Demystifying Exploratory Testing

Peggy Schretter
Trustmark Companies

Objectives

This session is NOT about test techniques or how to test a product.

This session is about Exploratory Testing and after you should know:

1. What is Exploratory Testing?
2. What kind of skills do you need and how do testers develop these skills?
3. Various key concepts of ET
4. Advantages and Disadvantages
5. How to manage an exploratory test team

Exploratory Testing Definition

"Exploratory testing involves simultaneously learning, planning, running tests, and reporting / troubleshooting results."

Dr. Cem Kaner (2001)

"Exploratory testing is an interactive process of concurrent product exploration, test design and test execution."

" To the extent that the next test we do is influenced by the result of the last test we did, we are doing exploratory testing."

James Bach, Satisfice (2001)

What is Exploratory Testing?

- Manual testing by professional skilled testers
- Freedom, flexibility and fun for testers
- Controllability, reliability and high quality for managers
- Optimized to find defect
- Continually adjusting plans, re-focusing on the most promising risk areas
- Following hunches/intuitions based on previous test validation results
- Minimizing time spent on documentation

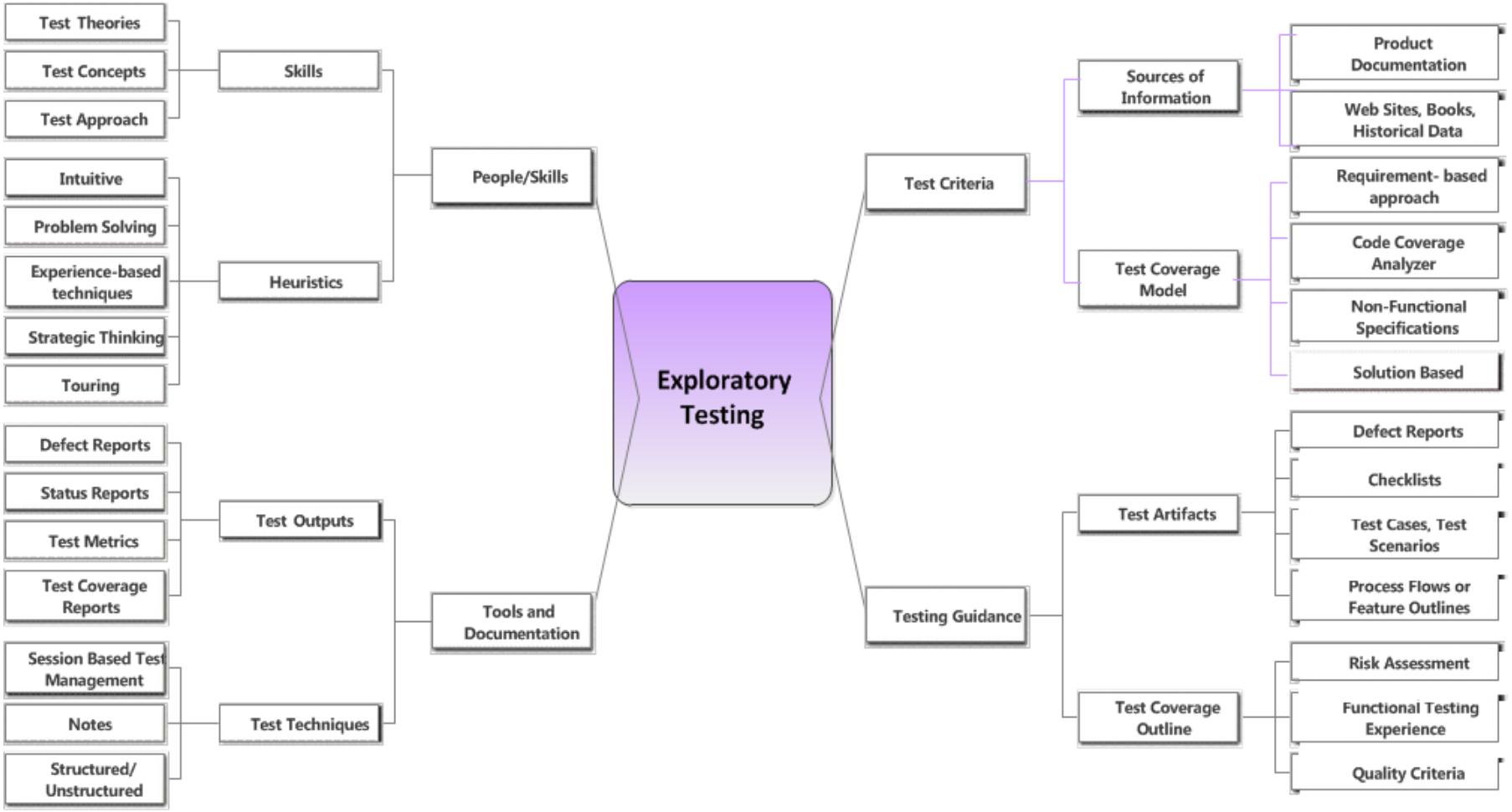
Focus on manual validation **– making testing activities agile**

