USABILITY TESTING REVIEW

HERMES || SECTION AC

OVERVIEW

All three of our usability studies were conducted in the HUB, at one of the tables on the first floor in the evening. Because it was late, there were few people around, so it was a quiet, non-distracting place to work. In the first two studies, Alex played the role of the computer, Diana the facilitator, and Camille the note-taker. In the third study, the roles were the same, except Michael took notes instead of Camille.

We asked the participants to complete three tasks, the first two of which are our primary tasks:
- Starting a run tracking a new body part (for prototyping, the left shin)
- Starting a run with an injury-prevention exercise suggestion that pops up
- Viewing previously tracked data (here, finding the data for November 1st from the default date of November 7th)

We also had participants try the proposed flow for tracking multiple body parts in a single run and asked for feedback on this design's usability and the perceived usefulness of the feature. In addition to this, we discussed potential alternative methods of inputting pain, such as a wristband or ring, with each participant.

PARTICIPANT 1

Our first participant, Eileen, is a senior at UW. She ran cross country throughout high school, and was co-captain her senior year. We chose her as a participant because she is a member of our target audience, but we had not previously interviewed her for design research. As such, she was able to test our prototype without any prior knowledge or biases. Eileen completed all the tasks fairly easily and quickly, but did not speak out loud very much during the usability test.

Eileen gave good feedback related to navigation inside of data view, the methods through which run data is presented, and the types of run data that are presented. We made small revisions to the prototype in all three of these areas in response to the results from this usability test.

PARTICIPANT 2

Our second participant, Allie, is a senior at UW. We previously interviewed her for design research; we chose her as a usability test participant because we wanted the perspective of someone who is more familiar with our app and our goals. Allie completed all the tasks quickly and easily. While going through the screens, she constantly made comments about features she liked and disliked and made suggestions about features she would like to add. She also expressed where she found the design to be confusing. After completing the first task, she directly went into and completed the third task by exploring the buttons available without prompting.
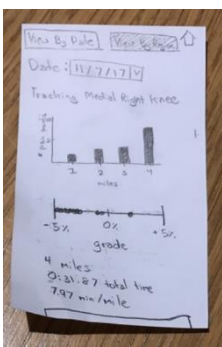
Allie pointed out several issues in our prototype. There were places where system state was confusing, and she thought that the terminology used to describe some of the body areas to be confusing. She also desired more workout data and expressed dissatisfaction with the flow of an exercise suggestion coming up when a run was started. In response to this feedback, we added affordances to clarify system state in some situations, used simpler terminology in labelling, changed the flow order of the exercise suggestion task, and added some workout data views.

PARTICIPANT 3

Our third participant, Joshua, is a freshman at UW. Although he does not run for exercise very often, he has done multiple running-related sports throughout his life (such as ultimate frisbee and tennis). We chose him as a participant because he has no prior knowledge of our design or goals, so he can view the design with a clean perspective. Joshua also has no experience with existing run tracking applications, as he does not run for exercise often. This gave us the opportunity to gauge how intuitive our design is to someone who is not as familiar with existing products in this area. Joshua was vocal and articulate in describing his thoughts, as well as giving recommendations and feedback on how our app could be better.

Joshua suggested multiple feature changes to the app; we adopted his idea to allow the athletes to view previously suggested exercises and stretches because it strengthens our primary task of providing assistance with existing injuries. He also pointed out that some of the iconography on the map was confusing; this we altered to make more clear.

