Chapter 5: TEST THE PAPER PROTOTYPE

Start with the Big Three: Authentic Subjects, Authentic Tasks, and Authentic Conditions

The basic premise of prototype testing for usability is that you can discover important information about your design by observing the real people who might use your site trying to accomplish tasks they would really do under the conditions they would actually encounter at your site. Before you plan the specifics of this prototype test, be sure the whole team understands the concept of authenticity for subjects, tasks, and conditions. You have to have all three or it won't be worth your time to conduct the test sessions. If you do have authentic users, tasks and conditions, you can make a lot of other mistakes in conducting the sessions and still get valuable information from them.

Authentic Subjects

When you were establishing the audience and goals for your site you constructed a matrix of primary and secondary users. Each cell in the matrix is a profile, a combination of key characteristics that may influence the way people use your site. Authentic subjects for your tests are people whose key characteristics match a profile in your matrix.

Authentic Tasks

Unless your site is created specifically for open-ended exploration by people with no goal in mind beyond being entertained (arguably a legitimate goal for a site, but not the focus of this book), you will not get good information by asking people to explore the prototype and tell you "what they like" or "what they think."

Early in the process when you investigated the needs of your audience and stakeholders you identified questions that people visiting your site are likely to ask, information they are likely to look for, and information that stakeholders want them to see. When you translate such questions and information into specific requests for your test subjects you are creating authentic tasks.

Authentic Conditions

At this point, the most important condition to consider is the amount of help or support you users will have in their environment when they use your site. Your test sessions should offer them no more and no less support than they will have later when your site exists on the Web. If you expect to send out an instruction sheet to students or staff who will use the site, then you should provide a mockup of that instruction sheet for the subjects in your usability tests. If there will be no reliable or identifiable source of assistance to your users, then there should be none in the test sessions – and that includes help from you.
You're conducting these tests in order to make the site usable for your audience. Be sure that it will be usable in their environment, not just in the test environment.

Obviously one of the conditions for these tests does not seem authentic; your prototype is on paper and in real life your audience will be using the site on the computer. We argue that your paper prototype is authentic but that it is simplified to allow your subjects to focus on the parts that have to be tested early in the design process. You are testing the paper prototype primarily to discover problems with the way you have organized the content, the titles you have used for pages and links, and the relationships you are setting up between one chunk of information and another. These elements do not have to be displayed on the computer screen in order to be experienced.

Make a Test Plan

Usability professionals who have conducted hundreds of tests, many of them quite similar, still make a test plan before beginning any new series of test sessions. The test plan guides everyone who will participate in the sessions so that results from the sessions are fairly uniform. The plan also records some key decisions the team has to make each time a prototype is tested, and it can be used to communicate to stakeholders about the process the team is using to design the site. Your test plan should include:

- a description of the prototype
- profiles of the subjects for the test
- the number of subjects/test sessions
- description of the test sessions
- tasks the subjects will be asked to complete
- a script for team members to use with the subjects.

Description of the Prototype

Include a copy of the paper prototype (without dividers) in your test plan. Right now it doesn't seem as though you'll ever forget a single detail of this prototype, but you will, and sooner than you think. A month from now someone will ask, "Whatever happened to that great design idea?" and you will want to know whether it was part of the first prototype you tested. The test plan will tell you.

Profiles of the Subjects for the Test

Earlier in the process you listed the primary, secondary and incidental users of your site. Now look at the lists of primary and secondary users and divide that list into people with similar jobs and/or academic backgrounds. Subdivide the resulting groups into people with high and low levels of Web experience, and people who have relatively more and less knowledge of the subject matter for your site. You'll end up with a matrix, each cell of which is a "profile," or a description of key characteristics for one type of user you expect at your Web site.
If you only have one or two profiles in your matrix, you will probably recruit representatives from each one for your test sessions. If you have more than one or two you have to decide which are the most critical because you may not find representatives from them all, and you may not have time to conduct tests with so many subjects. Focus on the profiles with the least computer or Web experience, profiles with little experience in your content area or with your organization, and profiles of people from whom it will be difficult to get feedback after your site is published.

