

**HOW TO
BE AN
EXPLORER
OF
SOFTWARE**

PORTABLE ART LIFE MUSEUM

KERI SMITH

@HUIBSCHOOOTS

ACKNOWLEDGEMENTS

THANK YOU:

- KERI SMITH FOR YOUR INSPIRATION!
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- OBVIOUSLY JAMES BACH AND MICHAEL BOLTON FOR SHARING THEIR KNOWLEDGE ABOUT RAPID SOFTWARE TESTING

SOME SLIDES ARE TAKEN FROM RAPID SOFTWARE TESTING AND ARE USED WITH PERMISSION. RAPID SOFTWARE TESTING IS DEVELOPED BY JAMES BACH AND MICHAEL BOLTON. SEE ALSO: HTTP://WWW.SATISFICE.COM/INFO_RST.SHML

MANY OF THE PICTURES ARE TAKEN FROM THE BOOK “HOW TO BE AN EXPLORER OF THE WORLD”. THIS BOOK IS WRITTEN BY KERI SMITH AND PUBLISHED BY PENGUIN BOOKS.
BUY THIS BOOK AND PRACTICE!

art by & inspired by **KERI SMITH**



KERI SMITH
IS AN
AUTHOR/
ILLUSTRATOR
TURNED
GUERRILLA
ARTIST



AGENDA FOR TODAY

- INTRODUCTION
- PART I: OBSERVATION
- WHAT IS TESTING?
- PART II: COMPARE
- PART III: ANALYSIS
- PART IV: COVERAGE
- PART V: TESTING STORY



I WILL ASK MANY DIFFICULT AND CRITICAL QUESTIONS (A.K.A. SOCRATIC METHOD). I ASK THEM BECAUSE IT IS IMPORTANT TO FULLY UNDERSTAND THE CONCEPTS WE DISCUSS TODAY. JUST SAY "**PASS**" OR "**HELP ME**" IF YOU DON'T FEEL COMFORTABLE.



INSTALL SOFTWARE

REDNOTEBOOK

<HTTP://REDNOTEBOOK.SOURCEFORGE.NET/DOWNLOADS.HTML>





INTRODUCTORY DISCUSSION...

DISCUSS:

- **WHAT IS TESTING?**
- **WHAT DO TESTERS DO?**
- **WHAT MAKES TESTING EXPLORATORY?**



FIRST EXERCISE

- MAKE GROUPS OF 4
- ANSWER THIS QUESTION:
“WHAT DO YOU DO WHEN YOU TEST?”
NAME ACTIVITIES AND SKILLS
- CREATE A FLIPCHART WITH YOUR ANSWERS

ANY QUESTIONS?



DEFINITIONS

- **ACTIVITY:**

A THING THAT A PERSON OR GROUP DOES

- **SKILL:**

**THE ABILITY TO DO SOMETHING WELL.
SOMETHING CAN BE LEARNED AND
PRACTICED.**

A magnifying glass with a black handle is positioned diagonally across the frame. The lens is focused on the word "DEBRIEF", which is written in large, bold, black, sans-serif capital letters. The magnifying glass casts a soft shadow on the surface below it.

DEBRIEF

DEFINITIONS

- ACTIVITY:

A THING THAT A PERSON OR GROUP DOES

- SKILL:

THE ABILITY TO DO SOMETHING WELL.
SOMETHING CAN BE LEARNED AND PRACTICED.

- TRAIT/CHARACTERISTIC:

YOUR NATURAL ABILITIES. THEY ARE A PART OF
WHO YOU ARE, WHAT YOU DO AND WHY YOU DO IT.
CANNOT BE TRAINED. BUT CAN BE ENCOURAGED OR
DISCOURAGED.

YOU ARE AN EXPLORER.

YOUR MISSION IS TO DOCUMENT
AND OBSERVE THE WORLD
AROUND YOU AS IF YOU'VE
NEVER SEEN IT BEFORE.
TAKE NOTES. COLLECT THINGS
YOU FIND ON YOUR TRAVELS.
DOCUMENT YOUR FINDINGS.
NOTICE PATTERNS. COPY. TRACE.
FOCUS ON ONE THING AT A
TIME. RECORD WHAT YOU ARE
DRAWN TO.



HOW TO BE AN EXPLORER OF THE WORLD.

1. ALWAYS BE LOOKING.

(NOTICE THE GROUND BENEATH YOUR FEET.)

2. CONSIDER EVERYTHING ALIVE & ANIMATE.

3. EVERYTHING IS INTERESTING. LOOK CLOSER.

4. ALTER YOUR COURSE OFTEN.

5. OBSERVE FOR LONG DURATIONS (AND SHORT ONES).

6. NOTICE THE STORIES GOING ON AROUND YOU.
7. NOTICE PATTERNS. MAKE CONNECTIONS.
8. DOCUMENT YOUR FINDINGS (FIELD NOTES) IN A VARIETY OF WAYS.
9. INCORPORATE INDETERMINACY.
10. OBSERVE MOVEMENT.
11. CREATE A PERSONAL DIALOGUE WITH YOUR ENVIRONMENT. TALK TO IT.
12. TRACE THINGS BACK TO THEIR ORIGINS.
13. USE ALL OF THE SENSES. IN YOUR INVESTIGATIONS.

AFTER READING THIS LIST A FEW TIMES IT
OCCURRED TO ME THAT...

ARTISTS AND SCIENTISTS ANALYZE THE
WORLD AROUND THEM IN SURPRISINGLY
SIMILAR WAYS.

AND TESTERS DO TOO!