FIRST USABILITY TEST ISSUES & REVISIONS

Image	Issue	Severity	Revision	Revision Image
	Tried to swipe side by side to change the date in "view by date" section, but was told it was not supported	2	Is now supported	No change to the prototype for this issue (rather, a change to the behavior of the computer in future usability tests)

Image	Issue	Severity	Revision	Revision Image
	Was confused by the way the data was presented (thought the pain point graph was continuous rather than per mile, did not understand the grade (%) graph)	2	Changed the pain point bar chart to be decreasing, changed the grade graph to be a more visual distance/elevation graph	
	Desired more information, such as summary information, in the "View by Region" section	4	Added a tip and chart of data over several runs	

SECOND USABILITY TEST ISSUES & REVISIONS

Image	Issue	Severity	Revision	Revision Image
	Felt that having the exercise suggestion before the run didn't flow well because runners may not want to spend time doing it when they are already in the mindset to run. Felt that giving a running tip before the run and then an exercise suggestion afterwards would make more sense	3	Added a tip pop-up after the start screen (shown on the right), moved the exercise suggestion to after the run.	

	Wanted pace data as a part of the workout data view	2	Added pace data to the "View By Date" screen, reordered the info so summary data was at the top, followed by maps, charts, and pace	
	Desired pain point data in the chart summary for the "View by Body Part" screens	2	Added a pain point column	
	Did not know whether a pain point was inputted successfully	4	Added a pop up screen that confirmed successful input, and made the phone "vibrate" (change in computer behavior)	
	Was confused by terminology like "medial" and "anterior"	3	Removed terms from all screens and replaced with simpler language	

Image	Issue	Severity	Revision	Revision Image(s)
	Was confused by "region" (also shown by our heuristic evaluators earlier)	3	Changed "region" to "body parts" on all screens (example on the right)	

Image	Issue	Severity	Revision	Revision Image(s)
	Wanted an automatic pause/resume functionality that allowed the GPS to determine whether or not you have paused without manual input.	0	No revision made, because too many cons. GPS not always reliable, and slight inaccuracies can impact accuracy of time.	N/A
	Wanted a "show me exercises" button for when a body part hurts/is stressed, but without having to go on the whole run to get suggestions.	1	Added the functionality to the home page of the app, so users can access previously suggested exercises and stretches.	
	Confused about the start/finish of the route on the map. Wasn't sure if flag image meant start or finish.	2	Modified map to be more clear (larger icons, changed flag icon to be a checkered flag).	
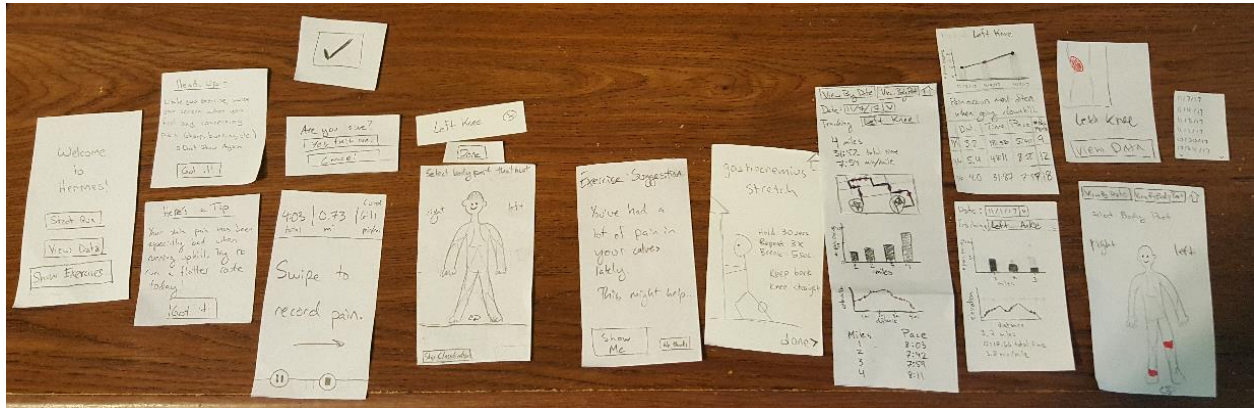
TASK 1