In the case of the IUB Web site, people whose profile was "little computer or Web experience" and "parent of prospective student" were selected as a critical test population because all of these important factors intersected in this profile – they had low levels of Web experience, they were not likely to be familiar with the particulars of this university's internal structure, and they would not necessarily be in a position to give feedback about their problems with the site after it was published. Of course, every profile is a simplified view which may not apply to given individuals. In our case we had to be careful not to choose people who were parents of prospective students, had little Web experience, and were employed by the university – technically speaking they fit the profile, but they were not desirable subjects since they were very likely to be familiar with the university's internal structure.

If you know the relative percentages of profiles in your whole audience population, match those relationships in your subject sample. If 60 percent of your target population is female, then 5 of 8 subjects...
should be female. Even if you don't know these percentages, make an educated guess and set goals for recruiting subjects of different profiles. In your test plan you should show the matrix, describe the profiles you will use for choosing test subjects, and explain the reasons your team has for using these profiles. This section of your plan is useful for helping team members focus on the key attributes of potential subjects when they are recruiting, particularly if subjects are hard to find and team members are tempted just to take "anyone who's around."

Unless you are designing the site for a primary audience made up of your friends, you should not use them as test subjects — they will almost always have an understandable desire to soften any negative reactions so that they don't hurt your feelings. Colleagues likewise are undesirable subjects, especially if you and they are all designers, because you'll get design feedback from them instead of comments on their experience using the site. Try not to use people who have been subjects for you on previous rounds of the same prototype because they are likely to remark on the differences they notice between this prototype and the last one instead of concentrating on comments about what they are experiencing with this iteration of your design.

<table>
<thead>
<tr>
<th>Service Technicians</th>
<th>Low Web Knowledge</th>
<th>High Web Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probably a New Hire - Has Some Domain Knowledge but Is Unfamiliar with Specific Company Procedures &amp; Web</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior Technician with Plenty of Company Experience Who Has Not Used the Web</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>On-Site Technical Liaisons</th>
<th>Low Web Knowledge</th>
<th>High Web Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newly Appointed Liaison Who Has Not Completed the Company Product Training or Used the Web</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experienced Liaison; Has Completed the Training but Not Used the Web</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experienced Liaison; Has Completed Product Training and Uses the Web at Work or at Home</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

@ = Low Incidence Profile
✓ = Profile Selected for Testing
Number of Subjects/Test Sessions
A series of test sessions conducted using one prototype constitutes a "round" of testing. If you choose subjects who are representative of the target profiles you can conduct a minimum of 8-10 sessions in a round, one subject per session, and achieve useful results. This number of subjects will never prove that your design is problem-free, but it will certainly show where your design needs improvement.

Description of the Test Sessions
Write a brief description of how each test session will be conducted. Indicate what the team member will do and what the subjects will be expected to do. This section of the plan can be written once and used with modifications over and over again, and it is especially important for educating those outside the team on the process you are following to design the site.

-- Insert example of test session description here

Tasks the Subjects Will Be Asked to Complete
Bear in mind that your test sessions should not take more than an hour and a half each. Your subjects will find it tiring to work and answer questions for much longer than 90 minutes, and you will have trouble paying close attention and taking accurate notes for long periods of time. When you choose your tasks and subjects carefully, you can find out what you need to know in sessions that run 60 - 90 minutes.

List the tasks that you will ask subjects to complete during test sessions. You don't have to test with every possible task. Choose tasks that ought to take the subjects through the key portions of your prototype, and tasks representing the most frequently needed information in your site. If you have more tasks than you estimate one subject can complete, divide them up and let different team members present these tasks to different subjects. Be sure to overlap a large portion of the tasks so that you can compare performance between subjects, and be sure to give some similar tasks to subjects of all different profiles.