OBSERVE
COLLECT
ANALYZE
COMPARE
NOTICE
PATTERNS

PART 1



EXPLORATION #1

RIGHT WHERE YOU ARE SITTING

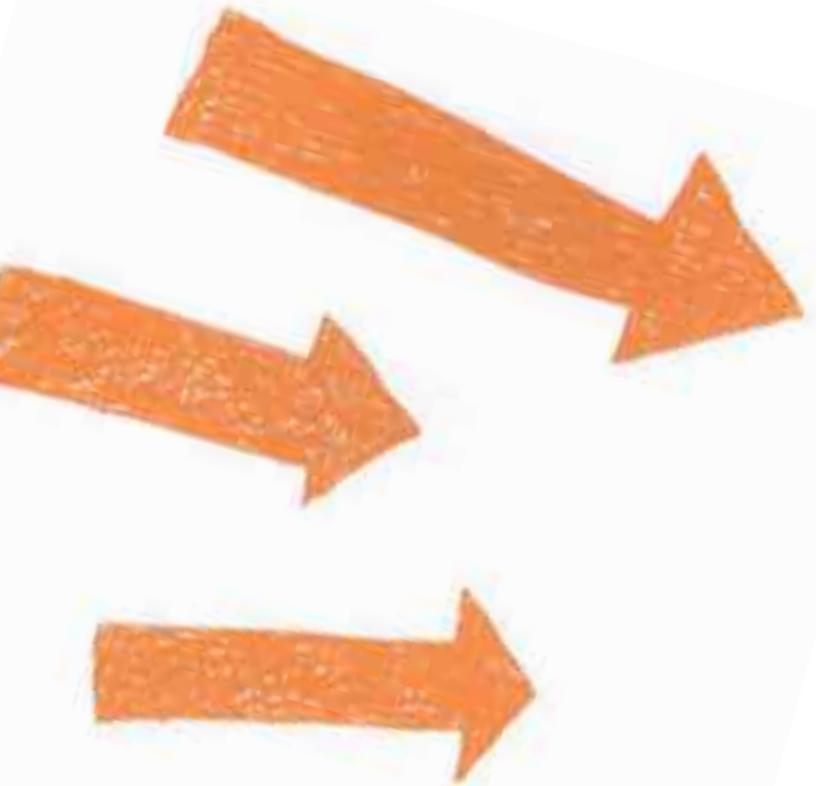
WRITE TEN THINGS ABOUT
WHERE YOU ARE SITTING
RIGHT NOW THAT
YOU HADN'T NOTICED
WHEN YOU SAT DOWN. USE YOUR
SENSES. DO IT QUICKLY. DO NOT
CENSOR. OKAY, BEGIN.



THE ASPECTS OF THINGS THAT ARE
MOST IMPORTANT FOR US ARE HIDDEN
BECAUSE OF THEIR SIMPLICITY AND
FAMILIARITY. (ONE IS UNABLE TO NOTICE
SOMETHING—BECAUSE IT IS ALWAYS BEFORE
ONE'S EYES.) —LUDWIG WITTGENSTEIN

EXERCISE 1.1: OBSERVATION

SOURCE: HOW TO BE AN EXPLORER OF THE WORLD - KERI SMITH



EXERCISE 1.2: OBSERVATION

- START REDNOTEBOOK
- PLAY WITH IT, LEARN ABOUT THE PRODUCT, OBSERVE WHAT HAPPENS
- WRITE DOWN TEN THINGS THAT YOU NOTICED THAT COULD BE IMPORTANT





