Exploratory Testing: Revolution Or Evolution?

Sven Sambaer

CTG
Outline

- **Introduction**
- Making your ET manageable
- ET: Pro & Con
- When to apply ET?
- How to include ET in your Testing Project?
  - Test Project Preparation & Planning
  - Test Build & Execution
  - Test Management & Test Project Closure
- Conclusion
- Resources
Conclusion

- ET is a valuable technique in modern test approaches
- The most effective test strategies are a combination of ST and ET

HOWEVER

- ET should not be a free pass to unstructured testing practices
- Some activities should never have an exploratory character: test strategy, test planning and test mgmt, as they are the basis for delivering project intelligence
- As projects are more “agile” and “exploratory”, the test manager’s job becomes even more crucial
Resources

- James Bach, 2003, Heuristic Test Strategy Model
- Stefan Steurs, Exploratory Testing – De kip of het Ei, TI-KVIV 2004
- Tim Koomen, 2005, ET – Knuffelen of knevelen?
- James Bach, 2001, What is Exploratory Testing
- Tinkham & Caner, Exploring Exploratory Testing
- James Bach, 2003, Exploratory Testing Explained
- James Bach, 2003, Inside the mind of an Exploratory Tester
- James Bach, 2001, Where does Exploratory Testing fit?
- James Bach, 2001, Exploratory Testing and the planning myth
- Lee Copeland, 2001, Exploratory Planning
- Elisabeth Hendrickson, 2004, Agility for Testers
- Rex Black, 2005, The importance of the right technique
- William Rollinson, 2005, Face-Off: Structured vs Exploratory Testing and Error
- Andrew Thompson, 2005, How to Choose between Exploratory and Scripted Testing
- James Lyndsay, 2004, Getting a grip on Exploratory Testing
- Brian Marick, 2003, Testing in the Agile World
- Brian Marick, Agile Methods and Agile Testing
How to include ET in your testing project?

- Let us consider a typical testing process:

  - Follow-up, status reporting, defect mgmt, etc.
  - Review docs, improve process quality, etc.
  - Define test strategy, test approach, test plan
  - Document test specs, set up test infrastructure
  - Execute the tests
  - Evaluate test process, consolidate test deliverables, write test report

CTG’s STBox™ Methodology
Test Project Preparation & Planning

- **Test Strategy:**
  start with an FTT List (FTT = Features To Test)

- **Decide which techniques should be used to test a particular FTT**
  (e.g. Exploratory Testing)

- **Best approach =**
  Hybrid approach: Mix of ST and ET

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### Example of an FTT List

<table>
<thead>
<tr>
<th>ID</th>
<th>Prio</th>
<th>Features To Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>FUNCTIONAL TESTING</td>
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<tr>
<td>1.1</td>
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<td>NOTEPAD ENGLISH</td>
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<tr>
<td>1.1.1</td>
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<tr>
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<td>M</td>
<td>NEW</td>
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<td>1.1.1.1.2</td>
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<td>OPEN</td>
</tr>
<tr>
<td>1.1.1.1.3</td>
<td>M</td>
<td>SAVE</td>
</tr>
<tr>
<td>1.1.1.1.4</td>
<td>L</td>
<td>SAVE AS</td>
</tr>
<tr>
<td>1.1.1.1.5</td>
<td>M</td>
<td>PAGE SETUP</td>
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<td>1.1.1.1.6</td>
<td>H</td>
<td>PRINT</td>
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<tr>
<td>1.1.1.1.7</td>
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</tr>
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<td>1.1.1.2</td>
<td></td>
<td>EDIT</td>
</tr>
<tr>
<td>1.1.1.2.1</td>
<td>L</td>
<td>UNDO</td>
</tr>
<tr>
<td>1.1.1.2.2</td>
<td>M</td>
<td>CUT / COPY / PASTE</td>
</tr>
<tr>
<td>1.1.1.2.3</td>
<td>H</td>
<td>DELETE</td>
</tr>
<tr>
<td>1.1.1.2.4</td>
<td>M</td>
<td>FIND / FIND NEXT</td>
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<tr>
<td>1.1.1.2.5</td>
<td>L</td>
<td>REPLACE</td>
</tr>
<tr>
<td>1.1.1.2.6</td>
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<td>GO TO</td>
</tr>
<tr>
<td>1.1.1.2.7</td>
<td>L</td>
<td>SELECT ALL</td>
</tr>
<tr>
<td>1.1.1.2.8</td>
<td>L</td>
<td>TIME DATE</td>
</tr>
<tr>
<td>1.1.1.3</td>
<td></td>
<td>Etc.</td>
</tr>
</tbody>
</table>

