend providing clear deadlines or gates so students cannot start their recruiting or testing until they have received instructor feedback.

3.6 Adaptions and additions

The usability testing plan is a flexible tool that can be adapted and supplemented with additional materials to fit specific course context. Readings and additional templates can be linked within the document to provide students with more structure to their study. For example, consider using industry standards scales in a post-study questionnaire such as the System Usability Scale [3]. Further, depending on the instructional goals of the course, instructors could spend additional time on concepts such as research ethics, study facilitation, data analysis, or reporting.

4 MATERIALS

- Usability test plan
- Sample consent form
- Implementation notes

5 ACKNOWLEDGMENTS

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