DEBRIEF

**WHAT IS TESTING?
WHAT DO TESTERS
DO?**



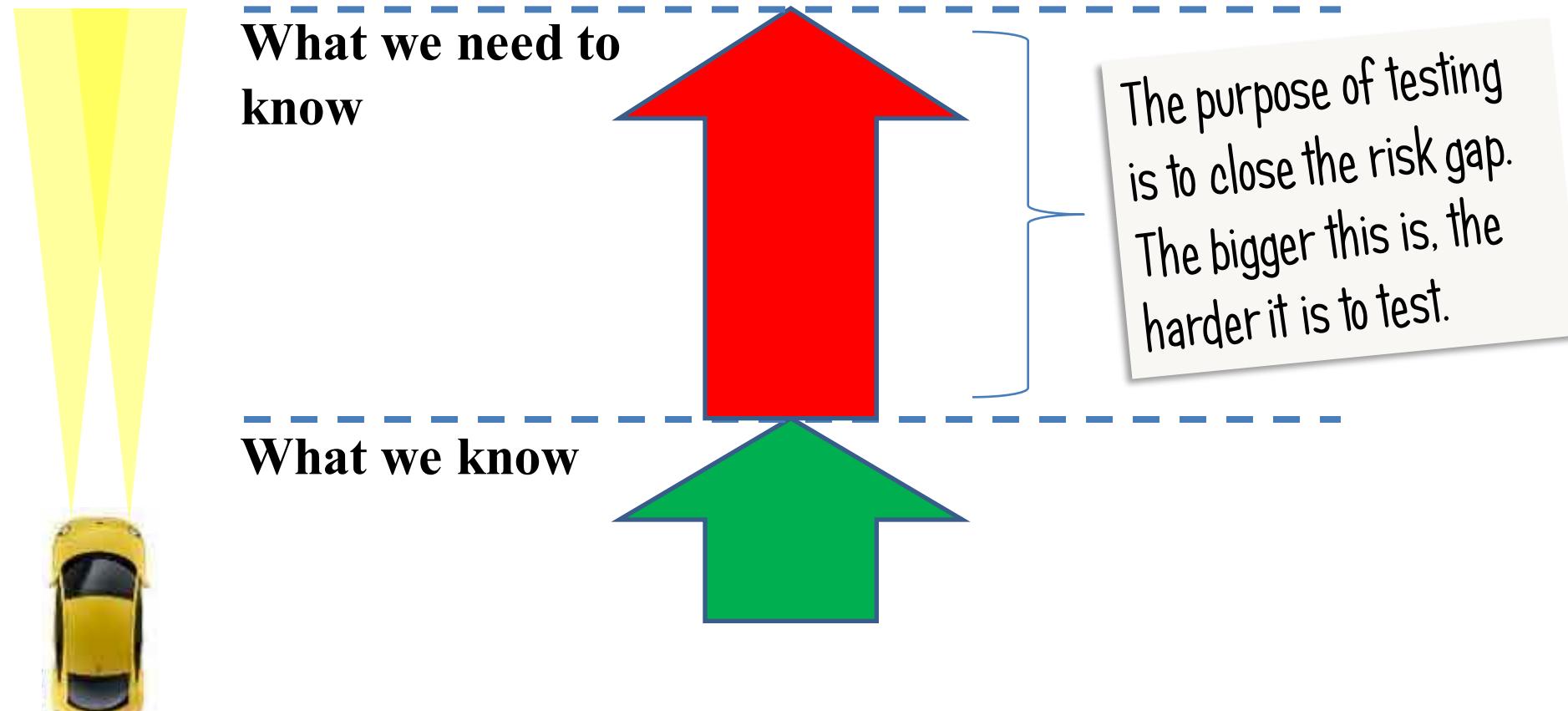
Testers light the way



This is our role.

We see things for what they are.
We make informed decisions about quality possible,
because we think critically about software.

Testers light the way: *the risk gap*



Our knowledge of the status of the product.

Call this checking, not testing

operating a product to
check specific facts
about it...

means

Observe

Evaluate

Report

Interact with the
product in specific
ways to collect
specific observations.

Apply algorithmic
decision rules to
those observations.

Report any
failed checks.

A Check Has Three Elements

1. An *observation* linked to...
2. A *decision rule* such that...
3. both observation and decision rule can be applied algorithmically.

A **check** can be performed



by a machine
that *can't* think
(but that is quick and precise)



by a human who has been
instructed *not* to think
(and who is slow and variable)

Testing is...

Acquiring the competence, motivation,
and credibility for...

creating the conditions necessary for...

evaluating a product by learning
about it through experimentation, which includes to
some degree: questioning, study, modeling,
observation and inference, including...

operating a product
to check specific
facts about it...

...so that you help your clients to make
informed decisions about risk.

And perhaps help make the
product better, too

Test Procedure *has four elements*

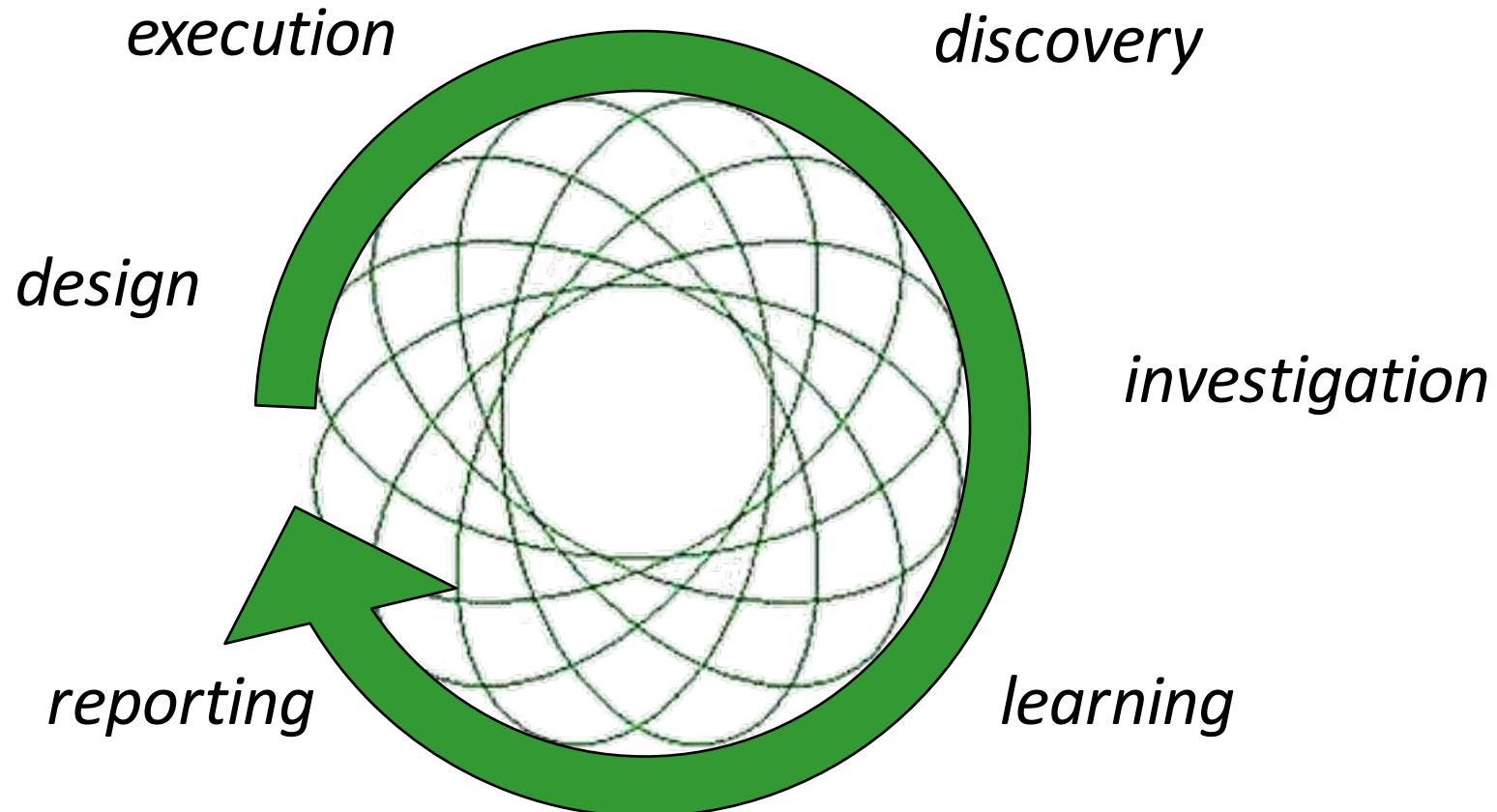
- **Configure**
 - (if necessary) Obtain product for testing
 - (if necessary) Install on a platform.
 - (if necessary) Prepare test data and tools for test execution.
 - Assure that the product is in a “clean enough” starting state.
- **Operate**
 - Control the product and platform with inputs to exercise the product.
 - Cause the product to exercise the right functions/states in the right sequence with the right data.
- **Observe**
 - Collect information about how the product behaves (collect both direct and indirect output) so that it can be evaluated.
- **Evaluate**
 - Apply oracles to detect bugs.

