Usability Testing at a Distance

BY ELIZABETH BOLING AND KENNON M. SMITH

Kevin and his stepmom confer on the next step in the recipe.

A few months ago, one of us, Elizabeth, was asked to create illustrated recipes to be included in a book being written to encourage families that include a member with disabilities to plan, prepare, and eat meals together. It was easy to find general guidelines for creating illustrated instructions, such as:

- Keep related text images close together
- Make the style and content of the images consistent
- Chunk the recipes (combining related steps to reduce the number of parts in the process)
- Use contrast to make the numbered steps easy to find and follow

However, when we searched for illustration guidelines, we did not find many for illustrations that could be used by people with intellectual disabilities, or by these people working together with their family members. We knew that we had to test the materials under authentic conditions to find out what problems people might have that we couldn't anticipate ahead of time and, as academic scholars, we decided we should do so both as a usability test and as a research project.

When you can't (or shouldn't) be there yourself

We were familiar with traditional observational and think-aloud protocols for usability studies, but we also knew that direct observation would be very intrusive in this situation. Our presence in people's homes might be a problem for any kind of study, but we expected that it would be especially disturbing for a participant with intellectual disabilities to be watched by strangers. Some of these individuals had been institutionalized and they react badly to being observed as if they were undergoing a test or diagnostic procedure.

Think-aloud protocols posed special problems for us, too. Many study participants find thinking aloud awkward, but thinking aloud might be particularly challenging for persons with intellectual disabilities. Some participants also have trouble speaking clearly and simply cannot think aloud.

Testing at a distance

For all these reasons, we decided that we had to carry out our usability testing at a distance using written materials. We decided to create a packet that included:

- An invitation letter
- Two informed-consent forms
- The "how to" instructions
- A collection of recipes from which participants could select one
- The response materials

This packet was mailed to families who had agreed to receive it. The invitation letter asked them to read through the packet materials and decide if they wanted to participate in the study. If they did, the "how to" instructions asked them to cook one of the recipes, then fill out a short booklet titled, "Our Cooking and Eating Experience" (see pg. 7). We also included a small version of each recipe with space around it so they could mark any place where they had trouble understanding or using the text and images (see pg. 6).

Once a family returned the packet to us, we analyzed it and followed up with a phone interview to clarify their comments and ask any additional questions raised by their feedback.

Risk management

As university researchers, we sought approval from our institution's review board,

How to Use the Recipe Note Sheet

We want these recipes to be easy to understand and to use. On this note sheet we hope you will tell us about the pictures and the text of the recipe, about the way it is laid out on the page, about the sequence of the pictures, or anything else that made the recipe easy or challenging to use.

It may be easiest if you write directly on the recipe as we have shown on the sample here. Circles and arrows help us figure out which part you are commenting on, and your notes let us know what was helpful for you and what was not.

We have started to add notes to this recipe in the way that you might do now -- and you should feel free to make as many notes as you want to on the Recipe Note Sheet that goes with the recipe you tried. Every comment you make helps us to improve these recipes and future designs for these kinds of materials.

and we recognized that usability specialists in other organizations would be concerned with the same issues of risk. We needed, first of all, to be sure that persons with intellectual disabilities would be fully informed about the study, and would participate only if they genuinely desired to do so. We consulted with a special-education professional and, with her advice, created a plain-English version of the consent form required by the university. We asked that a "trusted person" read this form to the participant with disabilities and explain any part that was not clear. Both participants signed the form.

The review board had serious concerns about safety, since the recipes called for cutting and chopping food and handling hot pans and food. The reviewers suggested that we ask participants to "cook safer stuff" or that we "bring participants to a controlled environment where we could monitor them." While we appreciated these concerns, we could not change the materials or they would not be authentic; and we could not bring participants to a lab situation where their experience would be artificial and uncomfortable.

We negotiated a compromise by including in the packet a short letter to guardians reminding them of the risks involved in cooking activities and advising them to choose a recipe they felt confident about having their family members use. We also attached small red "reminder" stickers to the recipes at each step that involved cutting or heat.

How did it work?

The families that returned the packets seemed to have had no trouble following the instructions for giving us their feedback. They reported reading through the materials before beginning to cook and said that they knew what we were going to ask about. This seems to have structured their observations of themselves and the written feedback they gave us. Phillip's family was careful to tell us which steps in the recipe Phillip carried out himself, and they drew out an example of the headings they thought would make the recipe easier to follow. Phillip himself wrote, "The tools was easy because I can follow the rules and I know where are they hiding." We felt that we got a strong flavor of the experience based on the specific information that participants provided. This kind of feedback may not have captured all the data we would have gotten while

Our Cooking & Eating Experience

Fill out this booklet after you're done cooking and eating. It is most helpful to us if everyone who took part in the cooking and eating experience helps to answer the questions in this booklet.

