BioMedTech at the Great Lakes Science Center

Brief Overview of the Process of Prototype Testing

October 13, 2006
== Version 06 ==

Step 1. Complete description of Exhibit Unit Intentions for the exhibit you are going to test.

Step 2. Post signs.
Make sure signs are posted at each entrance to the area where you will be conducting observations and interviews.

Step 3. Select respondent(s).
Use purposive sampling of intact visitor groups. Record why you selected each group.

Step 4. Invite respondent(s) to participate in the study.
If they say no, go back to step 2.

Step 5. Introduce respondent(s) to the process.
Include all pertinent information.

Step 6. Observe respondent(s) using the prototype and take notes.
Use Observation protocol. Pay particular attention to physical, intellectual, social, and emotional engagements with the prototype.

Step 7. Interview the respondent(s) and take notes.
Use Interview protocol. Ask probing questions as necessary/appropriate.

Step 8. Thank respondent(s) and give them a gift.
Be generous in your appreciation.

Step 9. Complete your observation and interview notes.
Fill in and flesh out any missing items.

Step 10. Complete debrief for this observation/interview.
Do this BEFORE your next observation and interview.

Step 11. Enter respondent information on the Respondent Data Sheet.

Step 12. Make modifications to exhibit unit as appropriate.
These modifications are refinements based on your interpretation of the data. Avoid the temptation to develop a completely different version of the exhibit.

Step 13. Go back to Step 2 and begin another round of data collection.

Step 14. Once testing of the prototype is complete, write a mini-report using the BMT2 Formative Evaluation Mini-Report Format.

BioMedTech at the Great Lakes Science Center

Detailed Overview of the Process of Prototype Testing

October 13, 2006
== Version 06 ==

Step 1. Complete description of Exhibit Unit Intentions for the exhibit you are going to test.
The blank document is titled: < BMT2 Exhibit Unit Intentions for ____ v_ [date] >

Step 2. Post signs.
Make sure signs are posted at each entrance to the area where you will be conducting observations and interviews.

Step 3. Select respondent(s).
Throughout the course of the observations and interviews, it's important to try to observe and interview a *range* of visitors. When selecting respondents you want to make sure you are conscious of whom you choose to speak with. Look for intact social groups that show, in aggregate, a range in these variables:

- Age (anyone under 18 must have permission from parent guardian to be interviewed; we cannot collect contact information for anyone under 18 years)
- Gender
- Social group configuration
- Ethnicity
- Presence of a disability
- Other interesting characteristics or group dynamics

It's human nature to pick people who look like us. Two ways to make sure you're selecting a broad range is:

- Write down: Why am I selecting this respondent?
- Choose a visitor group that is completely different from the previous group you talked to (unless you have a specific reason for selecting a similar group).

Make note of the group characteristics on the top of the first page of the Observation Form.

We want to make a special effort to include visitors with disabilities in the sample. At some point, we also need to consider whether we have observed enough visitors at each of the exhibit units. We may, at that point, need to choose visitor groups on the basis of which exhibit units they stop at.

Step 4. Invite respondent(s) to participate in the study.
Approach them from the front if possible (rather than, say, "sneaking up" behind them). A possible opening statement is included as the < STEP 4. Invite Respondents to Participate in Prototype Testing > in the protocols, forms, and documents packet. The important points are:

- Introduce yourself by name.
- Describe what you are doing
- Ask for their help, but let them know it's completely voluntary and anonymous

- Tell them how long it will take.

If they say yes:

- Make sure they understand why prototype testing is important
- Let them know they can say anything about the prototype without hurting your feelings.
- Reinforce that it's confidential
- There are no right or wrong answers, and we are not testing them—if something doesn't work for them, then we need to fix the exhibit.
- They should let us know if we are taking too much time, and we will stop.

Step 5. Introduce respondent(s) to the process.
Important points to make:

- Look at prototype exhibit with them and go through it
- They can take as long as they want; go back and forth or straight through, then we'll ask them some questions
- We're trying to find out if exhibit works as we want it to. It's not a test of them; we're testing the exhibit
- We're particularly interested in…….
- if they have questions, be sure to ask them. We might hold off on answering them until after they are through, but we will answer them eventually.

