

THE WORLD'S A STAGE



Using Acting to Validate a Wearable Product Concept with Users

BY ANU KANKAINEN



As one of the phases of user-centered product concept design, validation provides input for making decisions about whether to select certain product concepts for further development. In the earliest product development phase, the decision to stop design is not considered a failure since it can save large amounts of money. If the decision is to continue the project, user research reduces risks and makes it easier for decision makers to support it in the future.

In general, acting is nothing new in user-centered design. Basic usability testing recommends using task descriptions that can be interpreted as some kind of “acting scenes.” Apala Chavan at Human Factors International (HFI) in India has further developed the idea of task descriptions. When conducting usability testing in Asia, it can be difficult to get negative feedback from test users. She developed the “Bollywood Technique” that puts the test users in the role of movie stars; in their fantasy test sessions, they forget their normal cultural rules of being very polite.

In recent years, acting has received increased attention in new technologies where, for example, ubiquitous computing concepts are difficult to prototype (and sometimes even difficult to imagine). In brainstorming sessions and user testing situations, researchers at Helsinki Institute of Information Technology (HIIT) have used body storming—brainstorming in simulated or real user environment by acting out ideas—and other drama methods. Their drama techniques differ from Chavan’s method in that they are more physical in nature. Ubiquitous computing is often about interacting with surrounding environments that include bodily movement and mobility. We noticed the same requirement for more physical acting when designing our validation sessions for the wearable product concept.

Why We Used Acting

Our client had an idea for developing smart clothing for mobile workers such as janitors, guards, homecare personnel, meter maids, conductors, etc. They wanted us to study whether their idea was

valid and what the starting point for the design of such products should be. Specifically, they wanted us to answer the following questions:

- Is there be a real need for such a product, enough to warrant further development?
- What is the real target user group? The client had the idea of mobile workers but nothing more exact. They wanted the study to rule out any erroneous pre-assumed user groups.
- What features should the product have for each possible target group? The client considered communication, safety, and activity-recording features, but they needed to know what those features would mean in practice.
- Are there any other requirements for the product's design arising from, for example, specific work conditions?

After we heard our client's product concept and what was expected from our study, we suggested acting as a validation method. Since clients sometimes expect familiar methods (such

- User groups chosen to be studied were very mobile and sometimes needed to conduct their tasks in limited space using very different postures and kinds of tools. Acting would help to realize the limitations and possibilities of the wearable product as part of those physical activities.
- While the physical context of use (such as weather conditions, noise, and other people) would influence how the product concept would work, we could not be aware of all the contextual issues. Therefore acting would help participants realize and communicate the contextual requirements.
- Acting would also help us to better understand the social contexts in which the users might use the wearable product.

We used acting both as part of field observations and in focus groups. We wanted to use two methodologies for mutual verification of the approach.



as focus groups and interviews), we were not sure how they would react. In this case, however, after hearing our rationale for the methodology, they were very receptive to our suggestion. Our rationale was:

- Interaction with the wearable product was very physical in nature. Therefore acting would help users to understand the interaction better and to show possible problems with it. Since there were no prototypes or mock-ups available, acting would help participants imagine interaction with the product.

Acting as Part of Field Observation

In the field we observed a total of sixteen potential users, in pairs, from three different user groups. Each observation session lasted approximately one and a half hours, and the users videotaped each other during the acting.

Two researchers, a moderator, and a recorder participated in the sessions. Since the pairs discussed the issues together, the moderator did not need to lead the discussion as much as with an individual participant.

The observation sessions followed a specific structure:

- Discussion on current behavioral patterns and tools used within the specific context where the observation would occur.
- Introduction to the wearable concept by suggesting what the users could do with it
- Users acting out usage of the wearable product concept, based on their prior actions in the specific context.
- Discussion about how the users experienced the imagined use of the concept their opinion about whether the concept would be useful as part of their activities, and discussion of the pros and cons of the concept.
- Discussion of other possible product features not mentioned by the researchers.
- Discussion about using the concept within other contexts.

The acting by users was very effective. The users understood the concept of the wearable product and were able to determine whether it would be useful as part of their activities. They were also able to suggest some contextual issues for developers to consider when designing the product, such as other clothing, noise, postures, and interoperability with other devices. Beyond functionalities conveyed by the moderator, users were also able to indicate others to maximize the product's usefulness.

