

Evaluation Report

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Project Overview

Introduction:

The creation of an online training module that focuses on usability with some particular learning outcomes is the major deliverable of this project. The software is the product of Company X who currently only provide an online manual to support their users.

Background:

Company X is a small company who has created a computer network security monitoring solution based on technology invented by the company's founders. The company provides a "software sandbox" where malicious programs are run in isolation in order to test them to see what activity they provoke. As the company grows, the value of having a training solution that can be distributed widely will reduce stress on sales and engineering personnel providing support after the sale.

Summary and Goals:

Goals for the module include providing the learners with an overview of the user interface and the basics of navigation within the solution in order to investigate an infection of a system by malicious software.

Learning objectives address items the users need to know to get the most out of the software for their organization. There are two lessons.

1. Hosts: After which the learner will be able to identify a computer (host) that has been breached.
2. Indicators of Compromise: After which the learner will be able to identify the indicators of compromise.

Please see the flow chart of the lesson objectives in Appendix 1 for more detail about these two lessons.

Alpha Test

Purpose:

First and foremost, the alpha test is intended to identify usability and cosmetic issues with the module. Secondly, users will be tested on knowledge gained through the module.

Reviewers:

There are two types of reviewers included in the alpha test. First there are experts in the design and use of software. These experts come from a background of Instructional Technology and Software Development. Secondly, there are users who represent the learners who will ultimately use the software. These users come from the world of computer security. Any cases where these two sets of learners overlap, provides an extra bonus to the expertise of the reviewer. See the table below for the list of Alpha testers and their respective experience.

Reviewer	Experience	Years in Field	Interview Date
Stephen Bridges	Instructional Design Student at UGA	2	11/19/15
Roger K.	Marketing, Training, Product Management	20 +	11/23/15
Brian L.	Information Security	20 +	11/23/15

Procedure:

Due to the fact that many of the reviewers are not in the same local area as the project team, a detailed set of instructions was developed to guide them through the process. All reviewers were given the same instructions regardless of whether they were long-distance or not.

The steps are as follows:

1. Send out learning module link via e-mail along with instructions. See Appendix 2 for instructions.
2. Learner views module at own pace from beginning to end without stopping.
3. Learner takes notes about all items of confusion, misspellings, color choices, etc. while viewing learning module.
4. Learner takes short quiz to assess knowledge gained and returns results to project team.
5. Learner answers questionnaire sent in separate e-mail and returns to project team. See Appendix 3 for questionnaire.
6. Project team conduct phone (or in person) interview with learner no later than 24 hours after learner has completed module. See Appendix 4 for interview guideline questions. I have included

responses received from each participant with the questionnaire. These are labeled for easy identification.

7. Project team calculates results of knowledge quizzes and reports.

One of the most unfortunate developments of the Alpha test was that not all of my participants followed the directions. Due to the small sample size, this has made it very difficult to make good conclusions regarding the aesthetic appeal of the module. This issue will be addressed further in the conclusions section of this paper.

Beta Test

Purpose:

The primary purpose of the beta test is to determine if learning is taking place. A final “proof-read” for mistakes should also be considered as well as any major drawbacks to learner affinity. All corrections and adjustments noted from the Alpha test reviewers will be made prior to the Beta test taking place.

Reviewers:

The learners recruited for this evaluation need to have the same entry skills as the learner group that will use the module in the field. These learners are familiar with the technical specifications of networking and understand how and why security breaches of networks take place. They have worked with or in the information security field for a number of years. They have a college degree and enjoy their work. Due to the above-mentioned issues with compliance in the Alpha test, we increased the sample size in the Beta test to five testers. We still had issues with two of these testers. One testers non-conformance was so severe that those results were excluded from this report. Please see the below table for the list of the remaining four testers and their qualifications.

Reviewer	Experience	Years in Field	Interview Date
Nick DiCarbo	Business Development	30	12/6/15
Brent Huston	Information Security, Entrepreneur	30	12/5/15
Evan Corbett	Software Developer, Entrepreneur	30	12/7/15
John Conrard	Technical Architect	22	12/7/15

Procedure:

Due to the fact that many reviewers are not in the same local area as the project team, a detailed set of instructions was developed to guide them through the process. All reviewers were given the same instructions regardless of whether they were long-distance or not.

