Conflict of Interest

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Has no real or apparent conflicts of interest to report.

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Has no real or apparent conflicts of interest to report.
Agenda

• Introductions
• Presentation
  – My HealthēVet Overview
  – Baseline Summative Usability Test (UT)
  – Quick Studies
  – 2016 & 2017 Summative UTs
  – Challenges & Recommendations
• Questions and Answers
• Closing
Learning Objectives

• Describe a new approach to research design questions within the Agile, two-week sprint cycle, and the challenges faced.

• Show examples of quick study questions and describe how the testing was designed to answer those questions.

• Show before and after examples of usability improvements implemented in response to quick study findings and recommendations.

• Describe the importance of benchmark testing to document the end-to-end effectiveness of those improvements.

• Summarize the major benefits of the integrated quick study/benchmark testing approach.
Introduction

• This topic is based on the work that the Veterans Health Administration (VHA) Human Factors Engineering (HFE) team did for VHA’s Office of Connected Care over a 30-month period to assist with the design of the new My HealtheVet (MHV) Patient Portal.

• The presentation will describe the three parts involved in the process:
  – The creation and execution of a baseline usability test (UT);
  – Iterative testing using targeted, quick studies in step with the Agile cadence; and
  – Periodic summative usability testing leveraging baseline benchmarks to measure changes in Veterans’ effectiveness, efficiency, and satisfaction.
Lay of the Land

• VHA is one branch of the U.S. Department of Veterans Affairs.

• VHA is America’s largest integrated health care system, providing care at 1,243 health care facilities, including 170 medical centers and 1,063 outpatient sites of care of varying complexity (VHA outpatient clinics).

• Serves 9 million enrolled Veterans each year.

Figure 1: VA Structural Chart
Lay of the Land cont.

- HFE is a service-based team within VHA.
- HFE provides human-centered design (HCD) services, user interface (UI) design and usability assessments, and human factors best practices.
- Designing Usable Systems (DUS) - A team of human factors engineers, usability specialists, and user interface designers within HFE who assist in the designing and/or redesigning of user experiences for websites and applications.
My Health eVet

- My Health eVet (MHV) is designed for Veterans, active duty Servicemembers, their dependents, and caregivers.
- Created in 2003.
- Helps them to partner with their health care team by providing information and tools to make informed decisions and manage their health care.

Figure 2: My Health eVet Home Page
The Challenge

- MHV has been around since 2003.
- The site needed an enhancement to become more user friendly and efficient.
- HFE conducted a baseline summative usability test (UT) of the legacy MHV site as it existed in early 2015.
Timeline

• Jan. 2015-April 2015 – Summative UT (baseline) of public-facing MHV
• Sept. 2015-Dec. 2015 – Completed 7 Quick Studies of the MHV prototype
• Jan. 2016-March 2016 – Summative UT of MHV prototype
• April 2016-Nov. 2016 – Completed 12 Quick Studies of the MHV prototype
• May 2017-July 2017– Final summative UT of MHV prototype
The Baseline Summative UT

- 15 Veterans tested the site in Nashville, TN Jan. 28-Feb. 6, 2015.
  - Recruited a mix of Veterans in terms of age, gender, technology familiarity, etc.
- Participants were asked to complete 10 common tasks in six of the most commonly used focus areas of the public-facing MHV, including:
  - Logon (1 task);
  - Rx Refill (2 tasks);
  - Secure Messaging (2 tasks);
  - Appointments (2 tasks);
  - Blue Button (2 tasks);
  - Veterans Health Library (1 task).
The Baseline Summative UT Results

- Site scored poorly in effectiveness, below average in efficiency and below average in satisfaction.
- The task success rate was low at 44%, with participants failing 56% of all tasks attempted.
- The site received a below average System Usability Scale (SUS) score of 64.7; this is below the average SUS score of 68.

<table>
<thead>
<tr>
<th>Finding</th>
<th>Severity Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty determining which meds are refillable</td>
<td>Serious</td>
</tr>
<tr>
<td>Difficulty navigating to appointments</td>
<td>Serious</td>
</tr>
<tr>
<td>Difficulty navigating to secure messaging</td>
<td>Serious</td>
</tr>
<tr>
<td>Back (browser) navigation error page</td>
<td>Serious</td>
</tr>
<tr>
<td>Clicks info (Learn More) box bottom of homepage looking for function</td>
<td>Serious</td>
</tr>
<tr>
<td>Difficulty navigating to prescription refill</td>
<td>Serious</td>
</tr>
</tbody>
</table>

Table 1: Serious Findings
The Challenge (cont.)

• Following the summative UT, VA awarded a contract to redesign the site.

• Redesign was to be based on user feedback and needs, with the following frameworks / methods:
  • A Content Management System framework.
  • Agile environment.
Figure 4: MHV Development Team Agile Approach
Quick Studies

• In September 2015, HFE began conducting the quick studies for the MHV design team.