Addresses a motivating question

Provides a clear answer to the question

Testing's Mission is Focused on *Learning*

Testers help to defend the value of the product
by *learning* on behalf of our clients.





PART 2

EXERCISE 2: OBSERVE AND COMPARE

STRUCTURE

DOCUMENT PART OF A
BUILDING(S) THAT
MOST PEOPLE
IGNORE (EXAMPLES
INCLUDE THE CEILINGS,
BATHROOMS,

CORNERS,
CLOSETS, AND
THE INSIDES OF
DRAWERS). PAY
ATTENTION TO
THE HIDDEN
PLACES.

ALTERNATE:
DOCUMENT THE
CORNERS OF YOUR
HOME.

OBSERVE, DESCRIBE
AND COMPARE TWO
SEEMINGLY
IDENTICAL THINGS:
E.G. TABLE, WALL,
CHAIR



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DEBRIEF

PARTY

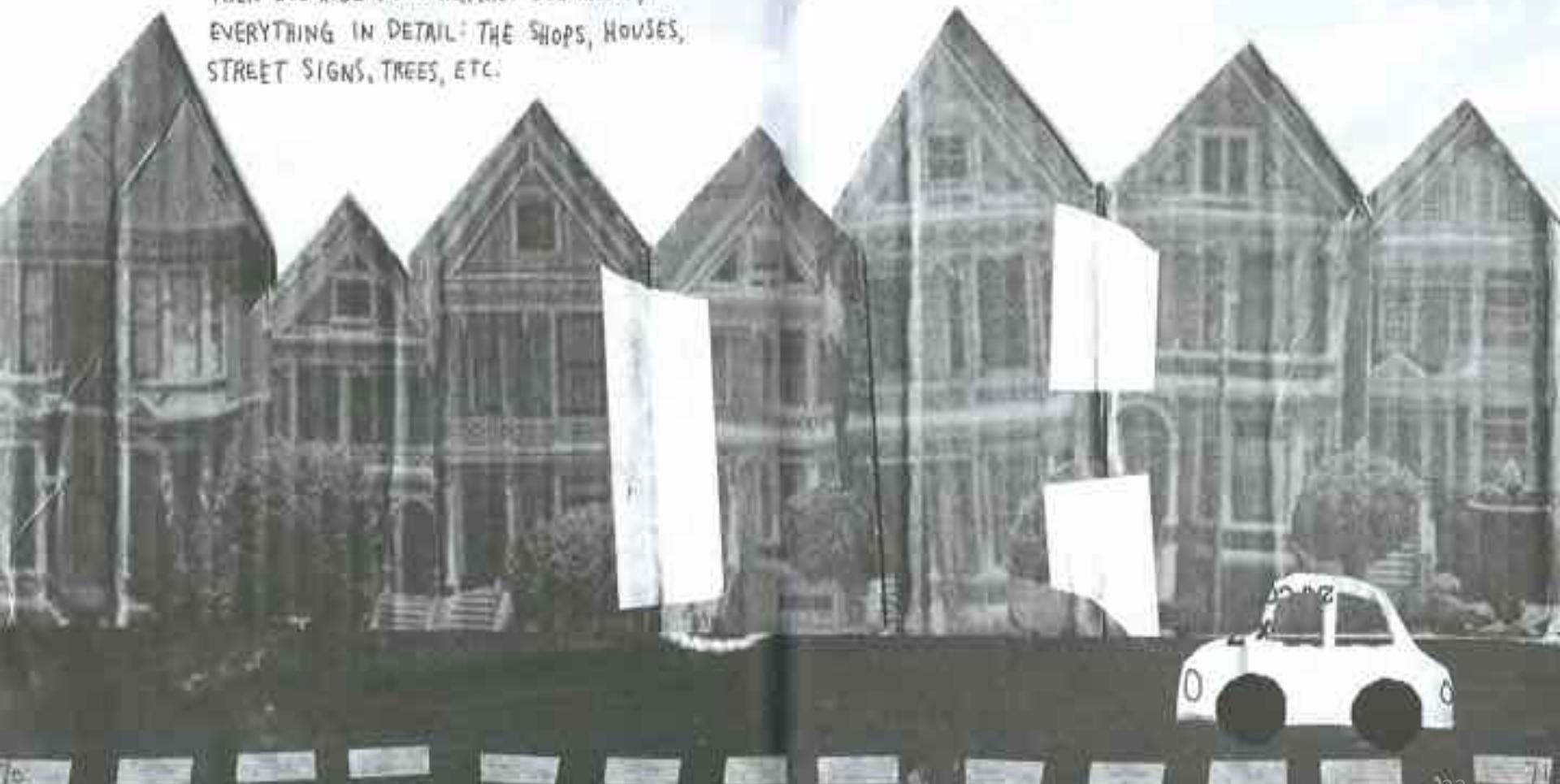


YOUR FAVORITE STREET

GO TO YOUR FAVORITE STREET. (IF YOU CAN'T GO THERE PHYSICALLY, THEN YOU CAN VISIT IT IN YOUR MIND.) MAP IT OUT ON A PIECE OF PAPER, THEN DESCRIBE (OR OTHERWISE DOCUMENT) EVERYTHING IN DETAIL: THE SHOPS, HOUSES, STREET SIGNS, TREES, ETC.

