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# Usability and Image Resource Interfaces: five steps to plan your own study

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# Usability and Image Resource Interfaces: five steps to plan your own study

## **Abstract**

Usability testing, a systematic approach to finding out what parts of a tool or resource are difficult to use, can be particularly useful with digital image systems and other visual resources. This article explains the benefits of observing how patrons use our resources and provides five steps to performing a simple usability test on an image database.

## **Keywords**

usability, digital images, user experience

## **Author Bio & Acknowledgements**

Bio: Melanie Clark is the Architecture Image Librarian at Texas Tech University. Her research interests include usability in libraries, and the Impostor Phenomenon among librarians.

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## Why usability testing?

Whether in a museum, library, art department, or elsewhere, visual resources professionals share a common goal: to make images available to patrons. In this digital world, VR professionals rely on digital asset management software, which could be a homegrown system, a proprietary software license, an online hosting option, or open source system. Often, cost and technical support needs are two major factors in deciding which system to implement. All considerations aside, how do you decide which system best suits the needs of your patrons? If your institution is already committed to a particular system, how do you evaluate how well it meets patrons' needs and how it can be improved? What out-of-the-box features work well? Which don't? These questions can be answered with usability testing.

Usability is defined as: how effectively, efficiently, and successfully a user can learn and interact with a user interface.<sup>1</sup> In the simplest of terms, usability testing could mean sitting asking a patron to spend time with the resource and observing them as they complete tasks. This is considered a systematic approach to identifying aspects of a system that are difficult for users, with little or no training. The concept is often linked to web design, namely user experience (UX) design, but the same principles apply to any resource, particularly a web-based image database. Usability testing is the most practical way to identify problems with a system and point to possible solutions to those problems.

Surveys are a common method of collecting user feedback, but as self-reporting tools, survey results may be distorted by either faulty memory or a lack of understanding of what they experienced. Usability testing allows us to observe patrons using our resources with our own eyes, and see exactly where they stumble, without relying on their memory or their limited knowledge of the resources. Unlike surveys and user statistics, usability testing shows why users do what they do.<sup>2</sup>

Our goal may be to give our patrons the most positive user experience possible with our resources, but what if we don't have any local control over them? Usability is also important if your institution is already invested in a particular

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<sup>1</sup> As defined by the usability.gov glossary: how effectively, efficiently and satisfactorily a user can interact with a user interface. For a useful overview of user-experience design and design tools, see: <http://www.usability.gov>

<sup>2</sup> Steve Krug, *Rocket Surgery Made Easier*, Berkeley: New Riders, 2010.

system, even if you have little or no ability to modify it. It is always a good idea to understand your users better. What you discover from a usability test may help you improve instruction and marketing methods by addressing the usability problems in those efforts. Furthermore, software developers often ask the user communities for a list of features they wish the system had. By looking to our users, usability testing enables us to make more educated recommendations to our software developers, either institutional or commercial.

## **Constructing a Usability Test**

A usability test can be as simple or complex as you want, and as economical or expensive as you have the resources for. There are five steps to performing a usability test.

**1. Define your study:** Defining a study begins with identifying your target user groups. Are they undergraduates, graduate students, faculty, or the general public? For the most general test you may not need to be more specific than your complete body of patrons, but keep in mind that graduate students often approach search tools differently than beginner undergraduates do, and faculty may approach them still differently.

The second part of defining a study is to decide which aspects of your system need evaluation. Which aspects do patrons use the most? Is there a new feature in the system that needs to be tested, or a feature that patron questions have shown to be confusing? The most basic aspect to test in an image database is the search function, but you may also want to address whether your metadata is easy to peruse or, if you have an image viewer with advanced capabilities, whether it works for users. Do they wish to pan-and-scan? Download quickly? If your system has any features involving a patron account, that could be worthwhile to include in your test. You may even want to test how easy it is for users to find the image database from your website home page. If your images are searchable through a library discovery tool, such as Ex Libris' Primo or EBSCO Discovery Service, it might be appropriate to test the discovery tool for usability.

The third part of defining your study is to decide what equipment to use. A computer will always be necessary for users to perform the tasks. However, several options are available to capture the test, with varying costs. There are three ways to capture a usability test: audio, video, and screen capture. Morae, by Techsmith, is a usability software that captures all three of these and makes it easy to analyze the data. An observer in another room can watch the test in

progress, marking start and end times for the tasks, and noting any points of difficulty or interest.<sup>3</sup> Morae has other capabilities, such as creating graphs and presentations of the final results. Keep in mind that audio and video recordings require a microphone and a camera that your computer may not include. The cost of Morae is about \$1500, but there are less expensive options, such as Silverback.<sup>4</sup> More economical options include a wide range of screen capture software includes free options such as Camstudio, Screencastle, or Screenr, as well as the robust Camtasia, which costs \$300 for PC and \$150 for Mac. One of these may be coupled with separate software for audio and video capture.

Of course, the simplest usability test only requires a pen, paper, and a facilitator taking quick, copious notes.

**2. Scenario planning:** Once your study is defined, the next step is to set up task scenarios. These may be framed as questions the users would ask in reality, or phrased as simple imperatives. In the visual resources context, the tasks should involve one or more of the basic terms a patron would use to search, such as the title of the work, artist or architect, style or period, location, etc. Each scenario should only include one task with an easily identified result, such as, “Find an example of a 16th century Baroque painting.” Although the resource may offer more than one way to find a result, a task shouldn’t be so complicated that you are unable to identify any specific problems from the results. To test the usability of your metadata, include a question, such as the example above, which requires users to refer to the metadata to verify their results. Asking a question about a detail of an image that requires the user to zoom in to part of the image is one way to test the usability of an image viewer.

