Pair Testing

(aka Extreme Testing)

Related patterns

- Testing
- Team Testing
- Exploratory Testing

Description

Pair testing is a way of approaching a test design process by having two people test the same thing at the same time and place, continuously exchanging ideas. Even without any special method or process, the dynamics of pairing enables the generation of more and different ideas than either tester is likely to produce on his own. It's an effective complement to individual testing.

Context/Problem/Solution

Pair testing relates to at least six different context/problem/solution scenarios:

1. Testing is an open-ended search/inference process. The set of potentially interesting tests can be very large. You need to produce a large number of useful tests quickly and cheaply. **Therefore**, form testers into pairs, each tester developing his own ideas while building on the ideas of the other tester. They will also discover, in the course of those test sessions, how easily a person working alone can be a victim of tunnel vision.

2. You're a test manager. You are responsible for assessing the performance of the testers on your team, but it's hard to observe testers at work without disrupting their process. **Therefore**, form testers in pairs that work jointly, so that each tester is able to directly observe the work of other testers. Then, you can gather information for the performance review of any given tester by soliciting feedback from the other testers.

3. You're a test lead. You are responsible for coaching testers on how best to do their work, but it's difficult to help testers solely by lecturing to them or reviewing work products. **Therefore**, pair up with the tester you wish to coach, and perform a session of testing with him. The object is not merely to talk about testing, but to do it together.

4. Good testing requires a certain threshold of intellectual focus and intensity, but many factors in the workplace conspire to distract the tester and muffle the test effort. Furthermore, the pressures of a typical test project can wear down the morale of a tester, over time. **Therefore**, periodically form testers into pairs to work on the same testing at the same time, so that each tester must focus on that work, or risk letting his partner down. Also, the comradery and the running

commentary about the process, necessarily maintained by the pair in order to coordinate their efforts, tends to increase the positive energy in the process.

5. Regardless of the test approach you apply, a cohesive test team will be more successful than an equally talented group of strangers doing the same tasks. You want to help the team function better as a team, without having to interrupt the course of work. **Therefore**, periodically form testers into pairs, so that the natural course of their testing will bring them into close enough contact to learn about each other and practice communicating and resolving problems.

6. You have access to a domain expert, who understands the users of the product or the underlying technology upon which it depends. This person has insights that could allow you to discover bugs that might otherwise remain invisible until it's too late, but the expert does not know how to test. **Therefore**, pair the domain expert with an experienced tester so that their strengths will mutually complement their weaknesses.

Solution

Two testers work together to produce tests, over a period of time, continuously exchanging ideas.

Assuming that the conditions exist that enable test design, successful pair testing requires three specific conditions:

- At least one tester is available who can be trusted to test without supervision.
- Another tester is available who can join the first tester for a session of test design.
- The two testers are otherwise capable of working together.

Forces
- **Idea Exchange.** In many activities, the need to explain your ideas to another person is a burden, but in testing it can be a great benefit. That's because testing is an *idea generation* process, and the process of explaining and questioning helps pollinate new ideas. This is true even when one of the testers is much less knowledgeable than the other one. In fact, one of the authors experienced new insights into testing while paired with someone who had never tested before. Idea generation may be improved through the exchange of information among experts, the contribution of one modest idea or observation by one tester that increases the value of ideas from the other tester, or the mere act of verbalizing an idea can cause that tester to see a new possibility. Finally, a tester working alone may jump to incorrect conclusions that he will not revisit unless another tester questions them.

- **Personal factors.** We don't know very much about how personal attributes of each tester, such as temperament, skill, and experience, impact the effectiveness of pair testing. However, our experience with pair testing shows that the approach is fun and productive across virtually all experience levels and temperaments.

- **Social factors.** Obviously the testers must be able to get along and must have some level of commitment to the process. Pair testing can suffer if either tester feels defensive, dominates the interaction, or becomes frustrated with the flow of work. Also, pair testing, because it's a focused social process, can be fatiguing. By pursuing pair testing in time-boxed sessions, testers are less likely to burn out on it. Note that pair testing is a different social dynamic than team testing in groups more than two—it's harder to hide in pair testing. Pairs tend to maximize the likelihood of contribution by each tester. In the case of a manager pairing with a subordinate, this can be a good way for the manager to earn credibility by demonstrating an understanding and empathy for the problems of testing.

- **Attention flow.** The core dynamic of pair testing is the flow of attention. Pair testing requires that the testers synchronize their pace of work. They continuously share ideas and direct themselves to various problems. One way to manage the flow is to require both testers to use the same test machine at the same time. This usually takes the form of one tester who "drives" at the keyboard, while the other tester comments. Another common situation is for the non-driving tester to have at hand a stack of reference materials which he uses as needed to contribute new information to the process. The testers may temporarily split up, during their session, in order to prepare systems or collect data that helps them test better when they come back together.

- **Test strategy.** Pair testing is well suited to any test strategy that can be pursued in an exploratory and incremental manner. It especially supports test strategies that demand lateral thinking. It's less suited to rigorous, algorithmic test strategies, because idea generation is less of a factor in such cases. If the each tester specializes in a different sub-system, then as a pair they may be especially effective at system testing that examines the interaction among those sub-systems. When testing involves a manual oracle (e.g. does the output "look right"), two pairs of eyes are always much better than one. No matter what, the test strategy used should be one that both testers can contribute to.