Learning Styles and Exploratory Testing

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Topics of Discussion

- Exploratory testing
- Learning Styles

Why Should You Care?

- Learning styles theory may predict the kinds of testing techniques you might prefer
- Being aware of style preferences presents new opportunities
  - Other techniques you might also prefer
  - Reminders of techniques you may not normally prefer (or think of)

Exploratory Testing

- Simultaneous learning, planning and execution
- Performed by nearly all testers at least part of the time during their jobs
  - Defect analysis
  - Odd occurrence investigation
- Asking questions of application

Approaches to Exploration

- Tester generally has an overall purpose (charter) in mind though the general approach may differ from tester to tester
- Many different approaches for creating & using exploratory tests
  - Not mutually exclusive
  - Individual testers adopt a subset of these strategies

Accomplishing Charter

- Many different ways to accomplish exploratory charter
- Choice varies by tester based on
  - Past experience
  - Specific skills
  - Detailed knowledge
  - Personality aspects
  - ***Learning style***

Learning Styles

- "Characteristic strengths and preferences in the ways [people] take in and process information" *(Richard Felder, "Matters of Style")*
- May change slowly over time or vary over differing subject areas

Learning Styles Cautions

- Learning styles are only preferences
- People can express tendencies from both sides of a continuum
- Each type has strengths and weaknesses
- Descriptive, not normative
  - No “best pattern” of results
  - No inherent superiority of any placement

Felder-Silverman Learning Styles Model

- 5 continua
  - Sensory/Intuitive
  - Visual/Verbal
  - Inductive/Deductive
  - Active/Reflective
  - Sequential/Global

Where do you fall?

Sensory People

- Rely on info perceived through external senses
- Generally attentive to details
- Usually observant
- Favor facts and observable phenomena
- Patient with detail
- Prefer problems with well-defined standard solutions
- Dislike surprises and complications that make them deviate from the solutions

Intuitive People

- Rely on internal information (memory, conjecture, interpretation)
- May be bored by details
- Easily handle abstraction
- Good at grasping new concepts
- Often imaginative and insightful

Visual People

- Retain more information they get from visual images
  - Pictures
  - Movies
  - Diagrams
  - Demonstrations
- May have problems remembering information they simply hear
- Majority of people (at least in Western cultures)

Verbal People

- Retain more information they hear and read
  - Lectures
  - Written words
  - Mathematical formulas
- Think in words more than pictures

Inductive People

- Prefer to start with specifics and derive the generalities
- Like to be given a set of facts, observations, or an example & tease out the fundamental principles
- "The natural human learning style" *(Felder & Silverman)*
- Often need to see the motivation for learning something

Deductive People

- Start with generalities and apply to specific situations
- Learn basic principles & determine how to apply them
- "The natural human teaching style"

Active People

- Need to do something with information as soon as they get it
- Might discuss information with others or experiment with the information
- Tend to like to work in groups
- Like to find solutions that work
- In general are the people who design and carry out the experiments

Reflective People

- Think about information before they use it
- Prefer to work alone or with at most one other person whom they trust
- Need time to mentally manipulate the information to see what they can get from it
- Define the problems that need to be solved

Sequential People

- Learn material in a logically ordered progression
- Incrementally build on the knowledge they have already learned
- Strong in convergent thinking and analysis
- Solve problems in ways that make sense to other people

Global People

- Tend to see the big picture
- Spend a period of time not understanding until something clicks
- Tend to be more apt to see connections (often to completely different disciplines)
- May seem to leap directly to solutions (skipping intermediate steps)
- May need to fully understand something before working with it

Theoretical Predictions

- A large component of exploratory testing is learning
- Learning styles may affect how people perform testing activities
- The following slides are some theoretical predictions of ways that styles might correlate with testing
- We'll be investigating these more

Sensory Testers

- Might focus on actual observations of software
- Solutions that have worked in the past for specific bugs
- More likely to begin testing prior to creating models
- More apt to consult specifications
- Learning based on experimenting on the product
- Doing research to predict the behavior

Intuitive Testers

- Focus on internal models of the software being tested
- Risk-based approach to testing, trying to think of ways the program can fail
- Like it when mental models are proven to be incorrect

Visual Testers

- Tend to work off an internal picture-based model
- Tend to use visual portrayals of the steps for their tests
- Take notes while they explore by making diagrams and pictures

Verbal Testers

- Tend to use textual-based models
- Take verbal notes while they explore
- More apt to choose the detailed specs to work from than models

Inductive Testers

- Gather as many specifics as possible and generalize to the application
  - Techniques
  - Potential defects
  - Changes made to the application
  - Application history
  - Defect reports
  - Tech support database
  - Published documents on the application or similar products

Deductive Testers

- Keep a collection of general principles and heuristics and then find ways to apply them
- Many traditional testing techniques are deductive – testers learn a skill and figure out how to apply it in their current situation

Active Testers

- Do very hands-on testing
- Perform test cases rapidly
- View each test case as an experiment
- Bounce ideas and results off other members of the group to solicit feedback

Reflective Testers

- Perform far fewer tests
- Tend to do tests that are more likely to find bugs
- Prefer to work alone & thus may seem anti-social
- Tend to develop more complex tests and scenarios

Sequential Testers

- Seem to get off to a faster start
- Build test plans as they go
- Work with however much information they have
- Able to explain tests clearly to people after they have performed them
- Will have tests grow in complexity over time as they gain deeper understanding of system

Global Testers

- Get off to a slower start
- May have problems understanding the point of the application
- Able to create detailed, complex scenarios that draw on connections others might not see (once they get the critical piece of information)

Key Points

- Knowing where you fall on the continua can help you understand yourself better
- Your preferences can help you find new techniques that fit your style
- Don’t be blind to things outside your preferences

Your Turn

- Questions?
- Feedback?