5 Reasons Why Your Security Education Program isn’t Working (and how to fix it)

February 2015

Presentation Agenda

- 5 Reasons Your Program isn’t Working
- 10 Learning Science Principles
- Continuous Training Methodology
- Case Studies

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95% of security incidents investigated in 2013 were attributed to Human Error

IBM Security Services, *2014 Cyber Security Intelligence Index*

5 Reasons Security Awareness Doesn't Work

1. Happens once per year
2. Relies on video or slides
3. Tells the end user what to do but not why
4. Training sessions are longer than 15 minutes
5. Focuses on awareness of threats but not behavior change

Informational not Educational

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Keys to Effective Security Training Program

Conceptual and Procedural Knowledge

Conceptual knowledge provides the big picture

Procedural knowledge focuses on specific actions to solve the problem

How to apply this principle:

- Training should always describe <u>why</u> something is a threat before telling the trainee what to do
- Give actionable information. Specific steps they should take to protect themselves.

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Serve Small Bites

People learn better when they can focus on small pieces of information.

How to apply this principle:

- Limit the time a lesson takes to 10 minutes or less
- Keep the lesson concepts very simple
- Don’t train on all cyber threats at once

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Reinforce Lessons

Without frequent feedback and practice, even well-learned abilities go away. Security training should be ongoing, not a one-off.

How to apply this principle:

- Have the users practice concepts immediately after learning them
- Repeat the same lessons throughout the year
- Repetition increases retention

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Train in Context

Present lessons in the context which the person is most likely to be attacked.

How to apply this principle:

- Create a situation that users can relate to
  - You're sitting at your desk and an email comes in…
  - You receive an SMS from a number you don't recognize…
- Simulate the user interface when possible

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Give Immediate Feedback

"Calling it at the point of foul" creates teachable moments and increases impact.

How to apply this principle:

- After each practice exercise explain why an answer is correct or incorrect to reinforce the lesson.

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Let Them Set the Pace

Different baseline knowledge requires a different learning pace

How to apply this principle:

- Web-based training enables trainees to go at their own pace
- Allow users to take the training over and over again

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Tell a Story

People remember stories much better than facts and data

How to apply this principle:

- Keep one set of characters in a particular scenario throughout training

Involve Your Students

Being actively involved in learning helps students remember things better.

How to apply this principle:

- Immediately after each lesson give trainees opportunity to practice what they've learned multiple times.
- Use multiple realistic scenarios

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Measure Results

Collecting baseline data, and new data after each training campaign, provides positive reinforcement to trainees

How to apply this principle:

- Ensure that your training program supports more than just collection of completion data
- Perform annual, or more regular, assessments to measure knowledge, not to train