-- insert sample of authentic tasks here

Script for Team Members to Use with the Subjects
Create a short script that team members will use to introduce the prototype to subjects and to guide any standard follow-up questions the team has decided to ask. It's not essential to say precisely the same thing to each subject, but it is important that team members be consistent in explaining to subjects how the sessions will be conducted. Even if it is not meant to be followed word for word, a general script can help avoid common problems for inexperienced team members: over-explaining the prototype, forgetting to let subjects know they can stop the session at any time, stumbling over instructions and making subjects feel uncomfortable.

-- insert sample script here
Coordinate Observers

With the design plan in hand, identify team members who will conduct the test sessions. They will be the "observers." Unless all of them are very experienced in conducting these kinds of sessions they should meet together ahead of time to make sure they all know what they'll be doing, saying, and looking for.

What to Do

Observers need to observe. Of course, this means watching the subjects' actions with the prototype and listening carefully to what they say, but it also means watching the subjects' body language and listening to their pauses, sighs, grunts, and "hmmms." It means listening for the tone of voice that indicates a subject is frustrated or confused, even if the words he's saying don't indicate a problem. And it means capturing subjects' own words, not those of the observer. Don't interpret or summarize – observe.

In addition to observing, observers should put subjects at ease. All subjects experience a little anxiety at being observed, especially when they are likely to be making mistakes. Observers must behave in a calm and encouraging way throughout test sessions, not rushing the subjects or expressing unhappiness over the problems that the subject may have. Find a position in which it's easy to see what subjects are doing without crowding over their shoulder to see the codes on the prototype pages. Observers should practice on each other before their first test sessions so they are comfortable themselves; this is the best way to set subjects at ease later.

What to Say

In addition to studying the script for the sessions, observers need to practice some simple techniques that improve the amount of information you get from each sessions. Make sure every observer can handle noncommittal responses, prompting, and probing.

Noncommittal Responses

Subjects often ask the observer direct questions like "Is that right?" and "What do I do now?" Most of the time it isn't appropriate to answer such questions during a session (because the users will not have the personal support of a designer when they are actually using the Web), but most of us are conditioned to respond helpfully to such questions – we feel uncomfortable when we don't, and so do our test subjects. To ease the inevitable tension, observers should learn to turn such questions back to the subject by asking, "Does it seem right to you?" and, "What do you think you should do?" With a little practice, this kind of response feels natural. It can be adjusted to match most questions – the subject asks, "Was that supposed to happen?" and you answer, "What did you think would happen?" Turning questions back to the subject often results in your getting additional data because subjects feel obliged to answer them, and they tell you more about what they're thinking in the process.
Prompting

When you simply observe subjects working silently through a task, it may appear obvious to you why they are making the choices they make. "Of course," you may think, "this one is backtracking because he isn't sure what to do next and that one is racing through choices because she is confident that they are correct. It's obvious." Don't be too sure.

At the beginning of these sessions you ask the subjects to think out loud, and the reason you do so is because it isn't always easy to tell what a subject is thinking simply by recording every click of her mouse or turn of the page in a paper prototype. Most subjects will try to comply but thinking out loud, or verbalizing one's thoughts in a continuous stream, is not a natural activity for most people. Subjects will trail off when they get busy with a task.

You need to know what they're thinking, so even though it is somewhat distracting you must prompt subjects to let you know why they're doing what they're doing. Prompt subjects who are not acting or speaking by inquiring, "Can you tell me what you're thinking now?" For subjects who are silently working through a task, take advantage of any pause to ask, "Can you tell me what you were thinking just now as you made those selections?" Both these prompts should be used in preference to any prompt that begins with "why." When you ask a subject, "Why did you make that choice?" it can sound as though you believe the subject has done something wrong. This either makes people nervous or defensive, and neither one is helpful for the test session.