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ET  ST  ST + ET  Etc.
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Test Management & Test Project Closure

- P.Gerrard: the real added value of testing = Generation of PROJECT INTELLIGENCE (= information provided to project management that allows them to make informed, rational decisions)
- Test managers should translate the feedback from exploratory testers into project intelligence
- Project intelligence should be delivered via dashboards and test manager should give tangible advice (e.g. “what are the risks if we release today?”)
Test Build & Execution

• Session-Based Test Management:
  • Exploratory Test effort is divided in test sessions (usually 90 minutes)
  • Charters describe in 1 or 2 sentences how you will spend the next 90 minutes of testing
• Testing heuristics can help testers to generate ideas
• Oracle heuristics are useful when an exact description of the expected result is not available. E.g. HICCUPP (James Bach)
Test Build & Execution

- Charter-based ET (Charters = FTT’s)
  - The test manager specifies the charters
  - The testers go off on their own, build and execute the tests to fulfill the charters
  - The testers report back to the test manager
  - The test manager uses an instrument such as the FTT list to steer the testing process

⇒ ET should always be at least charter-based (Freestyle ET is not a best practice)
Test Project Preparation & Planning

- **Test Planning:** ET is a planned activity!
- **Planning is always a dynamic process of planning, re-planning, re-planning, etc.** (cf. “Exploratory Planning” – Lee Copeland)
How to include ET in your testing project?

Should never be done in an exploratory or agile way !!!

Here’s where ET fits in!
When to apply ET?

- A new tester enters the team: turn the learning phase into active testing
- Quick assessment
- When new information comes to light during ST execution
- Validating the work of another tester
- When you have testers with high domain knowledge and testing skills
- Intake test / smoke test
- When there is no test basis
- In agile projects
- Investigate or isolate a particular defect
- Investigate the status of a particular risk
- In early iterations
- During β testing to get early feedback from users
- In addition to ST, to diversify testing
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ET - Advantages

- Allows creativity
- Increases the chance of finding new or other bugs
- More time to test interesting and complex cases
- More efficient (finding more bugs in a shorter time frame)
- Provides a quick assessment
- More fun
- Reveals the ease of use of an application
- Adaptable and flexible
ET - Disadvantages

- Limited manageability
- Limited “project intelligence” (risks, coverage, test depth)
- Limited reusability & reproducibility
- Dependency on testing skills and domain knowledge
- Redundant tests when combined with ST
- Low accountability
- Uncertainty that most important bugs have been found
- Not suitable for security testing, performance testing, etc.
- Not suitable for tests that are complex to set up and tests with slow feedback loop
- Can only start when test object is available (situated on critical path of the project)
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Making ET manageable

- **Spectrum:**
  - Freestyle ET
  - Charter-Based ET
  - Session-Based Test Management

- **Manageability aspects:**
  - Charters
  - Sessions
  - Session sheets
  - Session logs
  - Debriefings
  - Dashboards
  - Etc.
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The Discussion

Scripted Testing (ST) vs. Exploratory Testing (ET)

- Formality vs. Informality
- Procedures vs. Freedom
- Uniformity vs. Creativity
- Manageability vs. Efficiency
- Etc.
What is Exploratory Testing? (ET)

- Simultaneous learning, test design and test execution;
- Any testing to the extent that the tester actively controls the design of the tests as those tests are performed and uses information gained while testing to design new and better tests

- Scientific thinking in real time
- Creative
- Flexible
- Intuitive
Technique or Approach?

• An approach should cover 3 key aspects:
  • Process
  • People
  • Technology

• ET only covers (part of) the Process aspect

⇒ ET = Technique
Is ET = Agile Testing?

- **NO !!!!!**
  Agile Testing = Approach
  Exploratory Testing = Technique (very suitable for Agile Testing projects)

- Agile manifesto:
  - Short iterations
  - Continuous integration
  - Lots of communication
  - Welcoming changing requirements
  - High involvment of business people
  - Not writing documents about the software but developing the software itself
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## Is ET = Agile Testing? (2)

<table>
<thead>
<tr>
<th>Exploratory Testing</th>
<th>Agile Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>A technique which can be applied in all kinds of development projects</td>
<td>A philosophy / approach (e.g. daily stand-up meetings, pair testing, co-location of testers &amp; developers, drop-in meetings, test-driven development, etc.</td>
</tr>
<tr>
<td>Not necessary iterative</td>
<td>Always iterative</td>
</tr>
<tr>
<td>Delivers very little documentation prior to test execution</td>
<td>In some cases documentation is created in early phase (e.g. acceptance tests)</td>
</tr>
<tr>
<td>Not suitable for test automation</td>
<td>Promotes test automation</td>
</tr>
</tbody>
</table>