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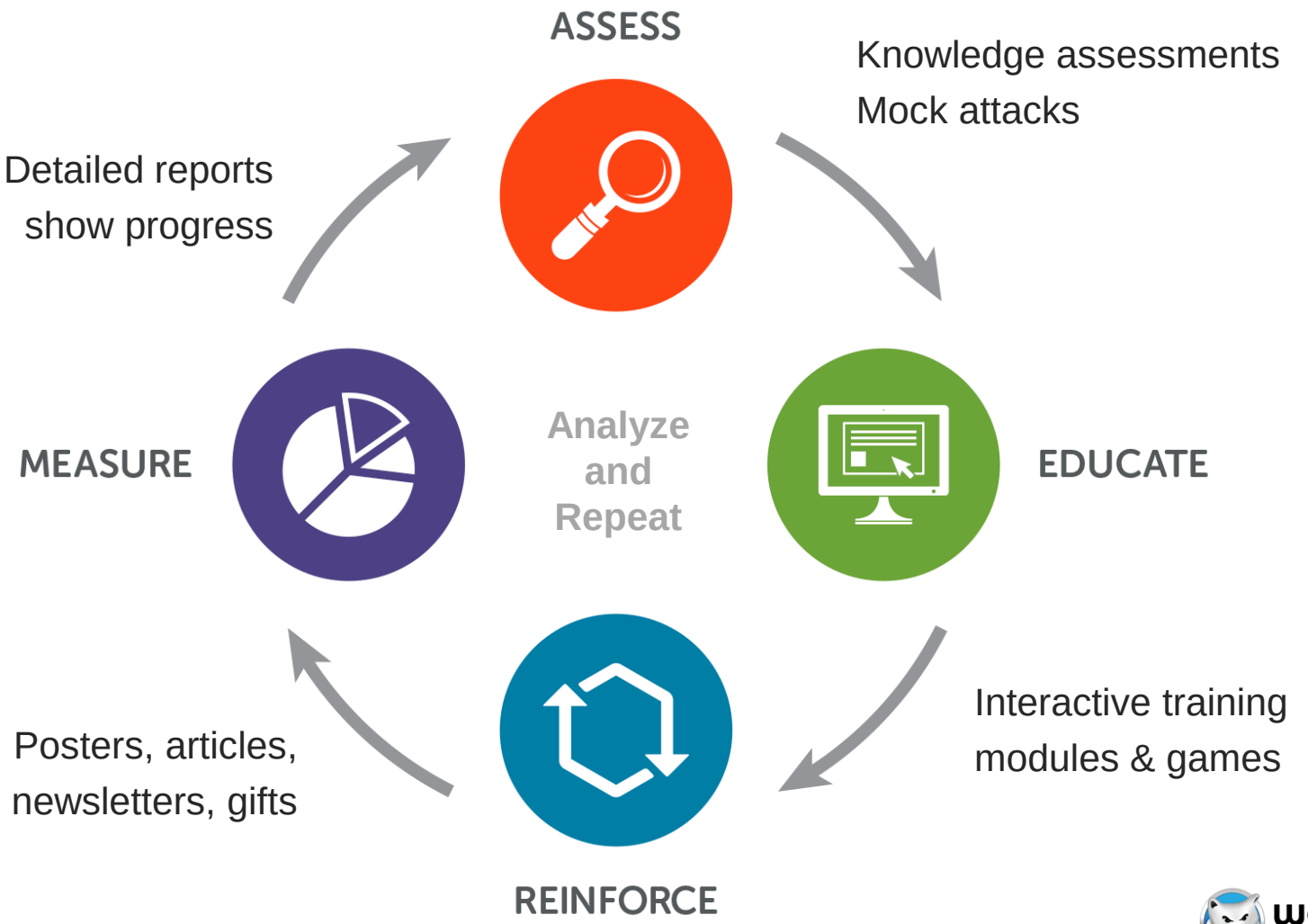
Continuous Training Methodology



Assessments & Mock Attacks

- Assess knowledge and vulnerability
- Gather baseline results
- Intelligence for planning
- Motivate users

From: Lisa Hagendorf <lhagendorf@[redacted]>
Date: Friday, October 24, 2014 at 1:14 PM
To: Brian Kennedy <bkennedy@[redacted]>
Subject: Video from the Tech 50 afterparty!

Hey Brian!

Thought you might enjoy this, I took some video at the afterparty Tuesday night and put together a highlight video. Let me know what you think before I tweet it! Check it out here.

Thanks,
Lisa

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Leveraging Teachable Moments