The steps are as follows:

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1. Send out learning module link via e-mail along with instructions. See Appendix 5 for instructions.
2. Learner views module at own pace.
3. Learner only takes notes about glaring issues that interfere with their progress through the module.
4. Learner takes the quiz to assess knowledge that is included at the end of the lesson and reports results to project team.
5. Learner answers questionnaire sent in separate e-mail and returns to project team. See Appendix 6 for questionnaire. I have included the responses received from each participant with the questionnaire.
6. Project team conduct phone (or in person) interview with learner no later than 24 hours after learner has completed module. See Appendix 7 for interview guideline questions.
7. Project team calculates results of knowledge quizzes and reports

Conclusions

Feedback:

Much of the feedback received from testers was taken into consideration and revisions were made to the module. Things like boosting volume, moving buttons, and changing colors or lightening contrast were altered. One of the most valuable realizations we gleaned from our testers is that there wasn't adequate instruction about how the learners were supposed to progress through the practice session in Hosts. We added instructions and made sure they could be accessed at any time during the lessons for clarification.

Learning:

It was this one missing piece (the instructions) that proved the most troublesome for the actual testing itself. We provided our testers with instructions on how to conduct the test because most of them were at a distance to us. Since we were not able to sit down with them and guide them through the actual module, there were many interpretations of how the module itself was intended to work. The result of this was that we did not get clean test results. This is especially true of the Alpha test. Instead of evaluating the lesson before them, two of the three Alpha testers immediately thought of what other things they would like to see done in place of it. They failed to complete the learning module as it stands and attempt to actually learn from it. We also had this issue with one of the Beta testers. Two of our Beta testers felt that the lessons were incomplete without the Architecture and User Interface modules that should preface them. This was excellent feedback since we had contemplated not including them at all.

Test scores were good for most who completed the quizzes. This is not entirely surprising. In the effort to find qualified testers, we chose people with the required entry skills. In doing so, we loaded the deck in our favor. This module is not about teaching knowledge so much as it is about teaching navigation and new software techniques. To pass the quiz, they only needed to know where to look for the answers. The software provides access to the Back button and the navigation in the menu bar. I asked during the interview if they went back to clarify information at any point. All of my testers said they did and many said they re-watched the video particularly in the Host section. Excellent, reinforcement of their own learning, is what I was hoping for.

Improvements:

We did attempt to increase the testing pool size with the Beta test and were slightly more successful. However, we were met with other challenges along the way. Due to the nature of the software's user interface configuration, fitting everything into the smaller Storyline view, was an issue. Many of our testers let us know that the text size in the screenshots we used for most of the lesson, was much too small for

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comfort. One tester tried to view the module on a 13-inch laptop. He finally gave up in frustration stating that he could not make out anything that he needed to see to get anything out of the lesson. At this point, we continue to investigate ways to improve this issue. We may be able to capture the screen shots in a different resolution or work with a zoom function to focus on the most important features of each image. There is not enough time in our tight schedule to re-work all of the screenshots in the manner necessary. That being said, this will probably never be a module that will work well on small devices.

Results:

In the tables below are the respective quiz scores for each reviewer and the results from the Alpha and Beta Questionnaires.

Alpha Test Scores:

Reviewer	Score	Notes
Stephen Bridges	58.33%	least qualified of all reviewers
Roger K.	42.00%	played around with answers
Brian L.	0.00%	did not take

Beta Test Scores:

Reviewer	Score	Notes
Nick DiCarbo	83.33%	n/a
Brent Huston	100.00%	played with answers after 1st try
Evan Corbett	0.00%	could not see to take
John Conrard	83.33%	n/a

Alpha Questionnaire:

Alpha Questions	5 = Excellent	4 = Good	3 = Neutral	2 = Not Good	1 = Very bad
1. The visual appeal of the learning module (this is NOT asking you to consider the Company X software)		RS			
2. The aesthetics of the information presented (feedback, avatar, definitions)		R	S		
3. The ease and intuitiveness of navigation		S	R		
4. Is the pacing of the lesson appropriate?		RS			
5. Is terminology explained/defined well?	R	S			
6. Are the objectives clear?	S	R			

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7. Is the information content presented clearly (feedback, avatar interactions, definitions)?		RS			
8. Does the content seem complete based on your knowledge of such content?	RS				
R = Roger, S = Stephen, B = Brian		Notes: Brian L. never returned his questionnaire			

