Drug Reaction Finder Prototype - Usability Testing (Round #1 and #2)

Aquilent's human factors engineer conducted two rounds of task-based usability testing on the Drug Reaction Finder prototype. The initial test (Test #1) was conducted on the initial prototype at the end of Sprint #1 and the second test (Test #2) was conducted on an updated version of the prototype from Sprint #2. Sprint #2 focused on implementing usability enhancements based on user feedback from Test #1.

This report summarizes the results and recommendations from both usability tests.

Usability Test #1

For Usability Test #1, we tested the following scenarios with representative users:

Scenario #1 (Single Drug): You're doctor recently prescribed Ambien to help with your insomnia. You lost the papers describing possible reactions there might be when taking Ambian and you want to see what reactions others have reported. Use this Website to find out what reactions others have reported when taking Ambien.

Scenario #2 (Multiple Drug): You are currently using a Symbicort inhaler daily to control your chronic asthma. You have a pretty bad head cold and are considering taking Sudafed and want to know if there are reactions that people have reported when they take these 2 drugs together. Use this Website to find out if there are reactions that people have reported when they take these 2 Symbicort and Sudafed together

We also asked for additional subjective opinions/feedback. Note, due to time constraints, we only used three participants. Given additional time, we would use 8-10 users per user group.

Participant 1 Results

Scenario 1 (Single Drug):

- Completed with ease, but results were not what user expected
- Time on task: Less than 3 minutes
- Comments:
    - "Results are right there can see effect and occurrence. Would like to see the latest as may have recalls, so to see the most recent reports"
    - "Expect to see more info on 'nausea' but didn't"
    - "Would expect details on a particular reaction"
    - "Maybe a separate link to see interactions"

Scenario 2 (Multiple Drug):

- Did not complete
- Time on task: Timed Out
- Comments:
    - "Does not suggest a place to look for reactions"
    - "Would want to enter more than 1 drug"
    - "Could not figure out how to get to next page" (referring to interaction page and what it's meaning was)
    - "Do not understand the interaction page"

Other General Comments/Findings:

- "Conveys purpose to look for drugs with adverse reaction. Clear to put in drug name"
- "First page conveys the meaning"
- "Slick well presented information without overcrowding

Participant 2 Results

Scenario 1 (Single Drug):

- Completed with ease, but results were not what user expected
- Time on task: Less than 3 minutes

  - Comments:

  - "Would like to type Ambien and also any other drug"

  - "Feel Mislead as thought 2 drugs"

  - "When I take Ambien a lot of things could happen"

  - "If I click 'nausea' in what cases would people feel nauseous"

  - "Why would I take Ambien with Ambien"? (Note on clicking forward to interactions)"

Scenario 2 (Multiple Drug):

- Did not complete
- Time on task: Timed Out
- Comments:

  - "Would expect to find Sudafed. Would want to find both in search bar"

  - "Don't want to click to find to additional drug info"

  - "It's not Google."

Other General Comments/Findings:

- "Title defines it (the tool) well"
- "So simple, works on a mobile device"

Participant 3 Results

Scenario 1 (Single Drug):

- Completed with ease, but results were not what user expected
- Time on task: Less tan 3 minutes
- Comments:

  - "Shows reactions very clear"

  - "2973 occurrences of what?" need more than a rough number"

  - "Would not expect reaction names to be clickable and show a second drug on click. Expect more description, warnings on drugs taken at the same time"

  - On 'taken with' – "tells me other people were taking other medications."

  - "Search needs synonyms for misspellings"

Scenario 2 (Multiple Drug):

- Did not complete
- Time on task: Timed Out

   –   Comments:

   –   "Expect to see reaction to side effects of drug. Need to research further to get answers"

   –   "Cannot solve on one page"

   –   "Expect 2 drug drop downs

Other General Comments/Findings:

- "Looks like a pop up message to me"

Usability Test # 1 Key Findings

- Users were very confused about what they encountered when the clicked on a search results item (such as Nausea); the resultant page gave information about interactions with other drugs (the user did not ask for this) when they were expecting additional information about Nausea.
- Users had difficulty finding a way to enter a second drug into a query to find an 2-drug interaction (no second search field)

Recommendations for Future Enhancements (ALL)

Listed in order of impact/priority to user:

1. Change link from Reaction list item in search results from drug interaction data to additional details about the Reaction listed
2. Add one or more *additional* search fields to the search functionality to make it easier to search for reactions to drug combinations.

Usability Test #2

This second round of testing (with a fresh set of three representative users) was to validate improvements we made to the prototype in Sprint 2. These improvements were usability improvements and were directly driven from the results of the first round of usability testing, which was the initial test of the prototype from Sprint 1.

For Usability Test #2, we tested the *exact same scenarios* from Usability Test #1 (see above), but with a different set of representative users.

Participant 1 Results

Scenario 1 (Single Drug):

- Completed task with ease
- Time on task: Less than 1 minute
- Comments: "That worked really well. Easy."

Scenario 2 (Multiple Drug):

- Completed task with ease
- Time on task: Less than 3 minutes
- Comments: "Searching for 2 drug—that behaved exactly as I expected that it would." "Would really like to see the # of Reports column be a %. That would have more meaning than a raw count of Reports."

Participant 2 Results

Scenario 1 (Single Drug):

- Completed task with ease

- Time on task: Less than 1 minute
- Comments: "No problem searching for Ambien", (regarding detailed results) "Interesting (demographics) but could be more useful.", "Top X Results label would be helpful on search results page."

Scenario 2 (Multiple Drug):

- Completed task with ease.
- Time on task: Less than 2 minutes
- Comments: "Search worked great.", "I was expecting to see something that told me how dangerous the reaction would be."

Participant 3 Results

Scenario 1 (Single Drug):

- Completed task with ease.
- Time on task: Less than 1 minute
- Comments: "Search went really well!", "Reaction detail is good, but not exactly sure how it will help me."

Scenario 2 (Multiple Drug):

- Completed task with ease.
- Time on task: Less than 3 minutes
- Comments: "Oh! I didn't notice the second search field—I was so focused on the scenario and Drug #1… (Finally added second drug with quick, correct results.)"

Usability Test # 2 Key Findings

- For single drug searches, enhancements from Sprint 2 appeared to fix usability issues from Sprint 1 (users found results and result details less confusing and more informative)
- Some confusion was found about how many items were listed in search results; suggest adding a Top 10 Results header above results list, pagination would also be helpful
- Because of limitations in the data available in dataset via the API, the results are still not quite as useful as they would be if some type of "severity" designation was available

Recommendations for Future Enhancements

Usability Test #2 confirmed that updates we made in Sprint #2 in response to usability issues that were found during Usability Test #1 successfully addressed the top issues. In addition to validating our Sprint #2 enhancements, users provided excellent suggestions for additional future enhancements, which will be added to JIRA as additional User Stories:

- For the search results page, add a label to the top of the results list stating "Top 10 Results"
- Add pagination to the bottom of the results list on all search results pages
- If possible, convert the # of Reports column in the search results table to a percentage, which would have more meaning
- If possible, add a "Severity" designation to each result to help user take appropriate action based on data
- On the search results details page, add filter to allow users to sort results by associated details, such as Gender, Age, and Weight