- Intervention training
- 30-60 seconds
- Immediate feedback
- Provides context

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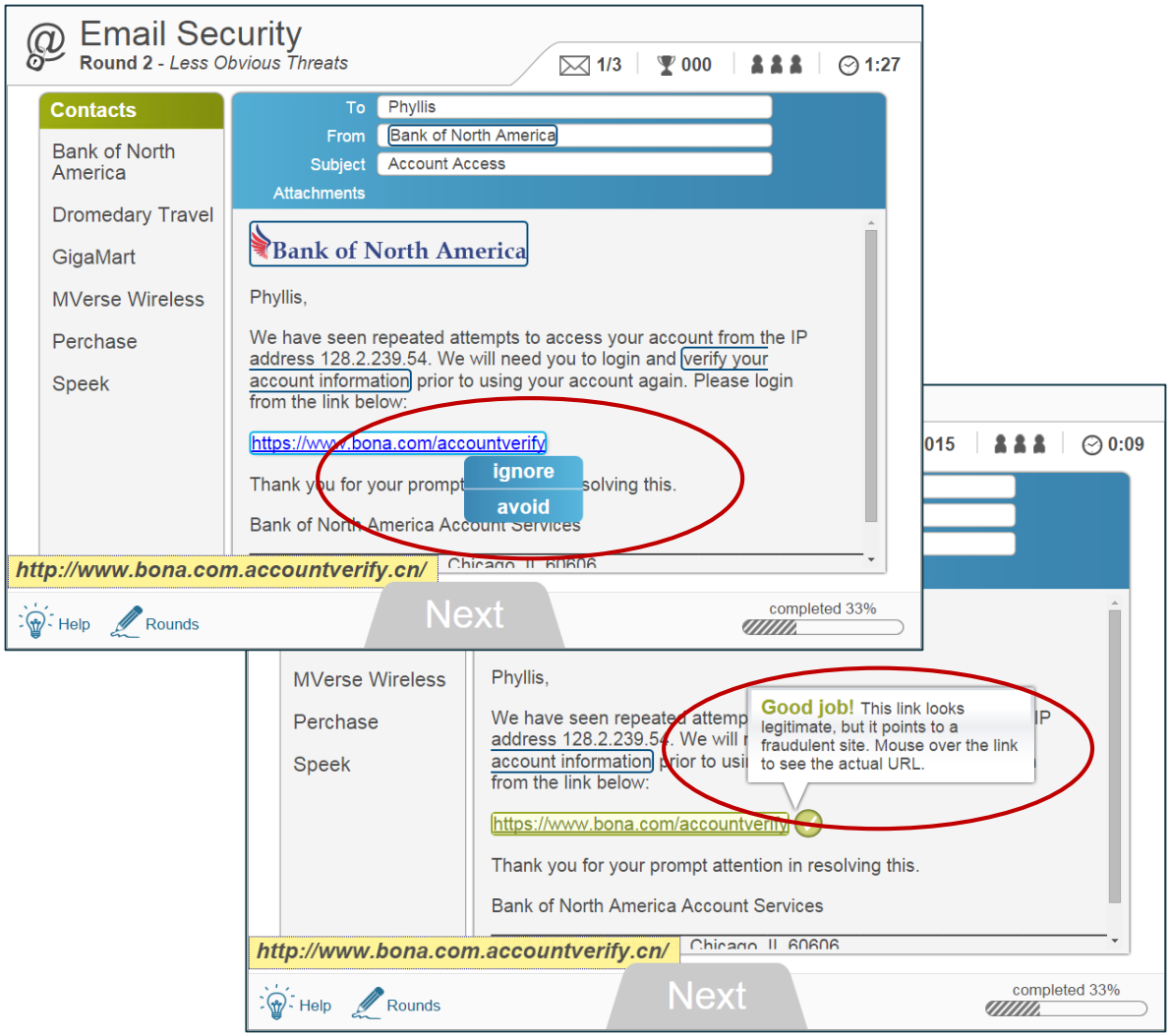
In-Depth Education

- Bite-sized education
- Learn by doing
- Stories & scenarios
- Provide immediate feedback
- Collect valuable data



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Reinforce & Repeat

- Reinforce educational messages & imagery
- Review results
- Repeat and refine

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Results that Prove out the Model

Case Study: Manufacturing Company

International manufacturer had phishing emails infecting machines despite strict email authentication program

Baseline Data

- More than 70 malware infections/day worldwide
- Average of 32 calls a month related to spyware, virus, and malware concerns

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Manufacturing Company Goals

- Increase awareness of phishing attacks
- Reduce the number of malware infections
- Prove to the board that security awareness and training could achieve these results

"Any company that is not taking awareness seriously is hedging its bets. In my opinion, the single most important thing an organization can do is create a security awareness program."

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Manufacturing Company Education Program

- 5000 employees in countries around the world
- Voluntary training -- Safer Web Browsing, Email Security, and URL Training
- Mock phishing attacks using Random Scheduling

"I think the reason we're getting such great support from our Board is because we're able to show results on the things we're doing, but the potential for cost reductions isn't really the driver here. To me, it's rooted in awareness. I feel this kind of work is essential to a secure work environment, and the Board concurs with that."