Once you have prompted subjects several times, you may be pleased to find that they automatically begin to provide better verbalization. They may sit silent for a moment, then tell you what they're thinking because they have grown to expect that you will be asking. If this happens, drop the use of prompts for as long as the subjects are remembering to think out loud.
Probing

Even when you prompt subjects you may not get as much information as you really need. In response to your prompt, "What were you thinking just then?" you may hear, "Well, that choice seemed like the right one to click on." This is fine as far as it goes, but you need to know what made that choice seem like the right one to this subject. Ask, "What made that choice seem like the right one to you?" A subject who responds, "Well, since it was called 'Manufacturing Data - June' I guessed it would probably show the defective parts total for June," is on the right track. The one who responds, "None of the other choices seemed relevant. This one didn't either, but it wasn't as bad as the rest," is bringing to light a problem with your design. You won't know one case from another unless you ask.

When you ask follow-up questions like this one you are probing. In many cases if you don't probe for more information, you'll end up realizing that people were confused by parts of your prototype without knowing specifically what caused their confusion. You may even think they were doing fine when in reality they were having problems. You went to the trouble of conducting test sessions so that you wouldn't have to rely on guesses about your users and so that you would know if they're likely to have problems with your site. Don't overwhelm subjects with probing questions every time they take an action, but probe for more information when you get vague or incomplete verbalizations from subjects, because that's the way you find out what you need to know.

What to Look For

New observers usually do a fine job recording the subjects' actions. When it comes to writing down comments and other observations, though, they are not so sure what they should be looking for. Before conducting test sessions, review some of the common warning signs that should alert an observer to take note.

Subjects Getting Stuck and Giving Up on a Task

This is the easiest one because when you see this happening, you know there's a problem. Your observation sheets should show that the subject never got to the right place, and you should take plenty of notes on what the subject said during this task.

Subjects Doing Things You Didn't Expect Them to Do

When you have been involved in constructing a prototype you probably have a mental map of the "right" links to be followed for each of the tasks in a test session. A subject who says, "Well, I would look for employee addresses under the departments they work in ..." and chooses "Departments and Offices" instead of "Employee Information" (where you know the correct information to be) is not just choosing the wrong link in the prototype because she has overlooked the right one. She is telling you that what makes sense to her is different than you expected it to be. Pay attention to which "wrong" choices subjects make, not just to which "right" choices they miss.
Subjects Not Doing Things That You Expected Them to Do

As you focus on keeping track of subjects' choices, it can be difficult to notice what they are not doing. Maybe your prototype has a long list of choices at the beginning, long enough to run over onto a second page. You record subject after subject having trouble with certain tasks. Some of them follow one wrong path and some follow another; there doesn't seem to be any sense to the errors they're making, until you notice that the links they need for these tasks appear on the second page and they're not turning the page. Instead of jumping right up and instructing the subjects to notice the second page of the list, observe that your subjects are presuming all the information they need will be on the first display that they see. The action they are not taking (turning the page) tells you about their assumptions, which in turn helps you adjust the design to avoid relying on features that violate those assumptions.

Subjects Making Self-deprecating Remarks

When you have observed a number of test sessions, you'll realize that subjects often criticize themselves for problems in the design. They say things like, "Oh, I should have seen that," and "I'm really not too good with this kind of thing." These remarks are an indicator that the subjects are uncomfortable and uncertain, even if they happen to be performing correctly overall. Don't be fooled into disregarding their actions when they make self-depreciating statements; they are placing the blame on themselves, but you must place it on the design. When you hear this kind of language from subjects, reassure them that the design is at fault. Then sit up and take special note of what they're doing.

Subjects Doing Things Right but Doing So Fearfully

Listen for tentative remarks from subjects who are otherwise having little problem completing tasks. These subjects might say things like "Well, maybe I'll try this one ...," and "I don't know – I guess it's here," as they choose each link. The objective data may show that they're making correct choices, but you should also record that they do not feel confident while doing so. Probe for the cause of this uncertainty. It may simply be general anxiety about using the prototype, in which case it will probably go away during the session. When uncertainty persists, even though the subject is actually doing things right, you should recognize that the design is not supporting users well enough and capture as much data as you can to help fix the problem.