Exploratory Testing

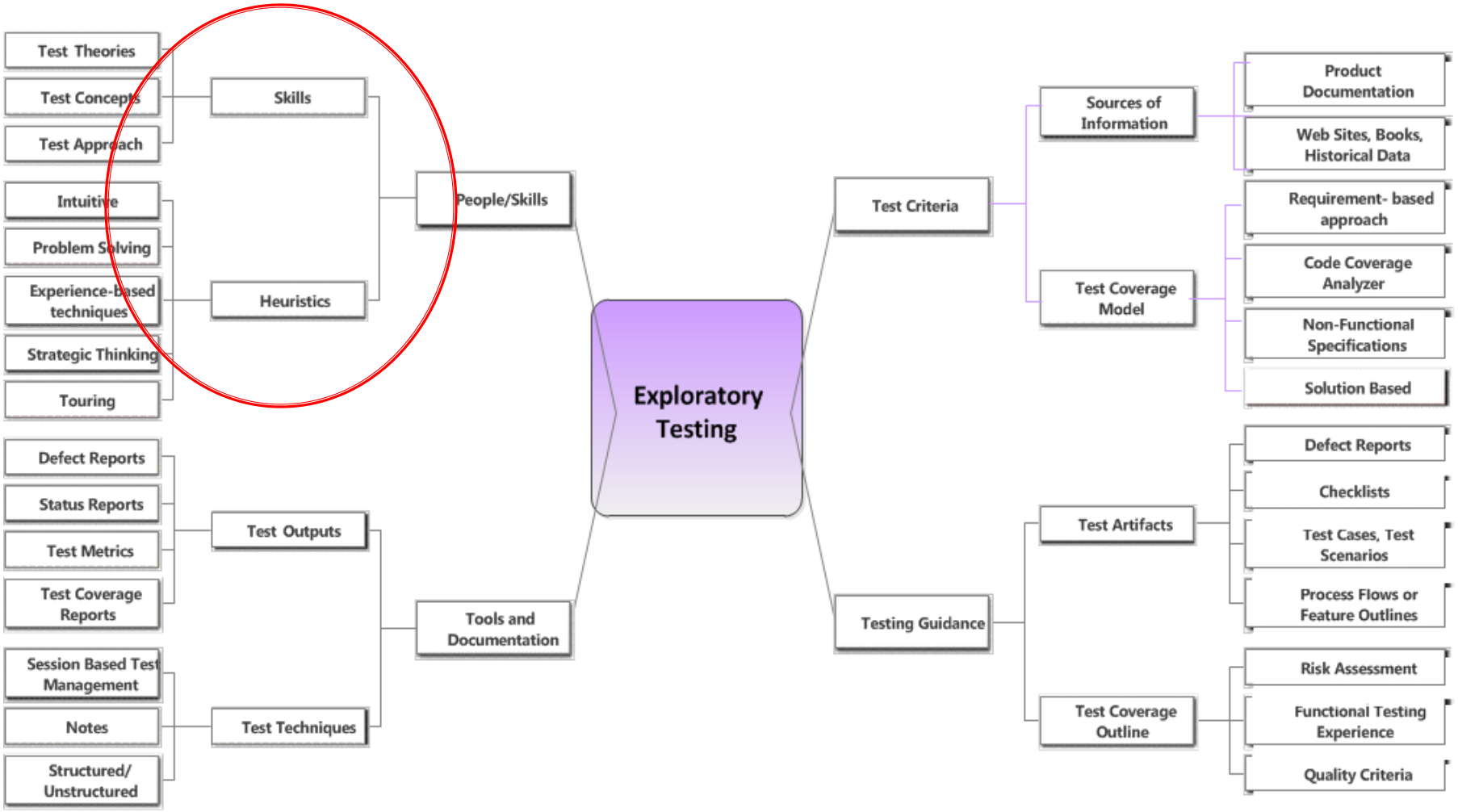
Exploratory testing seeks to find out how the software actually works, and to ask questions about how it will handle difficult and easy cases.

