# Reported insights from Iteration 2 testing sessions

### Extracted from Master Thesis: Turbuscope – Designing an eHealth solution to improve medication adherence for asthma patients with low health literacy by Jasper Faber

Evaluation The evaluation took place at the facility of Pharos in Utrecht. It consisted of three sessions, each lasting 1.5 hours, spread across two days. The participants, who were language ambassadors, were considered to have low health literacy (LHL). One of the sessions was attended by a couple. These sessions were conducted by a representative from Pharos with experience in evaluating educational materials for low-literacy individuals. Prior to the sessions, she was provided with the designer's goals for the evaluation (Appendix HH), the interface screens to test (Appendix II), and the explanatory video. Based on this, she developed a testing script, which can be found in Appendix JJ.

At the beginning of each session, we showed the explanatory video. Following that, we presented and discussed the comprehensibility of the interface screens. In cases where an element was unclear, participants were asked to provide suggestions for improvement.

**Results**

1. Adherence Data

One participant noted the need for more contrast between the yellow color and the background. All participants found the location of the percentage confusing, as it wasn't immediately clear that the percentage belonged to the progress bar. Although everyone understood that the green arrow represented something positive and signified progress, the relationship between the arrow and the progress bar was not clear. The yellow color of the progress bar was seen as confusing and did not convey the proper information about whether the data was good or bad.

"The green arrow, I know it means something is good. But I'm not exactly sure what."

All participants agreed that the use of the medication symbol helped provide information about the type of data being displayed. Almost everyone also felt that the percentage was a clear way to represent progress but suggested integrating it within the progress bar itself. Regarding the green arrow, some participants recommended adding extra explanatory text underneath, while others proposed placing the arrow inside the progress bar to clarify their relationship.

1. Sensor Data

The image of the lungs was found confusing by almost all participants. Some participants noted that the blue color of the lungs was confusing, as it is not the natural color of lungs. Several participants suggested replacing the lung image with an actual picture of the sensor to make the connection clear. However, everyone understood the relationship between the blue arrows and the state of the lungs.

"It could be improved by making the lungs the natural color, I believe it is reddish. Or even better, put a picture of the sensor."

1. Holistic View
   1. While everyone understood that the image represented an asthma patient, most participants suggested adding a personal touch, such as a picture of themselves or their name. The "zoom in" button was understood by almost all participants. One participant initially mistook the button for a search engine, but after reading the text underneath, it became clear that the button was used for zooming in. All participants understood that zooming in meant taking a closer look at the lungs. "I think that button means that you search something. It must be some search engine."
   2. All participants grasped that the image depicted an airway and that the blue arrows indicated the amount of air passing through. They understood that a low number of arrows indicated poor performance, while a high number indicated good performance. Most participants also understood that this screen allowed them to zoom out to the full body view or zoom in further.
   3. Some participants found the blue color of the airways confusing, as it is not a natural color. Almost none of the participants seemed to understand the relationship between the detectors and the progress bar, as well as the concept of inflammation. Most participants associated the state of the detectors with how well they were doing. "It means that you are doing good, the detectors look calm and relaxed." All participants understood that the image represented detectors. Some participants suggested using a visual representation of the detectors to indicate their state instead of relying on color. The same participant also mentioned using their natural color.
2. Timeline None of the participants seemed to understand that the color of the lung wall represented the progression of inflammation. Some participants understood that red was worse than yellow, while others didn't grasp this relationship. One participant mentioned that red is the color of the body, so it should be good. However, all participants understood that the airway depicted changed over time and represented the individual's status. Some participants suggested adding a legend to explain the colors and their meanings. Overall, the timeline function was well-received by the participants, as they saw great value in being able to review their asthma control. One participant mentioned that it would be beneficial to add additional notes to measurements to understand why someone had a poor score on a particular day.
3. Menu The icon of the first button was clear to almost all participants. However, many of them found the word "start" confusing, as it could indicate the beginning of a measurement or a video. Regarding the second icon, most participants found the word "timeline" confusing. They expected to see a screen focused on specific times of medication intake. One participant suggested replacing the word "timeline" with something related to "looking back," as this would more explicitly indicate what to expect on the screen. The icons for help and settings were understood by most participants, as they recognized these common icons from computer use. Under the help button, participants expected to find information about the disease, medication, and the interface itself. Under the settings button, they anticipated options to manage the sensor and app preferences. "Start, I think it means that you can start something, like a measurement or a video."

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