Subjects Doing Things Wrong but with Great Confidence

Don't focus on the subjects' emotional response to the exclusion of other indicators. Some people will chat cheerfully and confidently as they make one wrong choice after another. Since they don't seem frustrated and they're not complaining, it doesn't seem as if you have much to do except record their erroneous paths. Now is the time to probe for the reasons behind their choices and write down the language they use when they describe their expectations so that you have clues for how to revise the design to support them better.
Identify and Recruit Subjects

You know which profiles you are looking for to conduct your tests. Now you have to find actual people who fit those profiles and who are willing to show up for the sessions. If your organization is creating a Web site primarily for internal use, your target population is probably accessible. You may only need to explain the goals of the project in order to get enthusiastic volunteers, since the Web site will be for their benefit and they know they'll be using it.

When you are creating a site for people outside your organization, it may not be so easy to identify and recruit participants. Of course the most desirable subjects are always members of the target population, even if they aren't easily accessible to you. The team should consider seriously every possible option for recruiting "the real thing," including the possibility of advertising in the paper, contacting teams and clubs asking for volunteers, and calling individuals of the right profile to ask for their cooperation. If your organization can afford to do so, it is possible to hire recruitment agencies who will send you subjects matching your profiles. This is an expensive proposition since you pay both the agency and the subjects, and it is not likely to be necessary for these sessions.

When you can't get actual members of the target audience, examine the profiles you have identified and brainstorm with the team for sources of individuals whose profiles are similar to those of your target population. Looking for people with little computer experience and a lot of professional expertise? The local Older Americans Center or similar organization might be a good place to contact, even though your target audience may not be retirees. And of course, don't forget to find out if the people on the team know anyone who fits one of the profiles you're looking for. You may be able to find enough subjects just through the existing network of your team.

Don't assume that you have to compensate subjects; many people will be happy to participate for nothing because the experience is interesting, or because they are curious about the Web site, or simply because they want to be helpful. Many more will enjoy receiving a token gift at the end of the session. Try recruiting subjects without offering compensation first. If you can't get anyone to volunteer, then your team should discuss what you can afford in the way of compensation.

Make it clear to subjects at the time you recruit them whether their participation is to be compensated or not. If you do pay subjects, then be sure to give each one the same amount. Payments between $5 - $15 for an hour and a half session are common, and should be described as an expression of appreciation rather than compensation. If you are recruiting professional workers from outside your organization to participate in sessions during business hours, you may need to offer compensation closer to an average rate of pay for their line of work.

Conduct the Sessions

The best way to learn how to conduct sessions is to watch someone who knows how to do it. You may not get that chance, so we're presenting this section as an illustrated sample of a "typical" test
Welcome

Greet subjects and explain that this observation is one of several that will be conducted as part of the design process, that your design isn't finished, and that any trouble they have using the prototype will be the fault of the design. Tell them what's going to happen during the session; people are less anxious in any situation when they know ahead of time what will be happening. Ask if they're ready to begin, and answer any questions they have about the session.

Present the Prototype

Show the prototype notebook to your subject and explain how it simulates parts of the Web site. Be careful not to start describing how the information is structured in your prototype, or demonstrating all the different sections of the notebook. If you show the whole design to your subjects you will no longer know whether they can understand it on their own. Of course, if you are planning to present a personal demonstration of your site to everyone who will use it, then you should present that demonstration to the test subjects. Otherwise, confine this part of the session to pointing out that the codes next to each link correspond to tabs in the notebook.
Describe Thinking Aloud

Tell the subjects that you need to know what they're thinking as they work, and ask them to think aloud as they go along. Remind them to read aloud whatever they read from the prototype pages. Assure them that you know there are problems with the design, so they should not feel uncomfortable if the thoughts they are verbalizing are confused or negative.