- Design is developed by the answers to the previous questions
- Parallel design while executing tests
- Testers leverage skills and knowledge to learn about the system under test, ”thinking-while-testing”

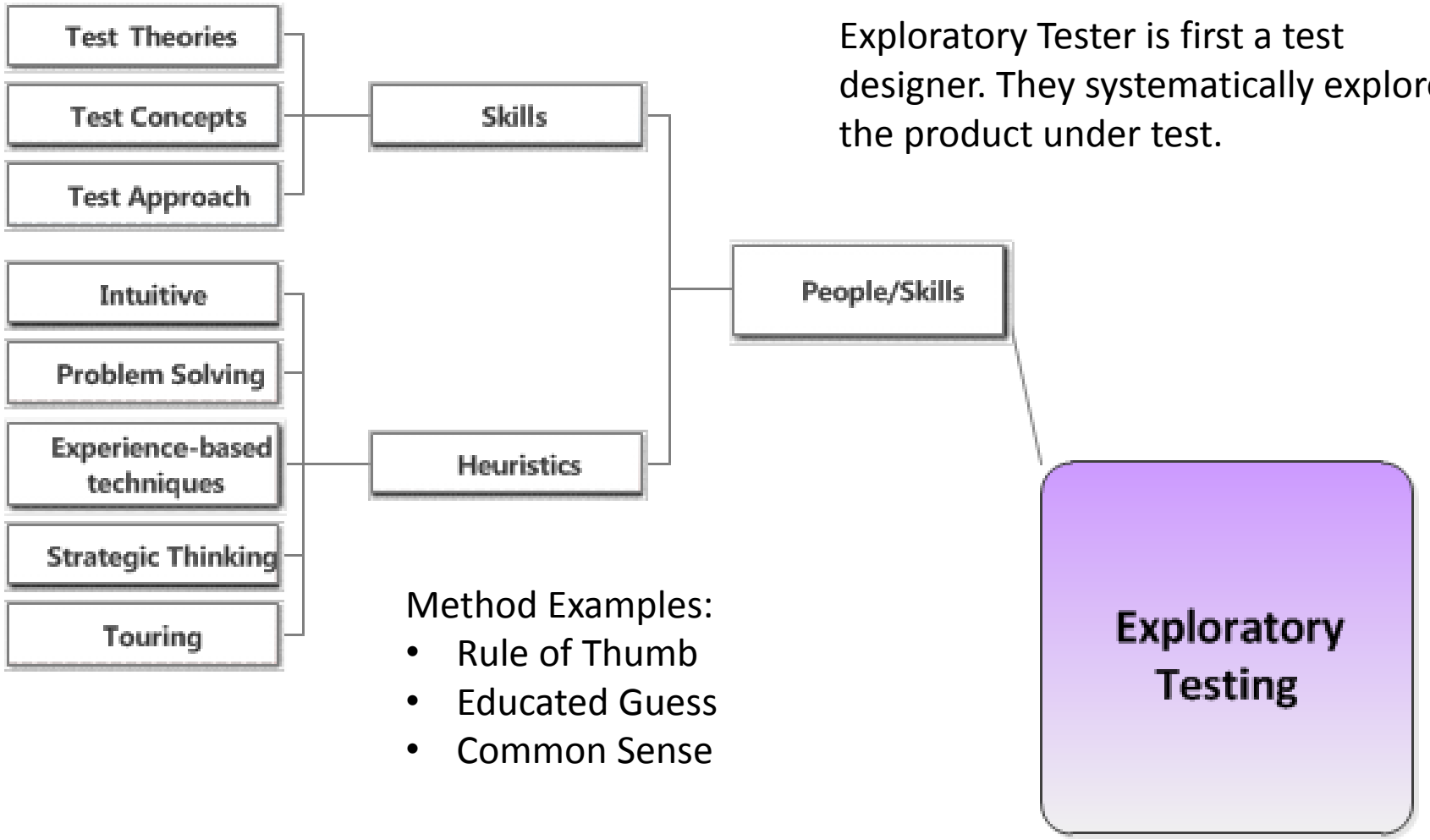
Exploratory Testing – Mind Map



Exploratory Testing – Mind Map



Exploratory Testing – Mind Map



Exploratory Tester is first a test designer. They systematically explore the product under test.

Method Examples:

- Rule of Thumb
- Educated Guess
- Common Sense

Exploratory Testing Skills

The quality of the testing is dependent on the tester's skill of inventing test cases and finding defects. The more the tester knows about the product and different test methods, the better the testing will be.

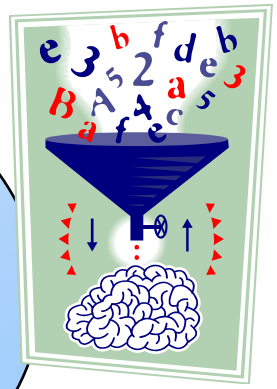
- Intuitive questioning – based on experiences or knowledge
- Idea generation – “Focuses on models to look at AUT in different ways”
- Systematic thinking approach – guides repeatability and consistency
- Communication – able to explain strategy and approaches
- Investigational –guides the process based on learned results

An Exploration

Epistemology – the Study of Knowledge

Epistemology is the study of how we know what we know. The philosophy of science belongs to Epistemology.

All good testers practice Epistemology.

