

Extracting Insight and Confidence

From a Voyage into the Unknown



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Introduction

- Testing is an interesting part of software engineering
- We engage in voyage into the unknown, since we can't predict the results of our tests
- But what is learned when we deliver incoherent, confusing, and possibly even contradictory findings
- What do metrics of test cases and bug reports alone tell us?
- To deliver value, testing must deliver insight and confidence to project participants and stakeholders
- What problems exist with most approaches to test results reporting?
- How can we transcend those problems?
- Let's see...



Why Do We Test?

- Is testing merely a geeky bug hunt?
- Some seem to think so
- But what do others want us to accomplish?
 - Are you thinking tactically (run tests and find bugs) only?
 - Or do you also think strategically (how does testing support the organization)?
- Understanding the objectives of testing is the beginning of understanding a key problem
 - If you haven't defined the objectives, how can you succeed?
 - If you have no defined objectives, how do you measure success?



Typical Objectives of Testing

- While objectives can vary across organizations, typical ones include:
 - Find bugs, especially important bugs, and give developers the information they need to fix them (tactical)
 - Build confidence in the testing done, and ultimately in the quality of the product (strategic)
 - Reduce risk of failure upon release to an acceptable level (strategic)
 - Give project participants and stakeholders information they need to guide the project (strategic)
- The tactical objective is important
- However, what key decision-makers need are the strategic objectives



Typical Test Results Reporting (1)

- Bug result information
 - What bugs have we found?
 - Which bugs are important?
 - What bugs are fixed?
 - What bugs remain to be fixed?
- Yes, this information is important
- However, is this information complete?
- What information might be missing?
- Would this information give people outside of testing insight and confidence?
- This relates only to the tactical objective of testing



Typical Test Results Reporting (2)

- Test case status information
 - What tests have we run?
 - Which tests fail?
 - What tests pass?
 - What tests remain to be run?
- Yes, this information is important
- However, is this information complete?
- What information might be missing?
- Would this information give people outside of testing insight and confidence?
- This relates partially but incompletely to the strategic objective of building confidence



A Thought Experiment

- You have a car that you intend to take on a long trip
- You take the car to a mechanic
- They tell you they found and fixed 10 problems
- They tell you they tested 20 systems
- Are you confident?
- Do you have insight?
- Questions remain:
 - How do those problems relate to the use of the car?
 - What problems might they have missed?
 - How do those tested systems relate to the use of the car?
 - What systems remain untested?
 - How long can I rely on the car to work?
 - What is the risk of a problem during the trip?



The View from the Outside

- Start by trying to see testing from the point of view of non-testers
- Two questions I ask non-testers during assessments:
 - Do you understand the test results that are reported to you?
 - Does your understanding of the results help you do your job better?
- Sadly, the answers are usually either:
 - No, and so no: perplexed stakeholder
 - Yes, but no: irrelevant test results
- What non-testers want is insight and confidence, but they usually don't get it



What Do I Mean By That?

- Some definitions from dictionary.com:
 - Insight: penetrating mental vision...seeing the underlying truth
 - Confidence: full trust...belief in the powers, trustworthiness, or reliability of a person or thing
- The first definition relates to the question, “Do you understand the test results that are reported to you?”
- The second definition relates to the question, “Does your understanding of the results help you do your job better?”
- When was the last time you asked your non-tester colleagues these two questions?



Bridging the Insight and Confidence Gap

- Start by asking the two questions I posed
 - If they don't understand the test results, understand why
 - If they do understand the results, but can't use them, understand why
- Examples of questions to answer:
 - How do the test results confuse you?
 - What additional information do you need from me?
 - What test results do you consider irrelevant and why?
 - How frequently would you like to receive information?
 - How can I deliver insight and confidence to you more quickly?



What Causes the Gap?

- There are various causes, which can include:
 - Finding lots of bugs, especially using reactive test techniques, is easy and fun, so they focus too much on it
 - Reporting test case results is an obvious and relatively simple need to satisfy, so they answer that question
 - Testers rely on the built-in and generally poor test results reporting facilities in their test management tools
 - Testers understand their work at a tactical level, as do most line-level workers, so they focus on their zone of competency
 - Testers get lost in the infinite cloud of tests that they *could* run, without stopping first to define what they *should* test
 - Testers see themselves as quality cops, so they set up quality gates for release
- Not all testers make all these mistakes, but many testers make one or more
- I have made each of these mistakes at least once in my career



Fixing the Problem

- After you have carefully listened to your stakeholders, develop a plan to fix the problem
- Study the answers they gave to your questions
- Consider the mistakes I listed on the previous slide
- Do a Pareto analysis to determine which causes are the most significant in terms of undermining insight and confidence
- Put together a plan to address the vital few (the 20% of causes behind 80% of the problem)
- The immediate temptation will be to focus on tooling – resist that temptation
- Eventually, tool support for the solution may be necessary, but don't make the mistake of anchoring your thinking by immediately focusing on the tool



Conclusions

- Delivering raw, unfiltered test results is not the same as delivering insight and confidence
- Understand what you're trying to accomplish, in terms of specific objectives
- Evaluate your test results, in terms of whether they cover the objectives adequately
- Look at your results reporting from the outside perspective
- Plan to fix the (important) problems that interfere with providing insight and confidence



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