Step 6. Observe respondent(s) using the prototype and take notes.
Use the Observation protocol. Detail what the respondent(s) say and do. In your field notes, pay particular attention to: **NOTE: THESE WILL VARY WITH THE EXHIBIT UNIT BEING TESTED.**

- Physical engagements are all the physical things visitors do at an exhibit, for example, sitting, standing, looking, reading, pointing, touching, and manipulating trackballs. This also includes how long visitors spend at the various exhibits.

- Intellectual engagements are all the ways in which visitors engage cognitively with an exhibit, including thinking about, processing, and making meaning of their experiences. In what ways do visitors seem to be thinking about and making connections with what they already know and have experienced?

- Social engagements are all the ways in which visitors engage with each other within the context of the exhibit, including verbal exchanges as well as body language. This could include directing attention, asking a question, coming up with an explanation together, reading a label out loud. We are interested in how visitors engage with each other, the types of teaching/learning and meaning-making interactions they participate in, and what they talk about and how they talk about it.

- Emotional engagements are all the ways that visitors engage emotionally with the exhibit; examples include surprise, delight, awe, satisfaction, feelings of competence, intimidation, and frustration. By looking at emotional engagements, we can get a feel for visitors' primary emotional connections with the exhibit materials, as well as look at the role of play in developing and maintaining interest (and learning).

Step 7. Interview the respondent(s) and take notes.
Once they complete their interactions, approach the respondent(s) for an Interview.

Use the Interview protocol and take detailed notes. The questions on this form should help focus the discussion so you can quickly get the information you're looking for. Write visitors' answers directly on the protocol form, or in a separate notebook. Either way, you will eventually use your notes to help you write up a debrief.

Feel free to ask probing questions to elicit further information. Probes are questions that aren't listed on the Interview Form, such as:

"I noticed that you ________. Can you tell me about that?" (Use this kind of question when you want to focus in on something a visitor did, read, or talked with to someone else in his or her group.)

Probes also can be used either to:

- Clarify something *or*
- Better understand something a visitor is saying. e.g., when you have an initial response to a question is incomplete, you can probe by asking a further questions.

Step 8. Thank respondent(s) and give them a gift.
Be generous in your appreciation. Let them know how much you appreciate their help and that you have a small gift from GLSC as a thank you for their participation.

Step 9. Complete your observation and interview notes.
Immediately after the interview, take time to read through and complete your observation and interview notes. Fill in any missing items in your notes and clarify anything that seems confusing. Perhaps the observations and interview left you with some questions; if so, write them down.

Step 10. Complete debrief for this observation/interview.
Do this BEFORE your next observation and interview. Go back to your laptop and complete both pages of the Debrief form. In the first part, be as specific as possible in giving specific examples, and noting how the exhibit facilitated specific engagements. With time, you'll develop your own criteria for rating the engagements, and that's fine. The ratings are designed to get you thinking, rather than to "measure and compare" engagements between exhibits. However, do try to be consistent in your ratings.

In the second part, you are trying to analyze and make meaning of the observation and interview. Use the questions on the Debrief form to guide your write-up, but don't feel confined by them. Try to look at what went on from a variety of perspectives

Do this BEFORE your next observation and interview.

Step 11. Enter respondent information on the Respondent Data Sheet.
Complete a row on the Respondent Data Sheet (a separate file, entitled:

< BMT2 Respondent Data Sheet v_ [date] >
This allows us to keep an accurate tally on respondents we've talked with and observed. It also enables us to keep track of the diversity of our respondent pool, and think about ways to increase that diversity.

Step 12. Make modifications to exhibit unit as appropriate.
Work with the exhibit development team to make necessary modifications of the exhibit unit. These modifications are refinements **based on your interpretation of the data**. Resist the temptation to develop a completely new version of the exhibit, or to change something even though respondents didn't have trouble with it.

Remember that we are not trying to isolate and test variables here—you can make more than one change during each round of modifications. The goal is to make the exhibit work as well as can, for as many visitors as possible, within the time constraints that are imposed on the evaluation process.

Step 13. Go back to Step 2 and begin another round of data collection.
Repeat until the unit works effectively with all groups in the target age ranges.

Step 14. Once testing of the prototype is complete, write a mini-report using the BMT2 Formative Evaluation Mini-Report Format.
The report form is entitled: < BMT2 Formative Evaluation Mini-Report Format v_ [date] >