

User Experience Review Handbook

A method to conduct an expert evaluation
concerning user experience

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Version 1

Introduction

User Experience Review (short UER) is a procedure to conduct an expert review of a product concerning its user experience (short UX). This handbook describes the basic steps of the method. In addition, the materials that are available to support UX professionals to set up an UER with minimal effort are described. All materials mentioned in this handbook are available free of charge and can be downloaded from www.uer.ueq-research.org.

Concept of an UX Expert Review

In an UX expert review a small number of UX experts (usually between 2 and 4) evaluate the user interface of a product concerning its user experience.

Compared to usability tests, expert reviews are a relatively cheap method. An expert review results in a structured list of findings that can be used by the product team to improve the UX-related properties of the product. If no access to end users can be organized within a project, it may be the only chance to conduct an objective evaluation of UX quality.

But, as in any other UX evaluation method, there are some problematical points. Often, a substantial level of disagreement between different evaluators exists (see, for example, Molich & Dumas, 2008), i.e. one may get the impression to receive 4 different opinions from 3 evaluators according to a strong evaluator effect.

In addition, reviewers often focus strongly on *problems* in a user interface (they assume their task is to find problems that should be eliminated to improve the product) and do not mention the *positive aspects* of a user interface. Thus, if a product owner reads such a report this can easily cause a quite negative impression of UX quality, which may in many cases be not justified. Even in a product with a good UX quality some usability issues will be found, but when in an evaluation report of such a well-designed product 15 problems and only 2 positive comments are listed, this may be quite misleading.

With the Cognitive Walkthrough (Wharton, Rieman, Lewis & Polson, 1994) and Heuristic Evaluation (Nielsen & Molich, 1990 or Nielsen & Mack, 1994) there are two quite established variants of expert reviews available. We describe their basic structure to work out the differences to UER.

In a heuristic evaluation ten *usability heuristics* guide the reviewers through their evaluation (see <https://www.nngroup.com/articles/ten-usability-heuristics/>). For example, *visibility of system status*, or *recognition rather than recall*. These heuristics represent human needs concerning the interaction with a system. The heuristics are formulated quite abstract, since they should be applied to all types of applications or products. Therefore, a “translation of their meaning” to design elements in a concrete evaluated system is not always easy - even for an expert.

Experts in a heuristic evaluation independently review an application, note down findings related to the heuristics (problems) and estimate their severity. Of course, it is not forbidden to note also findings not related to a heuristic.

The detected problems and severity ratings are then discussed and consolidated in a discussion round with all experts. The severity ratings are used to create a prioritized list of findings. The idea is that the findings rated as more severe should be fixed with highest priority.

In contrast, in a cognitive walkthrough the experts go through the most important tasks and flows of a system individually or as a group. Potential issues are discussed by the group of reviewers. To guide the discussion, a set of 4 questions to be answered per step is provided, for example *Will the user notice that the correct action is available?*

So, what is the problem with existing methods and why do we propose something new? Both methods did not change much since their invention. But the nature of interactive products is quite different compared to 1990. In our opinion this creates some issues.

First, both methods are strongly focused on the detection of pure usability problems (task-related or pragmatic issues), for example issues with learnability, efficiency, or controllability of an application. But nowadays we have a much broader view on UX. Non-task related quality aspects, like fun-of-use, beauty of the user interface, novelty or creativity of a design, are considered to be quite important for the commercial success of a product. Thus, such aspects need to be part of every evaluation while it is hard to introduce such aspects in the existing methods.

Second, as we argued above, we emphasize the importance of considering *weak and strong* points in a product. If the results focus solely on problems, this can create a biased impression about the overall UX quality. In addition, in complex products certain UI elements or interaction patterns are typically associated with positive and negative UX aspects. Thus, if a problem with a certain UI element is described in a review it can easily happen that this problem is “solved” in a way that eliminates by accident also some positive UX aspects of the user interface. Thus, good decisions about the things that should be changed based on the review results requires a balanced feedback concerning positive and negative points.

Third, modern products differ quite heavily concerning their typical UX requirements. Should reviewers focus on the same criteria if they review a programming environment, a business software, a web shop, or even a game. Most likely different UX aspects are relevant. Thus, a method for expert evaluation should adapt to the product that is evaluated.

Core ideas of an UER

The core ideas behind the UER procedure are:

- allow to consider all relevant UX aspects (pragmatic and hedonic), i.e. efficiency as well as aesthetics or fun of use, etc.
- encourage experts to consider weak AND strong points in a product. A focus just to the existing problems is in our opinion not helpful.
- adapt to the concrete product or question behind the evaluation, i.e. the UX aspects the reviewers should focus on are determined for each product and evaluation.

Core element of the method is a list of UX aspects to guide the reviewers.