One problem did emerge: it was difficult for participants to consider other contexts of use besides the one they were acting out. It seems that our method immersed the users too well; they were unable to think outside the current context. They primarily wanted to comment on what they had experienced during their acting out.

Actors in Focus Groups

Twenty users from four different user groups were invited to focus groups of four to six participants each. Two focus groups included users from profiles that were not in the field study, and groups included users from two profiles discovered in the field observations. All participants were different from the users who participated in the field observations.

The focus groups followed a defined structure:

- **Introduction:** Discussion about current behavioral patterns and tools used in the specific context where the users do their tasks. Moderators introduced the wearable concept by discussing what users could do with it.

- **Situations:** Participants and the moderator generated use situations for the product concept based on discussion of current behavioral patterns. Then actors presented the use of the concept in those situations. This was followed by discussion of the pros and cons of the concept and development ideas.
- **New features:** Groups considered new features that the concept should include. Actors then presented the new features in use situations constructed together with participants.
- **Additional contexts:** New contexts of use were considered, and actors presented them.

There was a final discussion considering the pros and cons of the concept and development ideas, identifying the real target group, and discussion of whether the participants would buy the product and how much they would be willing to pay.

The use of actors created a relaxing and comfortable environment for the focus group participants. Moreover, our client representatives enjoyed observing the focus groups. Compared with other focus groups without actors, the atmosphere was more engaging and interesting for both the participants and observers.

While the focus groups generated many more ideas than the field study for new contexts of use, the results from both were rather similar. In fact, we were somewhat surprised at how well the actors' performances helped the focus group participants think of contextual issues, such as suitability with other clothing, weather conditions, appropriate gestures, ergonomics, and interoperability with other devices. Perhaps the users in the field were able to generate more detailed development ideas, while the focus groups came up with more general notions on contextual issues.

In hindsight, we might have made one methodological change: we could have used actors again with the users to construct a realistic target group "personality."

Reporting the Results to Our Client

Following the field study and focus groups, we discussed several ways to report the validation results to our client. We did not want simply to report that one assumed target group would not accept the wearable product while another group would. We obtained much richer data from our study, and we wanted our customer to receive a deeper



Focus group participants watch an actor

understanding from our findings. Therefore, we selected three ways of reporting the results: personas, storyboards, and context issues related to each persona.

Personas (hypothetical archetypes of actual users as introduced by Cooper) are usually created following user research at the beginning of the design process, and not after product concept validation. However, our study provided the same kind of data as that used for creating personas. Moreover, personas were a very practical tool for communicating to our client that, "This kind of user with these types of goals would use the product concept if you added these features to it." This helped our client to consider two issues: whether there were markets for their product idea, and whether (how much) it should be developed further.

For each persona, we created storyboards that illustrated the sequence of actions the persona would perform within a certain contextual setting. We used rich context scenarios in storyboards instead of detailed descriptions of task flows. Storyboards helped our client to obtain a better understanding of personas' goals and contexts of use. They acted as proof that there were usage situations for the product concept in real life. Moreover, they helped to estimate how frequently the personas would use the product.

We also included in our report a section about context issues. Each persona used the product concept in a different setting, so there were different context issues to be taken into account for each persona. Some context issues (such as water resistance) were valid in all cases. The context issues, together with a feature list and the persona

descriptions, were assumed to help our client figure how much it would cost to produce an acceptable product. Context issues also provided input for the industrial and mechanical design of the product.

Conclusion

Using acting as a technique to validate a wearable product concept turned out to be quite appropriate. It provided information that helped describe the right target group, identify possible use situations, and better understand the context issues to be taken into account in later phases of product development. In addition, the use of two methods in these kinds of studies proved anew its value for getting reliable results.

The study provided rich qualitative data and could have been continued and supplemented with a further market study—providing quantitative data on potential markets. The market study could have been created on the basis of personas and storyboards. Nonetheless, the qualitative data can provide some strong insights that helps to make decisions by using common sense in this very early phase of product development. **UX**

ABOUT THE AUTHOR



Anu Kankainen, Ph.D. is a psychologist with thirteen years of experience in user-centered design. For the last ten years she has worked primarily on strategic design projects, exploring new product and service concepts utilizing the latest and future technologies. She can be reached at anu.kankainen@idean.com.