Starting a run tracking a new body part (here, the right shin)
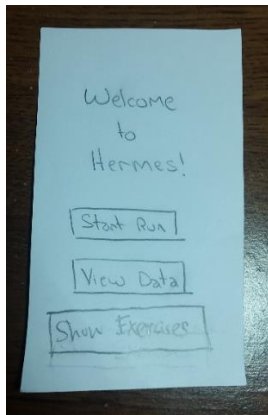
Figure 1
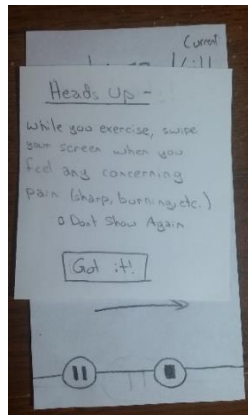
Figure 2
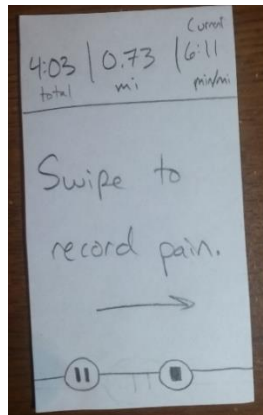
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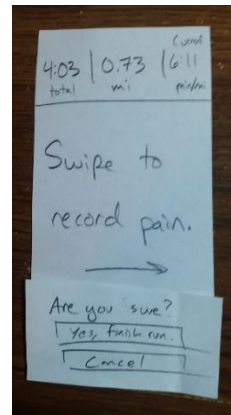
Figure 4
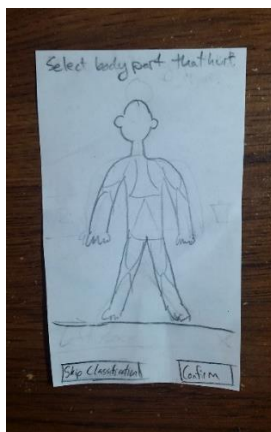
Figure 4
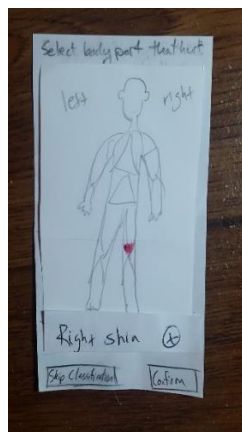
Figure 5
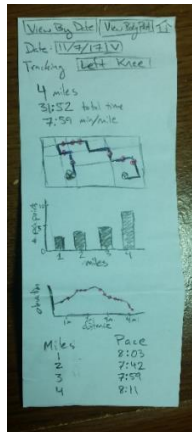
Figure 7

The user opens the app to the welcome screen (Figure 1). After pressing the "Start Run" button, a popup detailing instructions on how to record pain, with the run screen hidden underneath, is shown (Figure 2). After they have read it and pressed "Got it!" the popup disappears to fully reveal the run screen, so they can start their workout and see updates about their distance, mileage, and pace (Figure 3). Tapping the stop button to finish the run will trigger a popup, checking if they are sure they would like to finish the run (Figure 4). Pressing "Yes, finish run" to confirm it will take them to a screen with an image of a person, where they can select the body part they wish to track (Figure 5). Once they select the right shin, the body part will be highlighted, and its name will appear on the bottom (Figure 6). Finally, when "Confirm" is pressed, a screen where they can view data for their workout will appear (Figure 7).

