User Evaluation Study Plan Worksheet for USER Workshop (User Evaluation for Software Engineering Researchers), ICSE, Zürich, Switzerland, June 2012
The USER organizers and expert panel

1. Research focus (tool, technique, practice, language, skill, etc.)

2. Personal goals for evaluation of research focus
In a couple sentences, please state why you want to perform an evaluation.

3. Research objectives
a) High-level hypotheses
(e.g. People find it easier to maintain parallel programs with my special tool.)

b) Target audience *(e.g. software engineers, students, teachers, domain experts, researchers)*

c) Testable research questions
(e.g. Software engineers can identify and correct a greater number of race conditions in buggy threaded C++ code after they have 15 minutes of training on my special tool and technique, than they can simply using emacs and gdb.)

4. Methodology

a) Study organization (case study, experimental comparison, survey, etc.)

b) Data sources (empirical, logs, modeling, etc.)

c) Test environment (e.g. field vs. lab), including materials details (e.g. *C++ code obtained from a particular open source project)*

d) User tasks (the activities that users will do with your tool, technique, practice, etc)

5. Participants

a) Profile, including inclusion/exclusion criteria

(e.g. *software engineers with more than 10 years of professional experience*)

b) Recruitment

c) Rewards/payment

d) How many?

6. Data Collection and Metrics (think about qualitative, quantitative, subjective, objective)

Should be appropriate to research goals. Think about accuracy, precision, and ease-of-use.

7. Analysis Methods

Think about correlation vs. causation, and how you are mixing qualitative and quantitative data.

a) Qualitative including coding scheme, consensus building process (inter-rater agreement)

b) Quantitative & statistical methods (e.g. *t-test, ANOVA, logistic regression, chi-squared*)

c) Validation process (how to check up on analysis steps and conclusions)

8. Details

a) Study material (HW/SW, resources such as recorder and batteries, report forms, and/or questionnaires, etc.)

b) Experimenter's role (monitor, coach etc.)

c) Other people needed to help (e.g. with running an experiment, or with statistical analysis)

d) Risks & benefits to participants

e) Contents of report to be produced and how the report is going to be presented (focus group, informal meeting, conference report, etc).

f) Procedure (including detailed list of tasks, if applicable)

9. Logistics

Week-by-week list of deadlines/objectives

10. Risk Analysis

List three to five risks, and an alternate plan of action in case they happen for each one.

Don’t forget:

* Consent form and IRB (or equivalent) approval
* Pilot your study! Leave at least a day in between pilot users and regular participants.
* Iterate!
* Practice memoing right after each experiment or participant encounter.