• The goals of the studies were to:
  • Provide HFE-facilitated Veteran feedback to point-in-time development team questions to assist with the quick decision-making inherent to the Agile approach.
  • Validate MHV redesign user experience approaches as modules are developed and allow for stakeholder and developer observation of the Veteran user experience with the MHV portal during development.
  • Provide concrete and actionable recommendations for iterations of MHV redesign modules during development sprints.
Veterans QS Participant Pool (pre-recruited)

MHV Design/Dev Team

QS Focus Questions (prioritized)

Conduct QS (every 2 weeks)

Figure 5: Quick Study Cycle

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Quick Studies

• The quick studies were rapid assessments performed with scaled back versions of human factors testing methods. The key characteristics were:
  • Short duration (2 weeks);
  • Conducted remotely (via WebEx);
  • Discrete limited content (e.g. one feature, wireframe);
  • Strictly limited and prioritized focus question(s);
  • Small number of participants (maximum of 6 Veterans);
  • Qualitative user feedback, rather than in-depth quantitative analysis.
  • Ability to have an impact on the design of MHV (formative stage).
Quick Study Set Up

- The sessions were conducted entirely via remote technology.
- Veterans participating in these studies controlled the facilitator’s desktop to interact with the interface.
- The study support took notes.
- The sessions were recorded.
Quick Study Example Task

• From Cycle 19:

Task 1: For this task, you need to find the Secure Messaging Inbox and then send a message to ERI WARREN asking about the status of the lab tests you had done last week.
Quick Study Results

- The results of each QS were presented in PowerPoint report format on a debrief call to document the following cycle specifics:
  - Focus Questions with Answers;
  - Participant context and feedback;
  - Findings and recommendations.

Findings & Recommendations
Focus Question #1

Can participants find the Health Calendar?
For this activity, participants were asked to find the Health Calendar page.

Finding:
- Participants struggled to find the “Health Calendar” page.
- Severity: SERIOUS

Recommendation:
- Add a clear reference and link to the “Health Calendar” at the top of the “Appointments” page.
- If directing users to the “Health Calendar” is a high priority, consider changing the “Find a VA Facility” link on the dashboard to “Health Calendar.”

Figure 8: Quick Study Report page
Quick Study Results

- The report was accompanied by a Master Excel Workbook containing an updated list of all MHV QS Focus Questions, answers and findings.

Figure 9: Master Excel Workbook example
Quick Study Results continued

- Between September 2015 and November 2016, HFE completed 19 quick study cycles that generated 407 findings:
  - 41 Serious – Issues that caused task failure. HFE recommended giving highest priority to resolving these issues prior to further product testing.
  - 93 Moderate – Issues that caused occasional task failure after which recovery was possible.
  - 126 Minor – Issues that caused user hesitation, confusion, or slight irritation.
  - 82 Strengths – HFE made a point of identifying features that worked well to provide the team with positive feedback and to let them know that these areas did not need additional attention.
Dispositioning

- HFE periodically worked with the design/development team to disposition/review the findings and recommendations in an effort to determine if issues had been:
  - Fixed;
  - Scheduled to be fixed;
  - Still needed to be added to the schedule to be fixed;
  - Been overcome by events and so no longer was an issue; or
  - Would not be resolved (i.e. the problem was not fixable due to system or policy constraints).
Before and After

Figure 11 (above): Login Page 2016

Figure 12 (right): Login Page 2017

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Before and After continued

Figure 13 (above): Refill Prescriptions Page 2016

Figure 14 (right): Refill Prescriptions Page 2017

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After seven Quick Study cycles, HFE was asked to assess the usability of the prototype site being developed. HFE conducted a summative UT of the prototype website in January 2016 that closely matched the benchmark test done on the legacy site in 2015. The results showed improved performance. Task Success went from 44% to 64%. Task Time went down slightly from 130% of the benchmark to 124%. SUS score went from 64.7 to 82.5.
2017 Summative UT

- Following the end of the quick study cycles, HFE conducted a second summative UT of the prototype site.
  - HFE performed a total of 20 quick studies.
  - The results showed significant improvement with fewer areas of weakness.
  - HFE documented 28 findings in the second summative UT compared to 38 in the first one.
    - Of those 28 findings, only three were “Serious” issues (down from 9) and one of those was due to an easily fixable system error.
    - There was only 1 “Moderate” issue (down from 12).
    - There were 17 “Minor” issues, 7 “Observations” and 1 “Strength.”
Challenges

• The compressed schedule.
  • Getting the test environment set up in time for a dry run and actual testing.
• The design/development team’s shifting priorities.
• Participant recruiting.
• Dispositioning the findings and recommendations.
Benefits

- The design team was able to get rapid feedback on the design of new features from actual end users.
- The design team was able to get answers to questions when faced with multiple approaches to the site’s functionality.
- The design team was able to test fixes based on earlier quick study feedback to verify that the issue had been resolved.
- Disagreements over direction could be settled via a third-party using unbiased testing methods.
- Objections from stakeholders could be responded to with data from the quick studies.
Recommendations

- Ensure the design/development team has a complete understanding of the process involved in iterative testing.
  - Requires a commitment to a lengthy and strenuous development process.
- Make sure the executive team has a complete understanding of the process.
- Devote 100% of one person’s time to managing the quick studies.
More Recommendations

• Provide recruiting support to the person managing the quick studies and the UTs.

• Have a plan in case the design/development team does not have any new, pressing issues it wants explored.

• Conduct a benchmark test of the legacy site and duplicate that test (as closely as possible) on the prototype site.
Questions?

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