The number of tasks you include will depend on how many aspects of the system you want to test. Three tasks should be sufficient to test basic searching, along with other simple aspects such as metadata or the image viewer, whereas testing more functions may require up to seven or eight tasks. How the length of the test will affect recruitment should be taken into consideration. A test can be accomplished in 10 minutes with only three tasks, while a test of seven or more tasks on different features may require up to 30 minutes.

A survey allowing users to share their impressions about the system may also be included after the test. Developed by Jeff Sauro of the firm *Measuring Usability*,

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<sup>3</sup> Morae software description on TechSmith website: <http://www.techsmith.com/morae.html>

<sup>4</sup> Silverback 2.0: <http://silverbackapp.com>

the System Usability Scale (SUS) is a standard usability survey that will allow you to score your system against a national average; however, including a custom survey may also be a good opportunity to probe users about how frequently they use images and what they use them for. With the tasks and survey, create a script for the test facilitator to use during the testing process. It should include a description of what the project is and why the user is there. Usability test script examples may be found online, such as on Steve Krug's website *Advanced Common Sense*.<sup>5</sup>

The tasks should be printed on separate sheets of paper for the test, so the facilitator can hand them to the user one by one. A practice run of the test will help you make sure the task scenarios make sense and can be accomplished with the system and, especially if this is your first test, allow the facilitator to become comfortable with the script and procedure. A practice run with an experienced user also gives you the opportunity to determine the optimum completion time for each task. This optimum time helps to evaluate the system's performance with patrons with little or no training.

**3. Select participants:** Finding participants for the study is the third step. This can be the most difficult part of the process. Recruitment methods include email solicitation, flyers, or other ways of announcing a call for participation, but you will likely find the most success with student participants by recruiting them on the spot during hours of peak traffic in your building. The participants should represent your targeted user groups. Three to five participants is sufficient for a small test, but more will be needed for a more in-depth study, particularly if you are studying the needs of different user groups separately.<sup>6</sup> Incentives for participation are almost always necessary. An incentive can be as simple as candy, pizza, or course extra credit. The greater the time commitment for the test, the bigger the incentive should be. A candy bar may be sufficient for ten minutes of time, but few people would consider it a fair trade for half an hour of their time. Recruiting students employed by the department or library may be easier,

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<sup>5</sup> Jeff Sauro is a statistical analyst who specializes in quantifying user experience. His website offers many articles and other resources related to user-experience design and testing. Web usability consultant Steve Krug is the author of *Don't Make Me Think* and *Rocket Surgery Made Easier*. His website is <http://www.sensible.com>.

<sup>6</sup> UX designers and testers often reference the famous quote by Jakob Nielsen: "Elaborate usability tests are a waste of resources. The best results come from testing no more than 5 users and running as many small tests as you can afford." See: <http://www.nngroup.com/articles/why-you-only-need-to-test-with-5-users/>

but if these students have previous experience with the system, it makes them unrepresentative of an average user.

**4. Testing:** The next step is holding the usability test. Designate a quiet testing area, and make sure any documents, such as institutional approval of the research and consent forms for audio or video recordings, are complete and available. Set the system homepage as the internet browser home on the computer you will be using, and test any equipment. If the test is a team effort, assign a facilitator to guide the participants through the process. The facilitator will prompt the user when appropriate and encourage them to talk through the process, but must resist the urge to help the user with any difficulties. Another observer may sit in the room, if software doesn't allow for remote observation, but the setup should be such that the observers don't make the user nervous or interfere in any way. Observers take notes on the system's performance with each user, including any difficulties or confusion.

**5. Results analysis:** The last step in usability testing is to analyze the test results, identifying problems and possible solutions. Without video or screen footage, it is essential to debrief as soon as possible after each test session, while it is fresh in memory. Look back at your data and note the users' success rates for each task. Were they completed with ease? Difficulty? Not completed at all? What is it that users had difficulty with? Some difficulties you might encounter could include the system not recognizing minor misspellings or different word forms; advanced search boxes being confusing; search results displaying in a format that doesn't make it easy for users to identify which item they want; the metadata being troublesome to find if it doesn't appear on the same page as the image; or the metadata display fields being difficult to understand. Most of the time, problems arise from an interface being too busy rather than too sparse.<sup>7</sup>

Discovering usability problems does not always mean finding immediate solutions. Sometimes there are a number of solutions that could either fix a problem or work around it. It is best to focus on the solutions that you have control over. A small tweak can make a big difference, even something as simple as changing a text size or link location. If other local stakeholders, such as technical support or administration, have more influence over your system, give them a visual presentation illustrating the problems and potential solutions. Better yet, invite them to become involved in the usability testing process. Demonstrating results in a visual manner is a much more effective communication tool than a written report.

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<sup>7</sup> Krug, *Rocket Surgery Made Easier*.

## Conclusion

Planning your first usability test may be daunting, but is actually an easy, fun process once you begin. You may even notice new things to test that you can't wait to get started on. The principles of usability testing are the same for any service as for an image database or other web-based resource. For more information about usability testing, the works of usability consultant Steve Krug are recommended. His short book, *Rocket Surgery Made Easy*, is an entertaining read full of practical knowledge about the usability testing process. As referenced above, Krug's website, [www.sensible.com](http://www.sensible.com), also includes a usability test script template, among other resources.

Knowing our users is critical in a field in which we must continually evaluate how to better serve patrons, and usability testing is a practical way to engage in a new level of understanding them. Opportunities to improve our resources can come unexpectedly and sometimes unrecognized. Usability testing can prepare you to recognize those opportunities and respond to them as they come with a solid knowledge of how your users think and use your resources.

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