EXPLORATION #21

EXERCISE 3.1: SURVEY SESSION





SURVEY TESTING

ANY TESTING THAT HAS AS ITS PRIMARY GOAL LEARNING ABOUT THE DESIGN, PURPOSES, TESTABILITY, AND POSSIBILITIES OF THE PRODUCT. SURVEY TESTING TENDS TO BE OPEN AND PLAYFUL. IT PROVIDES A FOUNDATION FOR EFFECTIVE, EFFICIENT TESTING, LATER ON.



Heuristics: Generating Solutions Quickly and Inexpensively

- **Heuristic (adjective):**
serving to discover or learn
- **Heuristic (noun):**
a fallible method for solving a problem
or making a decision

“Heuristic reasoning is not regarded as final and strict but as provisional and plausible only, whose purpose is to discover the solution to the present problem.”

George Polya, How to Solve It

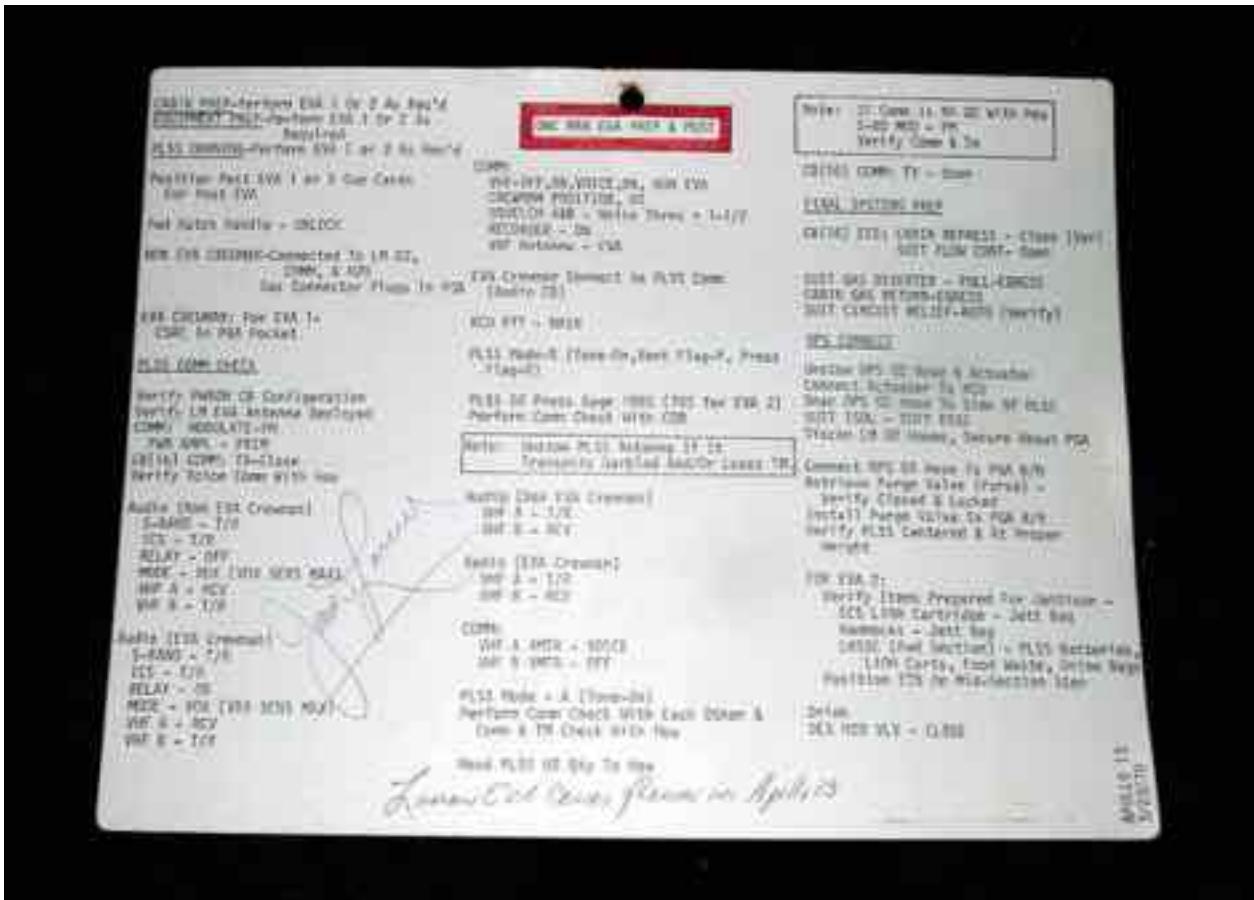
Concise Documentation



CDR-7	0+21	OFFLOAD LRV Open (red) thermal blanket •Drape tape over strut •Conting. tool to LM strut •Unstow aft deployment cable - drape over strut	
EVA1	VERIFY:	<ul style="list-style-type: none">•Walking hinge latches engaged•Fwd & aft chassis parallel to center chassis•LH & RH outrigger cables taut <p>Deploy reel OPS tape, RH side & back away from deploy area</p> <p>VERIFY LRV rotates [PULL D-HANDLE]</p>	DEPRESSURE L/R CHASSIS
11-1-72			

The Cuff Checklist

Plenty of Documentation ISN'T for Everyone



Some documentation is written and read with lots of information missing, for use by trained and skilled people.