Present Tasks

Present tasks to the subjects one at a time so the whole list doesn't look overwhelming. Sit back and let them start. Remember to prompt and probe as necessary, and respond to subjects' questions by turning
the questions back. If subjects run into technical problems with the prototype – missing pages, illegible text, incomprehensible typos – correct the problem as much as you can and get the subject back on track with the task.

Um, "Look for the schedule of courses offered in the next month to new employees ..."

Let’s see -- that’s going to be in this section here -- "Employee Resources."

I see.

Mmmm ... I don't see anything here that looks like schedules or courses ... except maybe ... no, that's not it. I guess I'll try this one -- "Employee Development."
Observe and Record Data

Fill out your observation sheets as the subjects work. Capture their choices and their comments along with any non-verbal data you feel is important. When they finish a task, present another one. If they give up on a task probe for the source of confusion as necessary, then thank them and move on to another one.

Wrap Up

When the tasks are done or your time is up, ask any follow-up questions you have planned, or any that have arisen during the session. Give the subjects time to ask questions of their own. If they haven't been able to complete a task, they often want to be shown what the "right" answer was, and there is no harm in showing them now that the session has ended. Thank the subjects for their help.
Analyze the Results

When you test a paper prototype, you may use an observation sheet for each task and assign 20 tasks to each subject. If you test 8 subjects, you can end up with 160 observation sheets when the sessions are complete. How can you make sense of so much data, especially when much of it consists of handwritten notes about what the subjects said and even how they looked while they were working?

The detailed process of analyzing results from this kind of test may change each time you do it, but the basics are straightforward. You want to get your hands on the data, look for patterns that indicate problems, diagnose the causes of the problems and create a prioritized list of revisions to apply to the prototype.

1. Get Your Hands on the Data

Assemble everyone who conducted test sessions as soon after the last session as possible, while the experience is still fresh in all your minds. Each team member reports on her sessions, describing the subjects and how they fit the required profiles, the location and length of the sessions, and what happened in general with each subject. Have team members highlight their observation sheets to indicate tasks that subjects could not complete, instances when subjects backtracked or got confused in completing a task, and other items they consider to have been significant. As a group create a master list of significant observations by having team members contribute items from their observation sheets. When one person is reporting an observation others should feel free to speak up and say that they observed the same thing in their own sessions. Team members who have not observed sessions
should make an effort to listen at this stage without interrupting the flow of observations from those who were present.

Capture the frequency of observations on the master list. Observations that occur over and over are a sure sign that the problem is likely to be experienced by many users of your site.

2. Look for Patterns That Indicate Problems

At this stage of analysis there is no single set of steps you can follow that will lead you to the right conclusions. The team will have begun spotting patterns in the data while creating the master list of observations. In fact, it may be difficult to complete the list because people will want to discuss obvious problems as they surface. It's fine to have both steps going on at once, as long as all the significant observations eventually make it on to the list.

The critical point to remember as you look for patterns is that you are identifying problems. Make conjectures about the causes of those problems now if you want to, but don't jump ahead to diagnosis and revision decisions too soon. The solution for an emerging problem may seem obvious, but big problems tend to be embedded within a design so that fixing them entails altering several parts of the design. You want to be sure of what you think you saw and what you think the problem is before you start changing your design.
3. Diagnose the Causes of the Problems
(Findings)

Once the team has created a list of problems based on their collective observations, it's time to look for the causes of those problems. By this stage of analysis it may be very clear that subjects could not find the section of your site where employee data is kept, or that they had trouble locating answers to specific questions about an undergraduate degree program. You have to figure out why they had those problems.