TASK 2

Starting a run and receiving injury prevention and alleviation suggestions

Figure 6

Figure 7
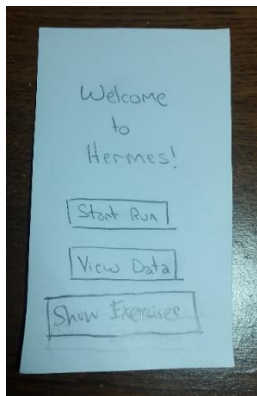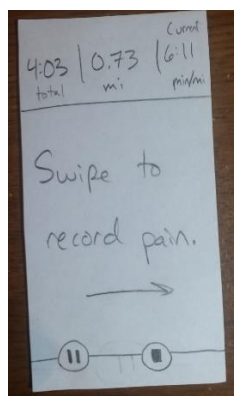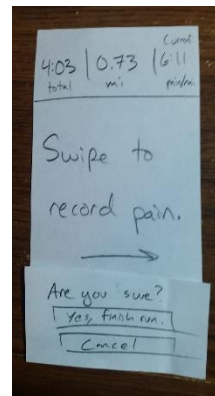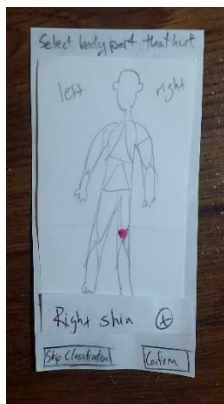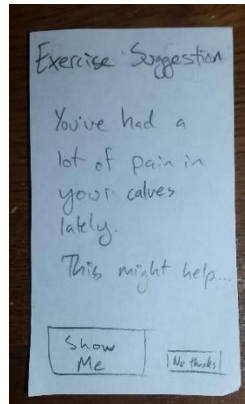
Figure 8

Figure 4

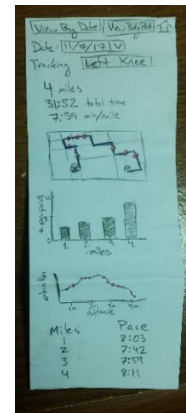Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

The user opens up the app to start the run (Figure 1). After "start run" is pressed, a notification appears over the run screen (Figure 2), suggesting that the user avoid hills during their run due to pain in their previous runs. When the user clicks "got it," they begin their run as normal (Figure 3). When they want

to stop the run, they press the stop button (Figure 4) and confirm that they want to exit, taking them to the body part screen (Figure 5). Then, they select the body part that hurt on their run (Figure 6). The app analyses recent data and sees a worrying trend in their pain, so it suggests a particular stretch to them (Figure 7). Clicking "show me" takes the user to a screen which instructs them on how to perform the stretch (Figure 8). From there, they can view their data from the run (Figure 9).

IMPORTANT CHANGES

We have decided to use an additional piece of hardware for recording pain during the run. All of our participants during usability tests expressed concerns about having to take out and interact with their phone during the run, worrying it would be too cumbersome. We anticipated this and had a few alternatives prepared which we discussed with participants. Our current plan is to use a bluetooth-paired ring device which has 2-3 buttons for recording pain in different body parts. This method of input does not interrupt the runner's stride and was endorsed by our participants in the usability studies. Furthermore, using such a device handles another key issue of differentiating which pain points were tied to which body part if multiple body parts hurt during a run.

Pre-run exercise and stretching suggestions were moved to be displayed after the run instead. In their place, we have added tips and insights which might pop up at the start of the run. These tips still allow the user to begin their run immediately, offering guidance rather than subverting the current action of the user. The idea that an athlete would set out for a run only to be told they first need to stretch was a major issue for our second participant. We feel that keeping tips at the beginning of the run can still allow the app's data analysis to provide value before the run, without being invasive. Furthermore, giving the exercise and stretch suggestions after a run allow the suggestions to be more immediately relevant, since they can draw on pain data that was just entered, and help the athlete to soothe and stretch body parts that are hurting at that moment.

From early heuristic evaluations, we realized that our tasks were not particularly clear. There was not enough instructional text to guide users through the actions we expected them to perform, so they were confused about how they should proceed. As a result, we overhauled our prototype to improve clarity about the expected flow of actions. This includes more clearly explaining the method of interaction and when they should record pain as well as changing the flow of body part selection to occur after the run and use plain English. These small changes together greatly improved the clarity of the application. Without these improvements, our participants were confused and had a hard time completing the tasks.

We added more running data and insights that the athletes wanted to see. This includes mile splits at the post-run screen and adding related information to each body part's activity history page. These changes were requested by multiple participants, often wishing they could see particular data that we had not thought to include. Providing value to the athletes through the data that is already being gathered helps users with the primary task of reflecting on their workouts.