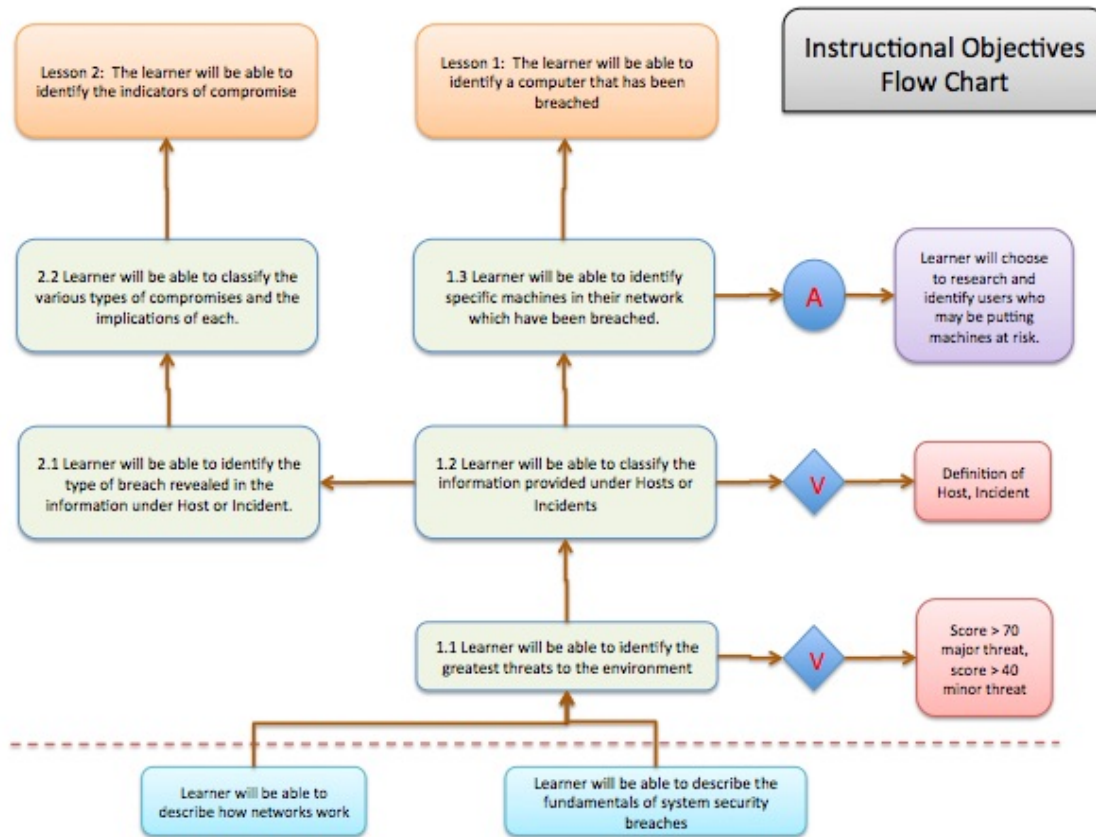
Beta Questionnaire:

Beta Questions	5 = Agree Completely	4 = Agree Some what	3 = Neither Agree nor Disagree	2 = Disagree Some what	1 = Disagree Completely	Average
1. I had the required pre-knowledge to undertake this training.		NBEJ				4
2. The objectives of the training were clear.	E	NBJ				4.25
3. The practice was relevant.	NBJ	E				4.75
4. The pacing was appropriate.	B	NEJ				4.25
5. The module functioned as I expected.		NEJ		B		3.5
6. The difficulty level is appropriate.	J	NBE				4.75
7. The feedback in the instruction is clear.	J	BE	N			4
8. The feedback in the instruction is helpful.	J	E	NB			3.75
9. The feedback in the questions is clear.	B	NE	J			4
10. The feedback in the questions is helpful.	B	NE	J			4
N = Nick, B = Brent, J= John, E= Evan						

Word count = 2099

Appendixes

Appendix I: Lesson Objectives Flow Chart



Appendix II: Alpha Test Instructions

Please be prepared to take your time and give the learning module your full attention. The link you have been sent is to the most current version of the module. Please have some means for taking notes whether it is paper and pencil or an electronic document. We will ask you to deliver these notes to us.

Instructions:

1. Make note of the amount of time you spend in the module (we will ask you for this number), but do not rush. Explore the training module; make observations, click on things.
2. Make systematic notes about:
 - a. Any errors you find: spelling, grammar, syntax, etc. The slides have been numbered to assist you with this process.
 - b. Any design choices you find unappealing: color, font, wording, etc.
 - c. Areas you find confusing.
3. Attempt all quiz items in the lesson(s) and record your results. We will ask you for your score.
4. Please fill out the survey sent in a separate e-mail and return to us.
5. We will contact you to set up a time for the follow up phone interview.

Thank you so much for your time and support. We cannot express enough how much your participation in this test is helping with this project.