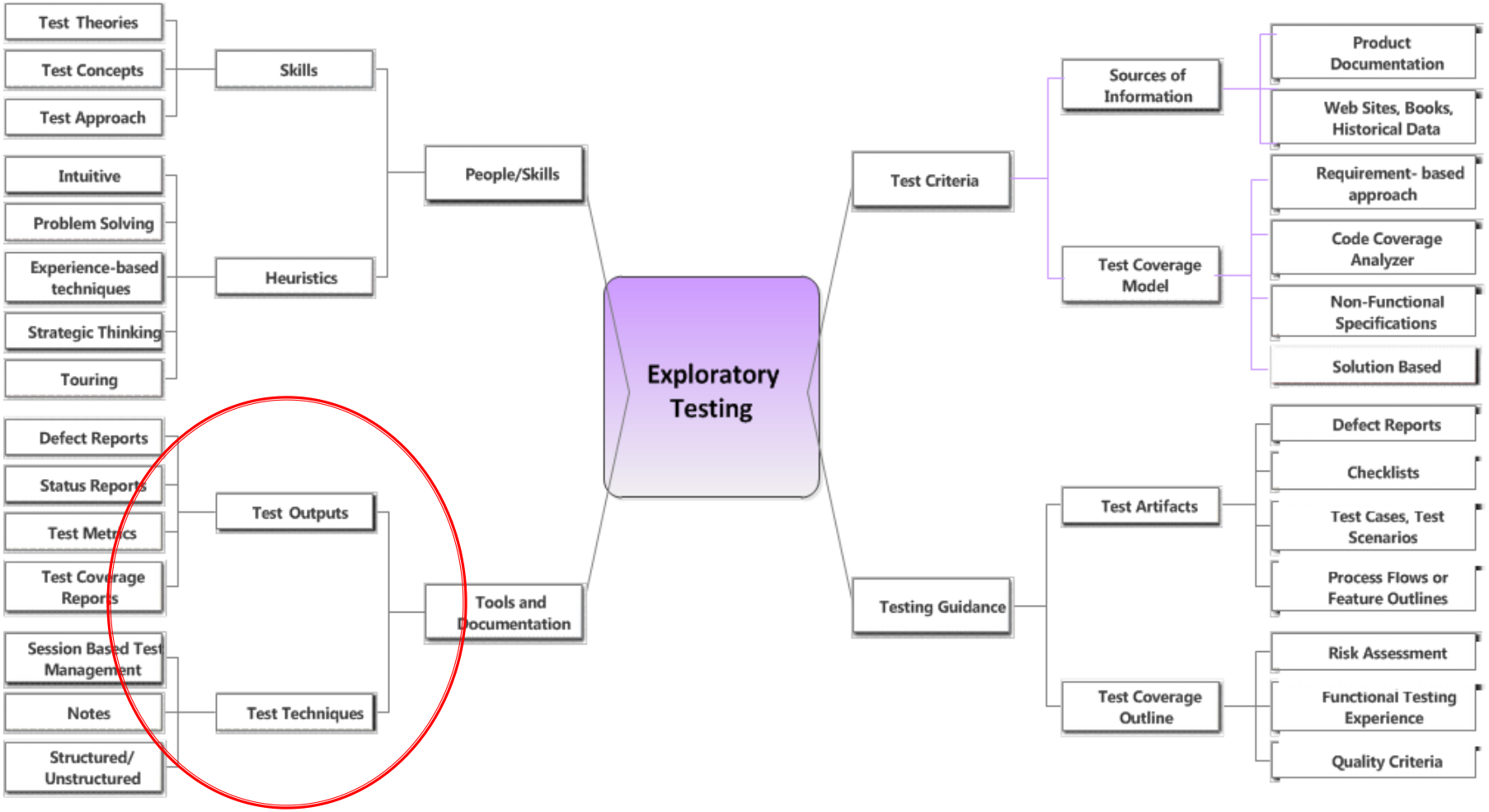


Basic Skills of Epistemology

All good testers practice Epistemology in their ability to:

- Pose useful questions
- Observe what's going on
- Describe what they perceive
- Think critically about what they know
- Recognize and manage bias
- Form and test assumptions
- Think strategically
- Analyze and reveal useful information

Exploratory Testing – Mind Map



Exploratory Testing Process

Why Do We Need Exploratory Testing?

- Helps in revealing many unknown and un-detected bugs, which is very hard to find out through normal testing.
- Helps in improving productivity in terms of covering the scenarios in scripted testing and those which are not scripted
- Helps testers in confirming their understanding of the application and its functionality, hence covering the most important part of requirements
- Helps testers in learning new methods, test strategies, and also think out of the box and attain more creativity

Exploratory Testing versus Ad-Hoc testing

Exploratory testing:

1. Done while a tester explores
2. Performed by walk through the product
3. Interactive test process with defined quality objectives
4. Defined specific tasks, objectives and deliverables

Ad-hoc testing:

1. Informal way of testing
2. Performed once the product is ready
3. Interactive but not defined anywhere
4. No specific tasks, objectives and deliverables

When to use Exploratory Testing?

- A common goal of exploration is to *probe* for weak *areas* of the program.
- Test team's resource consumption per week:
  - 25% of the group's time developing new tests
  - 50% executing old tests (including bug regression)
  - 25% on exploratory testing

Cem Kaner (2001a)

Exploratory Testing – A Profoundly Situational Practice

Benefits and Drawbacks

Advantages:

- Less Preparation is needed
- Earlier identification of defects
- Approach intellectually stimulating
- Based on deductive reasoning of previous results
- Information gained while testing to design new and better tests