Want to cover the product?

SFDIPOT

- Structure
- Function
- Data
- Interfaces
- Platform
- Operations
- Time

Remember: “San Francisco Depot”

EXERCISE 3.2: SURVEY SESSION

- **GROUPS OF 4, WORK IN PAIRS**
 - **OPEN REDNOTEBOOK**
 - **DO A SURVEY SESSION**
 - **USE SFDIPOT**
 - **MAKE NOTES**



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DEBRIEF

Charter Patterns: Evolving test strategy

- Intake Sessions (**Goal: negotiate mission**)
“Interview the project manager about testing Xmind.”
- Survey Sessions (**Goal: learn product**)
“Familiarize yourself with Xmind.”
- Setup Sessions (**Goal: create testing infrastructure**)
“Develop a library of mindmaps for testing Xmind.”
- Analysis Sessions (**Goal: get ideas for deep coverage**)
“Identify the primary functions of Xmind.”
“Construct a product coverage outline.”
“Brainstorm test ideas.”
“Prepare a state model for state-based testing.”
“Perform a component risk-analysis to guide further testing.”
“Discover all the error messages in Xmind.”

Charter Patterns: Evolving test strategy

- Deep Coverage Sessions (**Goal: find the right bugs**)
 - “Perform scenario testing based on the scenario playbook.”
 - “Perform a tour that achieves double-transition state coverage.”
 - “Perform steeplechase boundary testing on the major data items.”
 - “Test each error message in Xmind.”
 - “Perform a function tour using the 2300 node mindmap.”
- Closure Sessions (**Goal: get ready to release**)
 - “Verify the latest fixes.”
 - “Re-test tutorial with the latest build.”
 - “Review help files and readme.”
 - “Go over deferred bugs with Customer Support people.”
 - “Perform clean-machine install test.”

PART 4



EXERCISE 4: DEEP COVERAGE SESSION

- GROUPS OF 4, USE REDNOTEBOOK
 - USE YOUR MAP FROM EX. 3.2
 - NOW TEST ONE SPECIFIC PART OF REDNOTEBOOK IN DETAIL:
TEST THE FORMAT FUNCTIONALITY
 - MAKE NOTES!



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DEBRIEF



PART 5

EXPLORATION #30

TRAVEL HISTORY

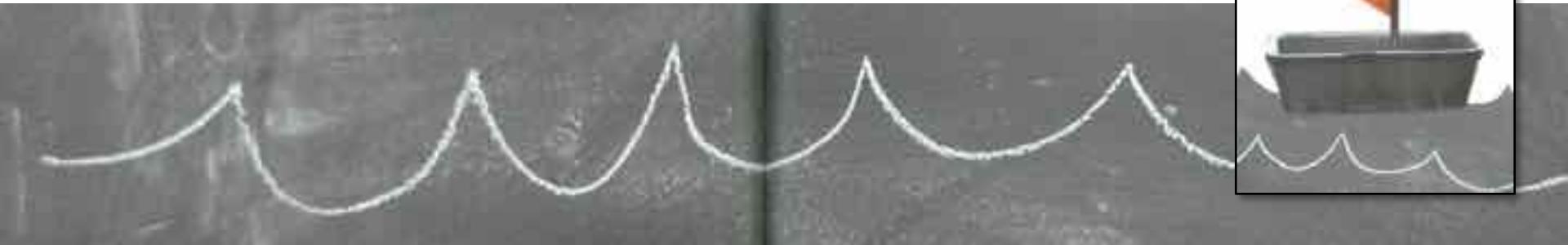
COLLECT OBJECTS THAT TELL A
STORY OF YOUR TRAVELS. DOCUMENT
WHERE YOU FOUND EACH OBJECT.



EXERCISE 5.1: TRAVEL HISTORY

EXERCISE 5.1: TRAVEL HISTORY

- GROUPS OF 4, USE YOUR MAP FROM EX. 3.1**
- WALK THE ROUTE ONCE MORE...**
- TELL THE OTHERS IN YOUR GROUP
ABOUT WHAT YOU HAVE SEEN AND
DRAWN, WHAT DID YOU LEAVE OUT,
THE CHOICES YOU MADE, WHAT IF YOU
HAD MORE TIME?**



WHY STORYTELLING?

SEVEN STRATEGIES OF YOUR BRAIN:

1. COHESION

EXAMPLE

SHE WENT TO THE MARKET.

HELLA DIED.

MARK WAS HUNGRY AND CRYING.

WHY STORYTELLING?

SEVEN STRATEGIES OF YOUR BRAIN:

- 1. COHESION**
- 2. MEANING**
- 3. PURPOSE AND MOTIVE**

EXAMPLE II

SANDRA RELEASED A FEW SQUIRRELS LOOSE. THE PLAN FAILED WHEN A DOG DROVE THEM AWAY. THEN THEY ORGANIZED A PARTY, BUT THE GUESTS DIDN'T TOOK ALONG THEIR MOTORCYCLES. MOREOVER, SHE COULD NOT PUT HER STEREO LOUD ENOUGH. THE NEXT DAY THEY SEARCHED IN VAIN FOR A VOYEUR IN THE YELLOW PAGES. OBSCENE PHONE CALLS GAVE HER SOME HOPE THAT THE NUMMER HAD CHANGED. THE INSTALLATION OF A FLICKERING NEON SIGN ACROSS THE STREET FINALLY BROUGHT SUCCESS. SANDRA FRAMED THE AD AND IT IS ON HER WALL NOW.

WHY STORYTELLING?

SEVEN STRATEGIES OF YOUR BRAIN:

- 1. COHESION**
- 2. MEANING**
- 3. PURPOSE AND MOTIVE**
- 4. FILL IN THE GAPS**
- 5. HUMAN PERSPECTIVE**
- 6. CONFLICT**
- 7. RELY ON WHAT IS KNOWN**

WHY STORYTELLING?