Appendix III: Alpha Test Questionnaire

Please rate the below questions based on the following scale.

5 = Excellent 4 = good 3 = neutral 2 = not good 1 = very bad

1. The visual appeal of the learning module (this is NOT asking you to consider the Company X software) _____
2. The aesthetics of the information presented (feedback, avatar, definitions) _____
3. The ease and intuitiveness of navigation _____
4. Is the pacing of the lesson appropriate? _____
5. Is terminology explained/defined well? _____
6. Are the objectives clear? _____
7. Is the information content presented clearly (feedback, avatar interactions, definitions)? _____
8. Does the content seem complete based on your knowledge of such content? _____

Appendix IV: Alpha Test Interview Questions

1. How long did you spend in the module?
 - a. Stephen: 35 min
 - b. Roger: 35 min (approx. did not time)
 - c. Brian: Did not work from beginning to end

2. What was your final score on the assessment items?
 - a. Stephen: 58.33%
 - b. Roger: 42% (was playing with answer variations)
 - c. Brian: Did not take

3. At any point did you go back to clarify information?
 - a. Stephen: yes, in the indicators of compromise section
 - b. Roger: yes
 - c. Brian: no

4. Did you have any (operating system or application) issues running the learning module? What were they?
 - a. Stephen: no
 - b. Roger: no
 - c. Brian: no

5. Did you have any other issues running the module? What were they?
 - a. Stephen: Four choices, left most one goes to 3.2, one does nothing. Slide 4.5 unclear if arrow is indicating menu on slide or navigation on side in Storyline.
 - b. Roger: Places where it wasn't clear where next or back was taking you – to a page or a topic
 - c. Brian: Four choices, left two were masked

6. Were the goals of the module clear at all times?
 - a. Stephen: yes
 - b. Roger: Yes, although objects not as clear as he might have made them.
 - c. Brian: yes

7. Were the navigation options clear at all times?
 - a. Stephen: Did get lost in Host section (was not able to tell us specifically where)
 - b. Roger: see answer to question 5.
 - c. Brian: yes

8. Was there enough and appropriate help to move through the practice?
 - a. Stephen: For the most part
 - b. Roger: Add enhancements to video to improve learner knowledge of navigation before attempting it in self directed area of lesson. In general likes explicit approach of IOC section better.
 - c. Brian: No problems in Host section, did not look at IOC section

9. Were the questions at the end of the module too difficult, too easy? How so?
 - a. Stephen: Good questions
 - b. Roger: Good level
 - c. Brian: Did not look at quiz items

10. What other comments or suggestions do you have?
 - a. Stephen: Add timeline on videos, green on gray hard to read in places, punctuation and capitalization inconsistent in places (title slide, quiz slides), Look into zooming in Camtasia to enhance video, Capitalize all slide titles, weird syntax on question 5.5, fix audio on 4.5, move Quiz 2 button, (he listed the quiz questions he missed for our info).
 - b. Roger: More highlighting of active items on screen, especially in video, will be good for Company X's needs, great start.
 - c. Brian: Would like something more for certification that can be searchable based on needs. Would like new users to be able to test out. Maybe put in that user is a Dell SE and have required items for training come up.

Appendix V: Beta Test Instructions

Please be prepared to take your time and give the learning module your full attention. The link you have been sent is to the most current version of the module. Please have some means for taking notes whether it is paper and pencil or electronic document. We will ask you to deliver these notes to us.

Instructions:

1. Make note of the amount of time you spend in the module. Work straight through the module as though your intention is to master the content.
2. If errors exist within the module, we ask that you return to it after the initial learning session has been completed to take additional notes. At this time you may:
 - a. Make systematic notes about any errors you find: spelling, grammar, syntax, etc.
 - b. Make systematic notes about any design choices you find unappealing: color, font, wording, etc.
 - c. Make systematic notes about areas you find confusing.
3. Attempt all quiz items in the lesson(s) and record your results. We will ask you for your score. This is essential to determine the effectiveness of the module as a learning tool.
4. Please fill out the survey sent in a separate e-mail and return to us.
5. We will contact you to set up a time for the follow up phone interview.

Thank you so much for your time and support. We cannot express enough how much your participation in this test is helping with this project.

Appendix VI: Beta Test Questionnaire

Please rate the below questions based on the following scale.