List of UX aspects

The core element of UER is a list of 16 UX aspects. These UX aspect describe distinct quality aspects of an interactive product. They are developed by a review of existing UX concepts in research papers and an analysis of currently used UX scales in questionnaires (Schrepp, 2018). In addition, several papers investigated the role and importance of these UX aspects for certain product categories (Winter, Schrepp & Thomaschewski, 2015 or Winter, Hinderks, Schrepp & Thomaschewski, 2017).

The currently available UX aspects are:

- **Content Quality:** The information that the product provides to the user is of high quality and interesting. The information is up-to-date and reliable.
- **Adaptability:** The user can easily adapt the product to his personal preferences or personal working style. Existing customization options are easy to find and understand for the user.
- **Perspiciuity:** It is easy for the user to understand and learn how to use the product. The underlying concepts are clear and logical. The product helps the user to easily learn the operation by trial and error.
- **Efficiency:** The user can achieve his or her goals with little effort. To perform typical tasks, no unnecessary actions are required. The product responds quickly to user input and instructions.
- **Intuitive Use:** The user can operate the product immediately and without training or instructions. The user does not need help from other people and does not need to read any information material or documentation to properly operate the application.
- **Usefulness:** Using the product brings benefits to users. It makes it easier for them to achieve their goals. Users save time and become more productive.

- **Novelty:** The product looks interesting. It already arouses the interest of users due to its special design. The product is distinguished by its design from products with similar functionality.
- **Beauty:** The design of the product is beautiful and appealing. The design will be attractive to the target group of the product.
- **Controllability:** The product responds predictably and consistently to user input and commands. The user always has the feeling that he has full control over the interaction. The product helps the user to avoid mistakes and to correct errors with little effort.
- **Stimulation:** Users find the product stimulating and exciting. It's fun to deal with and work with it. The product motivates the user to use it more frequently.
- **Clarity:** The user interface of the product looks tidy and clear. Users can easily find the information that is relevant to them and orient themselves visually in the user interface without effort.
- **Trust:** The application gives the user the impression that his or her entered data is in safe hands and not misused to harm him or her.
- **Value:** The product makes a high quality and professional impression. It communicates a certain exclusivity.
- **Immersion:** Users forget time when they use the product. The design contains elements that capture their complete attention and let them sink in the occupation with the product.
- **Identity:** The product helps the user to make contacts and to present himself or herself positively. The user can obtain prestige from ownership or access to the product.
- **Loyalty:** Even if there are other, equivalent products for the same tasks, user will most likely not change the product. The design and placement of the product supports a feeling of loyalty.

Obviously, we do not claim that this list covers all UX aspects relevant for all types of products. For special products some distinct aspects may be of importance that are not covered in this list. For example, for household appliances the sound quality and the haptic of the product play an important role (Boos & Brau, 2017).

To keep the list manageable, we only cover those aspects that are relevant for a larger sample of different product categories. But of course, an UX professional who wants to set up a review for a product with some quite special requirements can extend the list and available materials to cover these as well.

Some slightly extended descriptions and positive and negative examples for fulfilling these quality aspects can be downloaded from www.uer.ueq-research.org.

The major steps of a User Experience Review

In general, the product team must decide about the relevant UX aspects, prepare review materials, select, and instruct reviewers, the review must be conducted, and the results have

to be analysed and consolidated. Finally, it is expected that the results will be processed by the product team in order to improve the product. Figure 1 provides an overview about the steps of the review process.

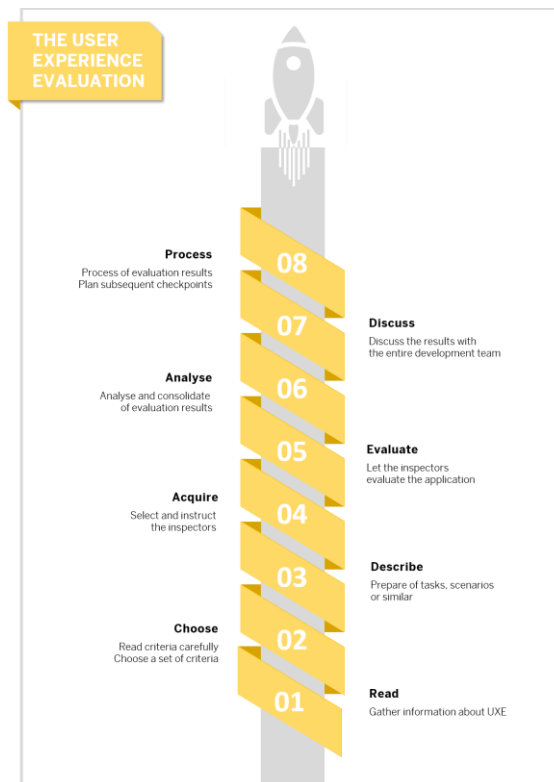


Figure 1: Steps of the User Experience Review

Decide about the relevant UX Aspects

As already mentioned we cannot assume that each UX aspect is of equal importance for each type of application (see for example Winter, Hinderks, Schrepp & Thomaschewski, 2017). For a self-service application, for example an application to change the personal bank account for a monthly payment, it is extremely important that it can be used intuitively, i.e. without help by others or the need to study some documentation first. Such applications are typically used infrequently and thus we cannot expect that a user will spend time to learn how to use it, since this may be forgotten the next time the application is called. For the same reason efficiency is not important here, i.e. some additional clicks or actions do not hurt much if you use an application only once a year.