You will find some of your best clues for diagnosis in the comments written down by observers. When a subject says, "I was looking for 'employee records,' not 'data,'" you can guess that the name of a link doesn't match the users' language. When a subject complains, "I'm getting everything about courses but nothing about degrees ..." you may have a clue that the link for degree programs did not appear in the place where users will expect it.

The records of paths taken by subjects will also be helpful in diagnosing problems. Maybe everyone took the same wrong path and you can guess that one of the top level links is misleading them. Maybe none of your subjects chose a link that would have brought them the right information in a given task and you conclude that the name of the link was not meaningful to them.
State Your Findings as Problems with the Design

Create a list of findings describing the major problems and their causes. The cause of observed problems is always in the design, so diagnoses (or findings) are always stated in terms of the design and not the subjects. Instead of saying that "subjects missed the 'Employee Data' link because they were looking for 'Employee Records,'" state the finding as a problem with the design: "The 'Employee Records' link is not stated in the user's language." This is an important habit for the team to establish because it pinpoints design elements to be fixed and does not blame problems on your users.

4. Create a Prioritized List of Revisions to Apply to the Prototype

Once you have a list of the problems uncovered in your prototype, the team decides on revisions that will address those problems. This stage of the process usually overlaps with the previous stages, although it is important to look at all the known problems in a design together before making final decisions about changes. Sometimes the problems themselves form patterns (as in the example where subjects failed all the tasks when access to the answers appeared on the second page of a list), and those patterns suggest a different revision than you would make for each of the problems alone (adjusting lists to be shorter, rather than renaming individual items on the list).
In some cases the revisions will be so extensive, or so pervasive, that you are essentially starting over with a new design. This can be a hard decision for a team. Most of us are concerned that we not waste time in unproductive effort, and it can take a lot of courage to throw away a design we may have been excited about. The disappointment can be easier to take when the team has created a rapid prototype (not spending undue time and effort on it in the first place), and when you can remember that it's better to find problems now than it is to publish them to the world and then find them.

In most cases you will end up with a revision list that falls short of scrapping your whole design. The last step in analyzing test results is to prioritize this list. Rank the revisions according to the amount of trouble the original problems will cause for users, the ease with which users can recover from those problems when they're encountered, and the negative effect the problems are likely to have on the users' experience with your Web site.

After testing your first paper prototype, you may find that all the revisions on the list are top priority. As rounds of testing continue, you rank revisions because you probably can't, and probably shouldn't, fix everything on the list. Since usability testing takes time and effort, you should spend your redesign time on the revisions that will result in the most impact. Revisions that make the most impact end to be revisions that:

- fix big problems for the users,
- fix small problems that are very noticeable and detract from the professionalism of your site, and
- fix other problems.
Reporting the Results of Your Test Sessions

Before you go on, report the results of your test sessions to the major stakeholders for this project. Do not report that your prototype has been "verified as usable," because it hasn't. Report that you have found problems in the design now instead of later, after the site is published. If you have followed general guidelines for good design in creating your prototype, you can report these results with confidence because the problems you have found are unique to the combination of users, tasks, and conditions for this site — unknowable until you tried them out.
Revise and Retest the Prototype; Record Design Decisions

If there are still "priority one" problems in the prototype, revise it and test it again. Record the problems you have fixed in this round of testing and include an explanation of the team's reasoning for choosing the solution you did. This information will become more and more important as the project moves ahead because you will want to include some of it in your guidelines and you will turn to it when you are trying to remember what you were thinking at this stage of the process.

Moving Ahead with the Prototype

What you do next depends on what happened with your last prototype. If you didn't discover any major new problems in the last round of testing, and you found that major problems from before seemed to have been corrected, then you're ready to move the prototype to the computer.

Get Reviews from Stakeholders Before You Go On

Have your stakeholders review the prototype. Don't ask them for a detailed critique of the prototype, but have them point out any elements that seem to conflict strongly with their goals and have them explain why. It won't do you any good to put further effort into even the best prototype if it is going to be vetoed later because it is not acceptable in some way to your stakeholders.