5 = Agree completely 4 = Agree somewhat 3 = neither agree nor disagree 2 = Disagree somewhat 1 = Disagree completely

1. I had the required pre-knowledge to undertake this training. _____
2. The objectives of the training were clear. _____
3. The practice was relevant. _____
4. The pacing was appropriate. _____
5. The module functioned as I expected. _____
6. The difficulty level is appropriate. _____
7. The feedback in the instruction is clear. _____
8. The feedback in the instruction is helpful. _____
9. The feedback in the questions is clear. _____
10. The feedback in the questions is helpful. _____

Appendix VII: Beta Test Interview Questions

1. How long did you spend in the module?
 - a. Nick: about 40 minutes
 - b. John: 40 minutes
 - c. Brent: 38 minutes
 - d. Evan: duration of timeline + 5 seconds or so on each slide

2. What was your final score on the assessment items?
 - a. Nick: 80 %
 - b. John: 83.33 %
 - c. Brent: 100 % then went back and tried all the other answers to see what happened.
 - d. Evan: couldn't see the screenshots well enough on his 13-in laptop to guess at answers.

3. Did you have any issues running the learning module? What were they?
 - a. Nick: none
 - b. John: No
 - c. Brent: Yes, firewall would not load .swf or run Flash. Safari would not run the module so had to install Chrome. The MP4 videos would pause and ask for reauthorization. Sometimes only voice could be heard – no video action played.
 - d. Evan: text too small.

4. Was the flow of the lesson appropriate and understandable?
 - a. Nick: Needs better directions up front. Intro slide voice over uses term portal but text says architecture – should these agree?
 - b. John: a little fast in places, paused it, could break up content more
 - c. Brent: Did not use the navigation built into the lesson to advance from slide to slide. Therefore, when menu items on the side were out of order, it threw off the logic of the lesson.¹
 - d. Evan: Up to a point. Noticed the progress bar loading but nothing happened and didn't know what to do next. So clicked on next slide in right side menu. Did this 3 times in a row on 3.7, 3.8,m and 3.9.

5. At any point did you go back to clarify information?
 - a. Nick: Yes, re-watched the video in Hosts
 - b. John: Yes, a couple times. Watched the Host video more than once.
 - c. Brent: Yes, in the IOC section – on the Analyst Report Overview
 - d. Evan: No

6. Was the feedback helpful, not helpful? How so?
 - a. In the module?

¹ Storyline automatically orders some of the slides in the menu. I have numbered them so the learner can follow along. At this time, I am unable to determine how to change this order to conform to the correct logical order that the lesson follows.

- i. Nick: After watching the video a second time, figured out what the objective was in the Host practice. Then the feedback became helpful.
 - ii. John: Definitely like the IOC feedback more.
 - iii. Brent: "I didn't really pay attention to the feedback. I clicked on anything that was clickable"
 - iv. Evan: Couldn't really tell because text in screen shots was too small to read.
 - b. In the questions?
 - i. Nick: Yes, and learned something new on the ones he got wrong.
 - v. John: Liked that the wrong answer feedback explained the correct answer but not all of them did that. Some just told you to review the content.
 - ii. Brent: Still didn't pay specific attention to feedback.
 - iii. Evan: On the one question tried, understood what the feedback was getting at. Still couldn't make out the correct answer.
7. Were the navigation options clear?
 - a. Nick: In the second part. In the first part only after going back to watch the video again. Do we realize that slide titles give away navigation "answers"? Yes, we do.
 - b. John: In one place the slider bar was not influencing the progression of the video (?)
 - c. Brent: No
 - d. Evan: Controls within the practice window are a little obscure. Put all action buttons in same place.
8. Were the goals of the module clear?
 - a. Nick: Missing two sections² made it seem as though he was jumping into the lesson without key information.
 - b. John: Yes
 - c. Brent: Yes, but not your average learner. It seemed more of a marketing item to him.
 - d. Evan: Yes
9. What other comments or suggestions do you have?
 - a. Nick: We discussed many things that Nick liked about the module. He had no other suggestions for improvement.
 - b. John: Would like a "click here to close out training" button, maybe make knowledge check more interspersed rather than all at end, needs architecture video to set tone (see footnote 2), text is very small on screenshots, navigation in 2nd module more clear than first to him, add voice over of question feedback, some question feedback was a little harsh or abrupt.
 - c. Brent: 3.2 overlay is wrong size, 3.3 -3.6 not apparent what to do on screen, 3.7 what meant by "incident" abbreviation in menu, 4.13 "any" strings in memory in Voice Over misleading text on screen shots is too small
 - d. Evan: text is too small, boost audio in videos

² The Architecture and User Interface sections were not complete for inclusion in the Alpha and Beta test versions although the objectives were still stated on the introductory slide.