For a business application that is used frequently during a work day, things are quite different. A sales person might use a sales order application quite often during a typical workday (for example up to 50 times). Thus, each unnecessary action or click is annoying in such a scenario, i.e. efficiency is extremely important. On the other hand, users may be quite willing to spend some time in learning such an application (since it is used frequently learned skills are unlikely to be forgotten), i.e. intuitive use is nice, but not the most important thing.

Thus, the first step of the method is to clarify which UX aspects are most important for the product. A first hint can be found in the papers of Winter, Schrepp & Thomaschewski (2015)

or Winter, Hinderks, Schrepp & Thomaschewski (2017). Here the importance of the UX aspects listed above for different product categories is investigated empirically.

Based on these papers there is a suggestion available, which UX aspects are most important for special product categories. Maybe this is already enough to draw a decision. The following table from Schrepp (2018) is based on this research (and slightly adapted to match the criteria we use in UER).

Product Category	Relevant Scales
Word Processing	Controllability, Usefulness, Efficiency, Clarity, Perspicuity
Spreadsheet	Usefulness, Controllability, Efficiency, Perspicuity, Clarity
Messenger	Trust, Intuitive Use, Controllability, Efficiency, Identity
Social Networks	Trust, Identity, Controllability, Intuitive Use, Stimulation, Content Quality
Video Conferencing	Trust, Controllability, Efficiency, Intuitive Use, Usefulness
Web Shops	Trust, Content Quality, Content Reliability, Controllability, Clarity, Value, Intuitive Use, Beauty
News Portals	Content Quality, Clarity
Booking Systems	Trust, Controllability, Content Quality, Efficiency, Clarity, Intuitive Use, Value, Usefulness
Info-Web-Sites	Content Quality, Clarity
Learning Platforms	Content Quality, Usefulness, Clarity, Perspicuity, Efficiency, Trust, Controllability
Programming Tools	Controllability, Usefulness, Efficiency, Adaptability, Clarity, Perspicuity
Drawing Tools	Controllability, Usefulness, Efficiency, Adaptability, Clarity, Perspicuity
Online-Banking	Trust, Controllability, Content Quality, Value, Clarity, Intuitive Use, Efficiency, Perspicuity, Usefulness
Video Portals	Intuitive Use, Immersion, Clarity, Content Quality, Trust
Games	Immersion, Stimulation, Beauty, Novelty, Controllability, Intuitive Use

However, such general suggestions may be not be optimal for your special product. Thus, it is a good idea to conduct a small inexpensive investigation. To do so print out the UX aspects and their description on cards and recruit a small number (usually 10 are enough) of users, or if these are not available, persons that know the application quite well (can also be product owners or UX designers). Give them the cards and let them sort these cards concerning the expected relevance for end users of the application. Then simply base your decision on the mean rank (or use a scaling method like BTL-Scaling as described in Mayer, Schrepp & Held, 2018, this makes a sharper distinction between relevant and non-relevant aspects but requires some statistic knowledge). In a workshop environment, also a simple dot-voting for the most preferred aspects may work.

This gives a clear picture of the aspects relevant for end users. But of course, in the review you may also want to consider UX aspects relevant for product placement and the stakeholder group the product is presented to. For example, end users of a programming environment are usually not very interested in the beauty of the user interface of the tool (see Winter, Hinderks, Schrepp & Thomaschewski, 2017). But if these tools should be presented on big events in front of thousands of potential customers, this aspect is obviously an important thing for the success of the product. Thus, such aspects should be considered in expert evaluations. To come to an impression about the additional UX aspects simply recruit a small sample of

product owners or even marketing persons and repeat the card sorting experiment described above with the instruction that participants should sort the UX aspects accordingly to their relevance for product placement and marketing. You get typically a quite different list.

As a summary, the decision about the UX aspects selected for the review can be done in three steps:

1. Find out the list of UX aspects most relevant for users of the product. Use the suggestions of the table above or (better) do a small empirical investigation or an informal voting to get to such a list.
2. Find out which additional UX aspects are relevant from the perspective of marketing and product placement.
3. Consolidate the two lists, i.e. try to include the top ranked UX aspects from both lists. There is no objective way to do this, so this is always a pragmatic decision based on your opinion about what is most important for the current review.