- WE UNDERSTAND STORIES FASTER AND EASIER
- WE REMEMBER STORIES BETTER
- STORIES CONVINCE MORE
- STORIES MOTIVATE MORE
- STORIES CONNECT
- STORIES PROVIDE GRIP
- STORIES CREATE MANAGEABLE
- STORIES INFLUENCE

STORIES ABOUT PROJECTS?

A STORY NOT ONLY SHOWS WHAT IS HAPPENING, BUT ALSO HOW IT HAPPENS AND WHY. THEREBY IT GIVES A NARRATIVE MEANING TO SEPARATE EVENTS.

WHAT IS A TEST REPORT?

- A TEST REPORT IS ANY DESCRIPTION, EXPLANATION, OR JUSTIFICATION OF THE STATUS OF A TEST PROJECT.
- A COMPREHENSIVE TEST REPORT IS ALL OF THOSE THINGS TOGETHER.
- A PROFESSIONAL TEST REPORT IS ONE COMPETENTLY, THOUGHTFULLY, AND ETHICALLY DESIGNED TO SERVE YOUR CLIENTS IN THAT CONTEXT.
- A TEST REPORT ISN'T "JUST THE FACTS." IT'S A STORY ABOUT FACTS.

To test is to construct three stories

Level 1: A story about the status of the PRODUCT...

...about how it failed, and how it *might* fail...
...in ways that matter to your various clients.

Product any good?

Level 2: A story about HOW YOU TESTED it...

...how you configured, operated and observed it...
...about what you haven't tested, yet...
...and won't test, at all...

How do you know?

Level 3: A story about the VALUE of the testing...

...what the risks and costs of testing are...
...how testable (or not) the product is...
...things that make testing harder or slower...
...what you need and what you recommend...

Why should I be pleased
with your work?

EXERCISE 5.2: TESTING STORY

- **GROUPS OF 4**
- **USE YOUR NOTES FROM EARLIER EXERCISES WHAT DID YOU SEE? WHAT HAVE YOU TESTED?**
- **PREPARE A (WRITTEN OR ORAL) REPORT ON REDNOTEBOOK**
- **SOME GROUPS REPORT TO CLASS**



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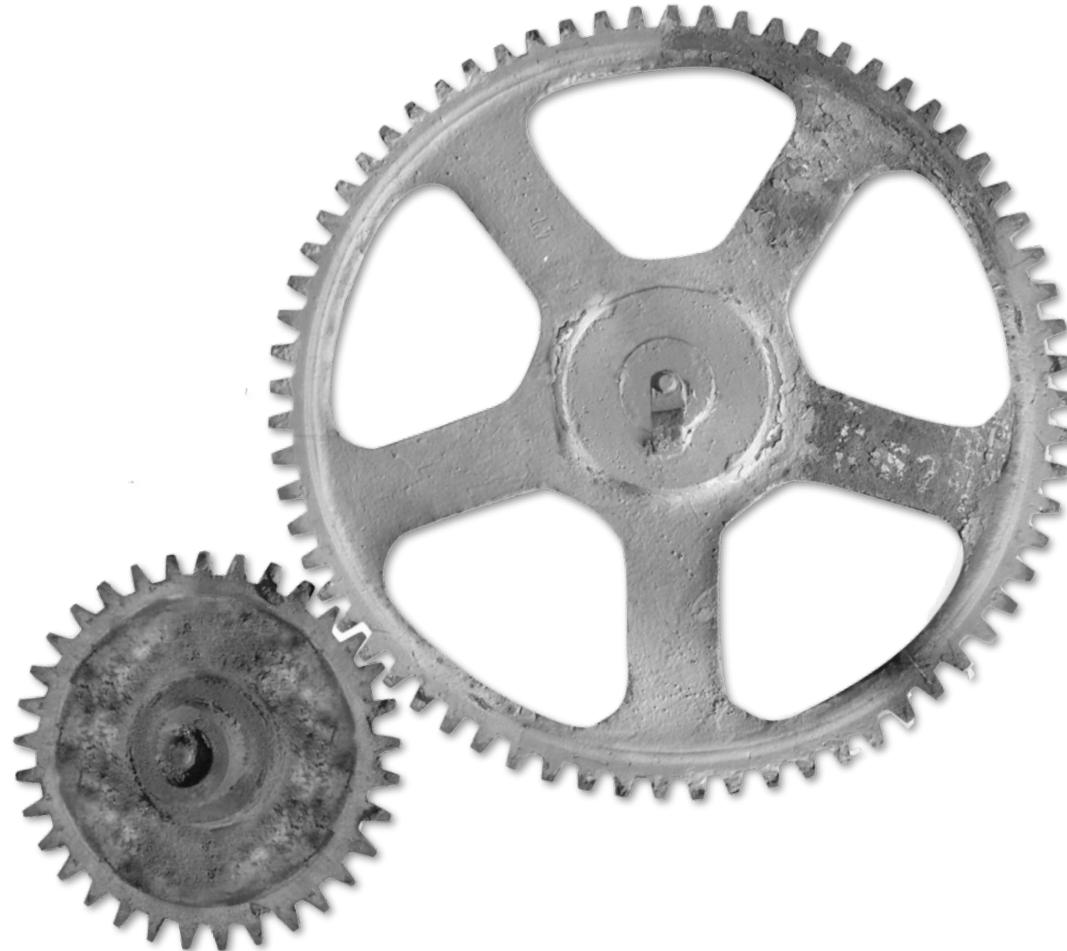
DEBRIEF

