

**TOP FIVE
CONSIDERATIONS
OF USABILITY
TESTING WITH
WEARABLES**



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TOP FIVE CONSIDERATIONS OF USABILITY TESTING WITH WEARABLES

INTERESTED IN DOING SOME USABILITY TESTING WITH WEARABLES? You're not alone. With the hype of new and innovative wearables, these products are becoming more than ever in the public eye. In this paper, we walk through five key considerations that need to be made specifically for wearables, how to implement them, and why they're so important.

First off, let's define wearables as we'll use them in this paper. We consider wearables as clothing and accessories that contain computer and advanced electronic technologies. This includes but isn't limited to:

- Smartwatches
- Smart glasses
- Fitness Trackers

Here are Key Lime Interactive's top five considerations when performing usability testing with wearables.

- 1. Device Connectivity**
Wifi, Bluetooth, and Device Interaction
- 2. Battery Life**
Normal vs. Inlab Usage
- 3. Capturing the First Person Experience**
Moderation, Recording, and Streaming
- 4. Environmental Factors**
Lighting, Noise, Touch
- 5. Methodology Limitations**
Wearables-specific Issues with Typical Methodologies

1 Device Connectivity **Wifi, Bluetooth, and Device Interaction**

It's important first to consider that wearables don't exist in a vacuum. Since most devices rely on a mobile app to communicate more complex information to the user, you have to look at both devices and the flow of the task between them. Except for some functionality like fitness tracking, wearables won't often be used on a standalone basis, so the pair should be considered as such.

This means that similar to mobile device testing, the WiFi at your testing facility can have a big impact on testing. This is amplified when testing with wearables, which are often dependent on a mobile app to perform certain interactions. If the wearable's functionality is hindered by a drop in signal at the wrong time, this could impact participant perception.

Another thing to remember is that many wearables communicate via Bluetooth with the companion phone app. This connection needs to be set up prior to testing and maintained throughout, unless of course the set up is what you're testing.

2 Battery Life **Normal vs. In-lab Usage**

When bringing a situation into the lab, it's important to consider where you're deviating from the real life context of that device. For instance, the Apple Watch is supposed to last 18 hours under normal use, but in testing circumstances there will be heavy usage, and that time limit gets a lot shorter. Fitness trackers like the Fitbit Flex have only a series of dots to communicate directly, so battery life must be viewed in the app. Either way, it's very important to either keep a charge

by monitoring between sessions, or have multiple devices on hand, to avoid running out of battery while testing. Your stakeholders don't want to see the participant tethered to an outlet via their wearable, wireless device.

“When approaching wearables testing, you must start to look holistically at user interactions with the device.”

3 Capturing the First Person Experience **Moderation, Recording, and Streaming**

While in traditional circumstances, streaming a desktop or mobile device screen is not a problem, new challenges arise when also working with a small device screen. Out of the 1,000 apps in development for the Apple Watch, we're not counting on one of those to stream the screen for usability purposes. And the setup of a video camera and sled to record is cumbersome, and requires the participant to use a small wearable device with an attachment. We have had success using eye tracking glasses such as those made by Tobii to help project exactly what the participant is seeing to our researchers, and more importantly, the stakeholders. This provides smooth, HD quality streaming video for the viewers, and freedom of interaction for the participant. When in doubt, use the best technology you can afford to test new devices.

4 Environmental Factors **Lighting, Noise, Touch**

When approaching wearables testing, you must start to look holistically at user interactions with the device. A lab environment differs from a real life environment in many ways. This is fine for testing a mobile app or site, which are subject to the phone itself, but wearables are used often, in short bursts, and in a variety of situations. Take lighting, for instance. In an antiseptic lab setting lighting may not be an issue, but using a small screen in direct sunlight could prove to be difficult. In another case, your user could be on a crowded subway or running at a gym. How does background noise affect the impact of notification sounds from the wearable?

Finally, the tactile sense of the wearable is important. How are the ergonomic interactions being asked of the user, such as using the dial on the apple watch, or using the small touchscreen to perform your task.

Is the transition between the device and the app smooth and intuitive? To really look at the full experience, you must think as a real user of the item, and look at features in their natural habitat, if possible.

5 Methodology Limitations **Wearables-specific Issues with Typical Methodologies**

Fashion is undoubtedly a big topic for wearables when testing devices. Usability labs might not evoke fashion specific feelings and judgments in participants when they're focused on the task at hand. But in reality these devices are not only a fashion statement, but any item worn on the body needs to be stylish and match other clothing. People wearing Google Glass have at times been insulted or even treated poorly in public; how will the Apple Watch play out? Since its initial release on April 24th, our CEO and few folks in our team have been fashioning the watch and have been met mostly with interest, excitement, and A LOT of questions. It will be interesting to see if the reception is the same globally, and if it continues over time after the buzz dies down.

We looked at battery life issues above considering time in the lab, but thinking of battery life in everyday use would have its own concerns. How do users feel about battery life during average usage of a device?

Finally, looking at Geolocation and situational uses or notifications these can be tested in a fictional sense, but the experience of notifications dropping based on location or using Apple Pay in a store setting would lose that situational impact when tested in a lab. Consider using diary studies to tackle some of these issues when testing with wearables.

As wearables continue to be adopted and grow in the market, proper research methods will need to be applied. Wearables offer unique challenges in testing that require tweaks to current testing methodology in order to get the right data. Keeping the best practices and techniques outlined above in mind, you can expect to get everything you want from your wearables testing.



Optimize the Experience.
Inform Design.
info@keylimeinteractive.com
305.809.0555