We suggest selecting between 5 to 7 UX aspects. The more UX aspects you select, the more difficult it is for the reviewers. If you really need to consider more than 7 UX aspects, then split them into groups and organize two reviews.

Prepare review materials, select, and instruct reviewers

It is important to instruct the reviewers to mention not only negative but also positive findings concerning the UX aspects. It is also important that the reviewers get some hints concerning the detail level of their expected findings. A finding should be as concrete as possible.

We offer various materials that should help you to prepare the required instruction for the reviewers:

- Documents that describe the UX Aspects by some short texts and several examples (available in English and German).
- An introductory video that explains the method.
- A document (Cheat_Sheet.pdf) that shortly describes the steps of the review process from the viewpoint of the invited reviewer. This document describes in addition which type of feedback is expected. You can either reuse this document or include the relevant parts into your own reviewer instruction.
- Templates to log the findings of the reviewers. The answer sheets are interactive PDF files (available in English and German). They contain one page per UX aspect. To adjust them to your selection of UX aspects, simply copy them to a new file and remove all the pages you do not need for the study with a PDF Editor. There is also a Word File (screenshot_template_v2.docx) that can be used to copy and paste screenshots to refer them later on easily in the PDF.

Make sure that you instruct the reviewers to note down also positive aspects of the application and not only issues of problems. This helps to create a realistic view about the UX state of the application.

An example for such an instruction that worked well in some studies is:

Please remember to give feedback concerning potential weaknesses and strength of the product! Of course, the responsible product team will work to improve the weak points, but if they do not have a clear picture about the strength it may happen that a redesign will incidentally hurt strong areas of the product as well!

Conduct the review

In this step the reviewers evaluate the application independently. It is quite helpful if they report their findings in a common tool. Thus, a word and a PDF template for this task are available on for download from www.expertevaluation.ueq-research.org. But it is of course also possible to use another tool for this. We recommend that the product team provides a set of tasks that can guide the reviewer through the application. In contrast to usability tests, those tasks may also contain hints for the solution, because their only purpose is to ensure that every reviewer touches as much of the application as possible. Figure 2 provides an overview about the steps of an individual review.

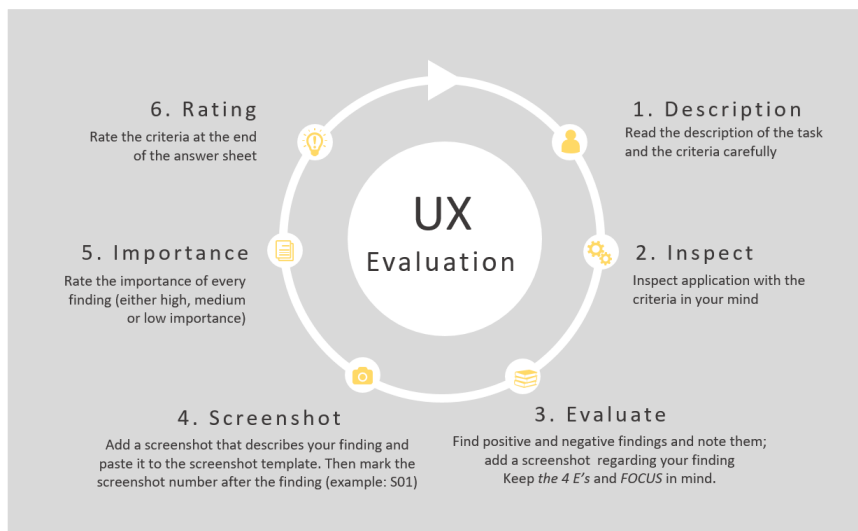


Figure 2: Steps of a review

Consolidate the results

Once all reviewers have completed their evaluation, it is required to consolidate the results. In this step the following actions must be performed:

- Duplicate findings must be merged.
- Findings must be cross-checked by all reviewers. If there is a disagreement between reviewers concerning a certain finding this must be discussed and a consensus should be found (if this is not possible it may be wise to take this finding out of the final report that is handed over to product owners or the development team).
- Descriptions of the found issues and positive points must be checked and clarified to a point that can be understood by product owners and developers.
- If there is a consensus how to solve a certain issue, then add it to the description of the finding.

- Generate a report that can be discussed and handed over to the development team.

In principle, there are two options available to do such a consolidation. If possible, the consolidation should be done by the reviewers in a group discussion. If this cannot be organized, it is also possible (but of course not the optimal solution) that one of the reviewers or the UX professional organizing the review does the consolidation.

Of course, after the consolidation the results need to be discussed and handed over to the product owner and/or the development team. However, how this is done is quite specific to the project or organization, thus must be decided case by case by the UX professional organizing the review.

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