1 Tell us which recipe you prepared and why you chose to prepare that recipe.

The recipe we prepared was:

_____

We chose this recipe because:

_____

_____

2

Tell us what happened while you were cooking, from the time you started until you finished. We want to know how the process unfolded—did you start by looking through the recipe? By gathering ingredients and utensils? What did you do next?

This is what happened while we were cooking:

_____

_____

_____

3

Did anything unexpected happen while you were cooking? What happened? How did you handle it? Was anything confusing? If so, how did you decide what to do?

Remember, if it was hard to use the recipe, that's not your fault. We want to hear about it so that we can make these recipes better.

While we were cooking, we were confused about:

_____

_____

_____

4

What was the best part of the cooking experience? What was easy? What was fun?

_____

_____

_____

This was the best part of cooking for us:

_____

_____

_____

5

How long did it take to prepare this recipe from the time you started until the time the food was ready?

_____

_____

_____

6

What would have made the cooking easier for you?

_____

_____

_____

Cooking this recipe might have been easier if:

_____

_____

_____

7

How did the food turn out? Was it good? Was it awful? Would you like to eat it again sometime?

_____

_____

_____

The food we fixed was:

_____

_____

_____

8

Is there anything else you want us to know about this experience—something we didn't ask?

_____

_____

_____

Other things we want to say about cooking and eating this food:

_____

_____

_____

9

Look at the Recipe Note Sheet for the recipe that you prepared.

Mark any place on the Note Sheet where you had trouble with the recipe. Mark any place on the Note Sheet where the recipe was especially helpful or easy to use. We hope you will make notes to tell us which parts were easy and hard, and to tell us why.

observing directly, but it did focus the participants' reports on the critical areas we needed to know about.

The families also annotated the small copies of the recipes we provided, and it was from these notes that we learned most about the images. For example, one family circled the picture of a cleaver chopping vegetables and wrote, "Kevin said, 'No. Small knife—be careful,' and used the one he usually uses when we make salad." Test participants do not always comment on illustrations even when they are using them, and we believe that the format of our packet encouraged this kind of feedback particularly well.

Following up by phone also allowed us to fill in some gaps and to get a "flavor" of the experience that might not have come through in the written responses. Kevin's mother told us that Kevin attended to the big numbers on the illustrations very closely and put his finger on the pictures showing what they needed to do next. She said, "He directed the experience for the most part. Usually when we cook I tell him each step. I didn't expect him to take over so much. Wow! It worked!"

When might these methods be useful?

If the presence of observers can be expected to distract or disrupt the activity you need to observe, consider testing at a distance. If some participants in your study have a limited ability to separate what they're doing from their reflections in real time, and someone else participating in the activity can serve as an effective observer, consider gathering your data by self-report in written

form. In either situation, provide materials that help to structure the feedback offered by the participants so that they report on the things you need to know about. This type of testing can work especially well when you are able to follow up by phone or in person with one or more participant.

What are the possible pitfalls?

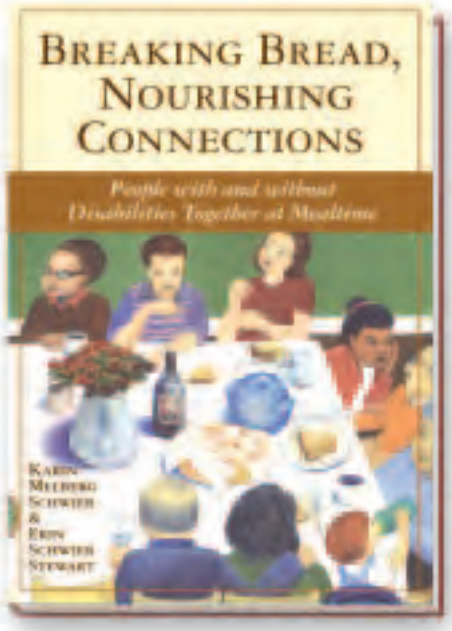
When you are not there to conduct the study, people may put off doing it. They will also need to review your materials before they start, which can add extra time and may lead some of them to drop out of the study. If you are conducting your study in a commercial situation, you may be able to offer incentives to help with this problem. Even so, it may be a good idea for your materials to explain why the study is important.

You will have to explain the study in writing, including all the directions participants need to do it themselves. Look for a writer who has experience writing clear, simple instructions and test your packet before you send it out. This will take a little extra time up front but it will pay off.

If you are studying a population that has difficulty communicating, you will need to include other participants in the study. Their observations will affect the information you get about the other people in the study. In our case, we used family members who knew the other participants very well. Try to identify co-participants who can give you the most reliable observations possible.

Some usability testing follows a tried and true study design, but when your circumstances are special, then your methods must be creative.

The illustrated recipes described here appear in *Breaking Bread, Nourishing Connections: Mealtimes for People with and Without Disabilities* by Karin Melberg Schwier and Erin Schwier Stewart, published in March 2005 by Brookes Publishing. Thanks to Dr. Susan Klein of Indiana University for her advice and support. UX



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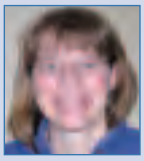

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