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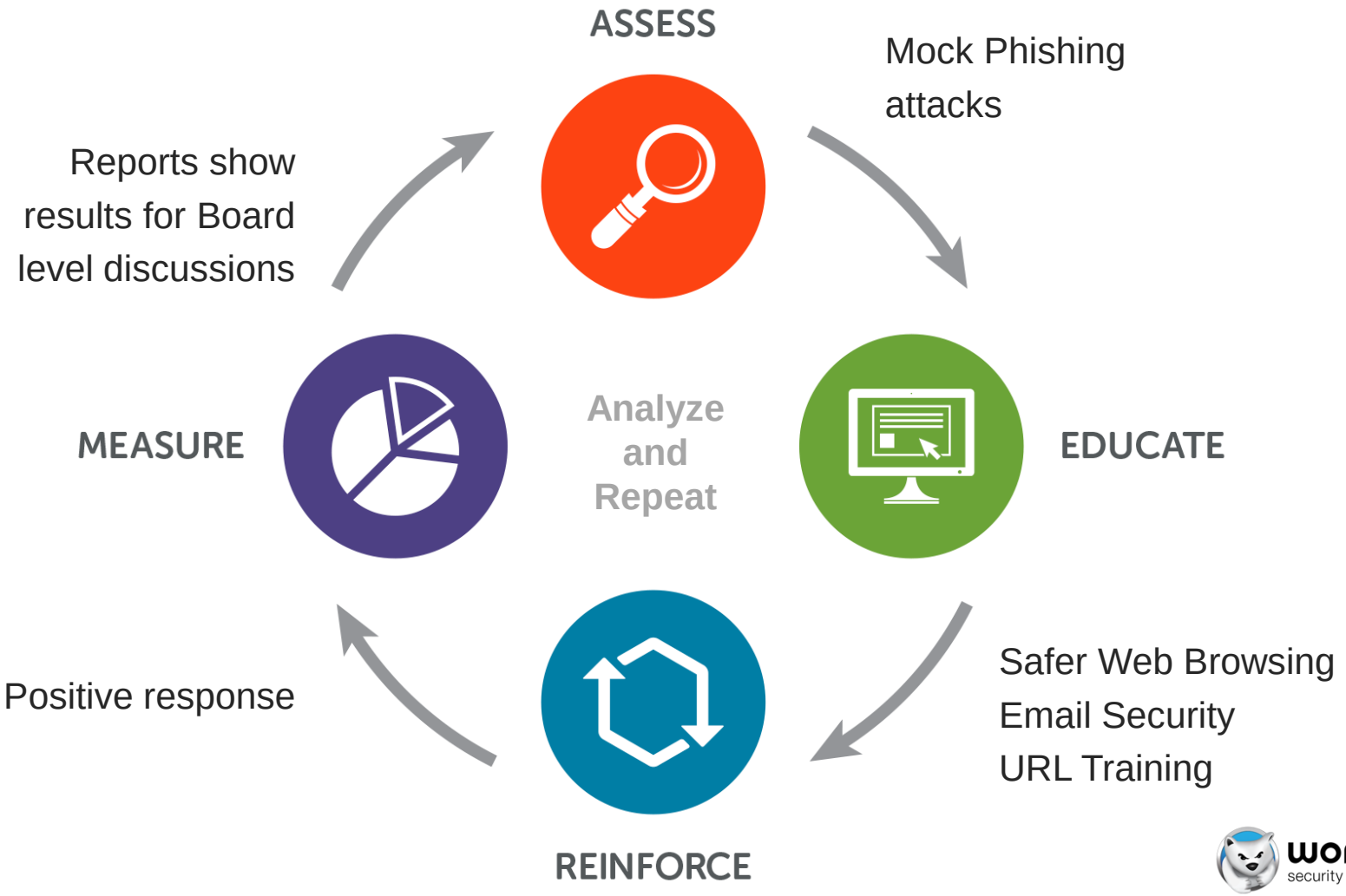
Manufacturing Company Methodology



Manufacturing Company Results

- 46% reduction in malware infections from 72 per day to 39 per day (Europe 69% reduction)
- 40% reduction in help desk calls from 32 to 20 per month
- More than 700% return on investment based on cost to remediate infections
- Positive user feedback on the interactive nature of the training modules

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Future Program Enhancement

- Move to mandatory training
- 4-6 additional training modules
- Targeted phishing to particular departments
- Broad knowledge assessments

"We've developed a healthy sense of paranoia throughout the organization. I think that's the best result that can come out of the awareness training we're doing."

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Conclusions

- Using the right approach end users can learn secure behaviors
- Continuous training methodology yields significant results to your bottom line
- There's more than one way to achieve positive results if you have the right ingredients
- Increase awareness of security issues with employees, executives and your Board
- Education can reduce overall organization risk

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Wombat Security is a Leader in the NEW Gartner Magic Quadrant for Security Awareness Computer-Based Training (CBT) Vendors. Access the full Magic Quadrant report here:

http://info.wombatsecurity.com/wombat-named-a-leader