USING THE TESTING STORY

- BUILDING A STORY DURING TESTING
- STATUS
- WRAP-UP AND DEBRIEF
- REPORTING
- OVERVIEW AND INSIGHT



FINALLY



THE IMPORTANCE OF GETTING LOST

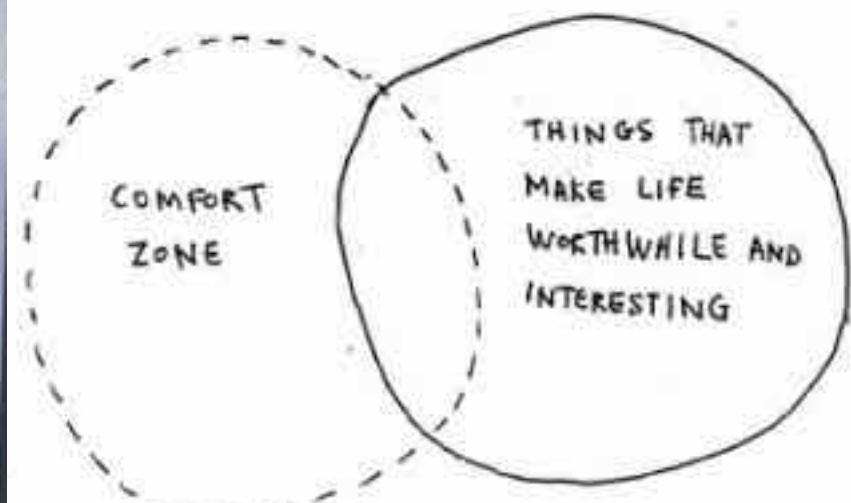
THE CLOSER MAN GETS TO THE UNKNOWN, THE MORE INVENTIVE HE BECOMES — THE QUICKER HE ADOPTS NEW WAYS. — BUCKMINSTER FULLER

TO ENTER INTO THE UNKNOWN (TO PARTAKE IN AN EXPERIMENT) INVOLVES A WILLINGNESS TO FULLY EXPERIENCE AND STUDY THINGS WE DON'T UNDERSTAND, AND TO EMBRACE THAT LACK OF UNDERSTANDING.

THERE ARE DIFFERENT WAYS OF "GETTING LOST." THERE IS THE LITERAL LOST, AS IN BEING LOST IN THE WOODS UNABLE TO FIND YOUR WAY BACK TO THE STARTING POINT. OR THERE ARE METAPHORICAL EXAMPLES OF BEING LOST: LOST IN ONE'S HEAD, A LOST SOUL, LOST IN TIME. IN THE CONTEXT OF EXPLORING WE CAN THINK OF IT IN TERMS OF EXISTING IN A STATE WHERE YOU DO NOT KNOW EXACTLY WHERE YOU ARE HEADED." IN THIS SENSE WE MAY CHOOSE TO BECOME EITHER LITERALLY LOST, EXPLORING A PLACE WE'VE NEVER BEEN BEFORE, OR LOST IN THE SENSE THAT WE ENTER INTO A RELATIONSHIP WITH OBJECTS AND IDEAS WITHOUT KNOWING WHAT THE OUTCOME WILL BE.

THE S.O.L.F. MANIFESTO

1. We declare the natural world as our playground in which every inch is to be explored and investigated.
2. In our explorations we promise to tread lightly on the earth.
3. We will attempt to pay attention to everything as if we have never seen it before.
4. We will use all of our senses during our travels.
5. We will not have a set agenda but remain open to the unexpected. (We will practice aimless wandering on a regular basis.)
6. We will pursue anything that piques our curiosity.
7. We will document our explorations.
8. We will incite our imagination as a means of reanimating the everyday world.
9. We will study and learn from all creatures we encounter.
10. We will come to understand that everything we see has a story.
11. We will make collections of things we find in the natural world in order to understand them better (while observing rule #2).
12. We have come to understand that the natural world is under threat by others who are damaging it. We of this secret order have chosen to take on the role of secret agent-fighting to care for the earth and attempting to teach others to do the same by sharing our ideas and findings (in a sometimes covert fashion).
13. We will share our symbol as one means of "spreading the word."
14. As explorers and sleuths we will find our own way of doing things.
15. And now we pass it on to you, to create your own order, to carry on our message or yours. Join the revolution.



**BE OPEN TO
WHATEVER
COMES
NEXT.**

OBSERVE
COLLECT
ANALYZE
COMPARE
NOTICE
PATTERNS

NEXT STEPS...

- PRACTICE, PRACTICE, PRACTICE!
 - NOTE TAKING
 - ALTERNATE APPROACHES: PLAYFUL VS. DELIBERATIVE
 - FOCUS AND DEFOCUS
 - CREATING TEST IDEAS FAST
 - COVERAGE REPORTING
 - (SELF) MANAGEMENT
- OBSERVE OTHERS TEST
- OBSERVE YOURSELF TEST

QUESTIONS?

?

REMARKS?

DISCUSSION?

?

FEEDBACK?

ANYTHING ELSE?

LESSONS LEARNED?



REFERENCES

- Some of these slides are taken from Rapid Software Testing by James Bach & Michael Bolton
http://www.satisfice.com/info_rst.shtml
- Keri Smith
<http://www.kerismith.com>
<http://redefineschool.com/keri-smith-explore-art/>
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- “Evolving Understanding of Exploratory Testing” and “Structures of Exploratory Testing”
<http://www.developsense.com/resources.html>
- Test cases are not testing: towards a culture of test performance by James Bach & Aaron Hodder
<http://www.testingcircus.com/testing-trapeze-2014-february-edition/>
- Testing and Checking Refined
<http://www.satisfice.com/blog/archives/856>
- Collected links on my website:
<http://www.huibschoots.nl/links> (take a look at the social science section too)
- A lesson in exploratory testing
<http://trishkhoo.com/2012/10/a-lesson-in-exploratory-testing/>

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