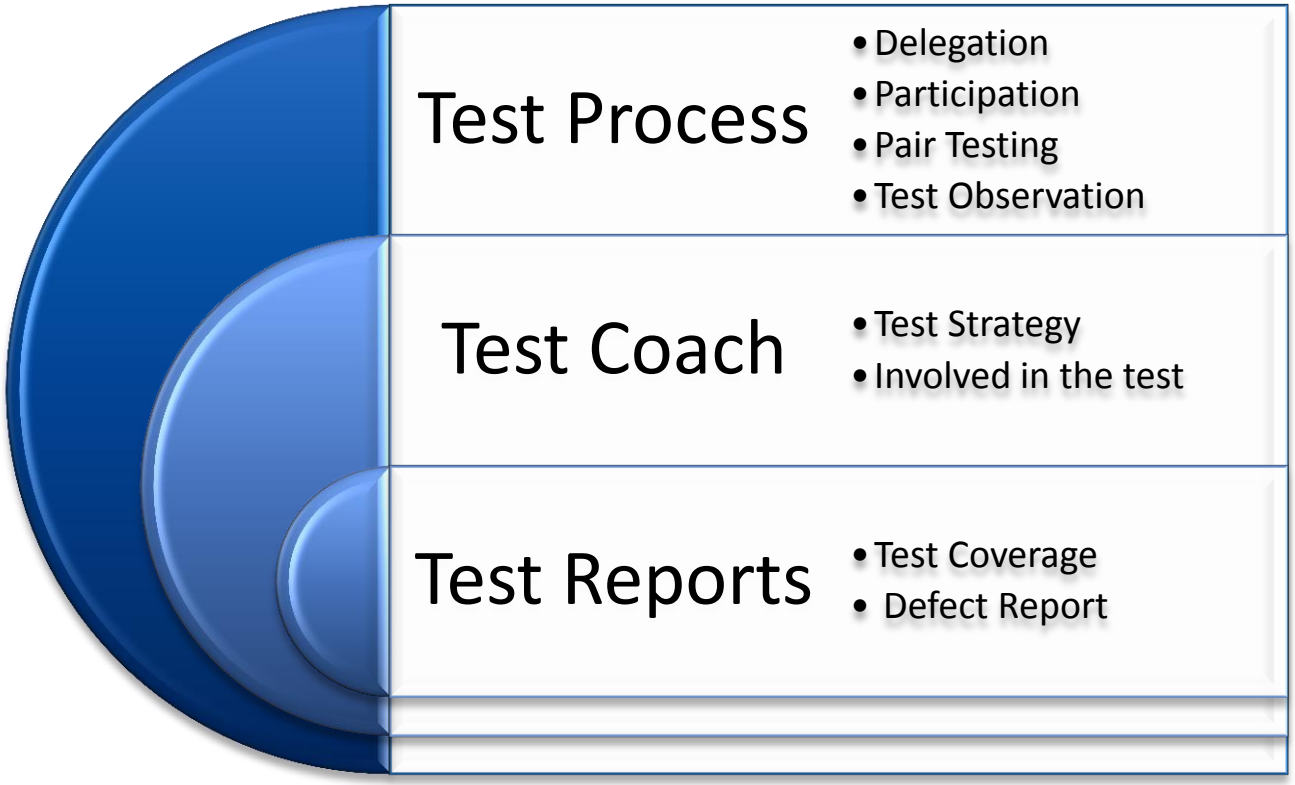
Benefits and Drawbacks

Disadvantages:

- Tests are not eligible for advanced inspections
- Difficult to show which tests have been executed
- Freestyle exploratory test ideas, when revisited, are unlikely to be performed in exactly the same manner
- Limited documentation to repeat specific details of the earlier tests.

Practical Exploratory Testing

Managing Exploratory Testing



Conclusion

Exploratory testing is interpreted in many ways. Don't let fear, doubt or uncertainty get in the way of the possibilities to expand your testing.

<u>Practice</u> exploratory testing and if your testing is adding value to your team's effort, you are doing it RIGHT!

References

- Beck, K., *Test-Driven Development by Example*, Addison-Wesley, 2003.
- Crispin, L., T. House, *Testing Extreme Programming*, Addison-Wesley, 2003.
- Kaner, C., J. Bach, B. Pettichord, *Lessons Learned in Software Testing*, John Wiley & Sons, 2002.
- Cem Kaner, *A Tutorial in Exploratory Testing*,
- Kaner, Falk, and Nguyen, *Testing Computer Software (Second Edition)*, Van Nostrand Reinhold, New York, 1993. p. 6, 7-11.
- Cem Kaner, James Bach, *Exploratory & Risk Based Testing*, 2004