Introduction to HCI

Field studies questionnaires

Prof. Narges Mahyar UMass Amherst

nmahyar@cs.umass.edu Courses, projects, papers, and more: <u>http://groups.cs.umass.edu/nmahyar/</u>

© Mahyar with acknowledgements to Joanna McGrenere and Leila Aflatoony

Today

- Quiz results and policy [5 min]
- Questionnaires [30 min]
- In class activity [20 min]
 - Redesign a questionnaire
- Group discussion on projects [20 min]

Learning Goals

- Explain when and why questionnaires may be appropriate evaluation technique choice; discuss their pros/cons
- List different styles of questions (open, closed, likert, etc.) And give examples of what they are appropriate for
- Give examples of different kinds of data that can be collected
- Discuss important considerations for designing and administering a questionnaire

Questionnaires when & why?

- Evaluating to understand: good for reaching lots of people early on
- Evaluation of prototypes: typically used in combination with other methods (but not always)
- Also called 'surveys'
 - Survey is a complete methodological approach: a process for gathering data that could involve a wide variety of data collection methods, including a questionnaire (list of questions).

Questionnaires what can you do with them?

- Evidence of wide general opinion
- Pros/cons:
 - Can reach a wide subject group (e.g. Mail or email)
 - Does not require presence of evaluator
 - Many results can be quantified
 - Can have low response rate and/or low *quality* response

What kinds of data can you collect?

- Questionnaires can gather both:
 - Subjective AND objective data
 - Qualitative AND quantitative data

Styles of questions: open-ended

Asks for opinions

- Good for general subjective information
 - But difficult to analyze rigorously

For example, "can you suggest any improvements to the interface?"

Styles of questions: closed

- Restricts responses by supplying the choices for answers
- Can be easily analyzed ...
- But can still be hard to interpret, if questions / responses not well designed!
 - Options should be very specific

Do you use com o often	nputers at work: o sometimes	o rarely
In your typical o o over 4 o betwee o betwee o less th	work day, do you use co hrs a day en 2 and 4 hrs daily en 1 and 2 hrs daily an 1 hr a day	omputers:

Styles of questions: combining open-ended & closed questions

Gets specific response, but allows room for user's opinion



Styles of questions (closed): scalar --- likert scale

- Measure opinions, attitudes, and beliefs
- Ask user to judge a specific statement on a numeric scale
- Scale usually corresponds to agreement or disagreement with a statement
- Odd or even numbered (what's the difference?)



Styles of questions (closed): scalar --- semantic differential scale

- Similar to likert scales also measure opinions, attitudes, beliefs
- But explore a range of *bipolar attitudes* about a particular item
- Each pair of attitudes is represented as a pair of adjectives
 Generally easier cognitively to answer than likert



Styles of questions (closed): ranked

- Respondent places an ordering on items in a list
- Useful to indicate a user's preferences
- Forced choice

Rank the usefulness of these methods of issuing a command (1 most useful, 2 next most useful..., 0 if not used)

- 2___ command line
- 1 menu selection
- <u>3</u> control key accelerator

Styles of questions (closed): multi-choice

• Respondent offered a choice of *explicit responses*

How do you most often get help with the system? (tick one)

- 🤨 on-line manual
- O paper manual
- O ask a colleague

Which types of software have you used? (tick all that apply)

- Solution word processor
- O data base
- O spreadsheet
- 🧭 compiler

Designing a questionnaire

•Establish the purpose of the questionnaire:

- What information is sought?
- How would you analyze the results?
- What would you do with your analysis?
- •Determine the audience you want to reach
 - Typical when using questionnaire for understanding: random sample of between 50 and 1000 users of the product
- Test everything before sending it out:
 - Test the wording
 - Test the timing
 - Test the validity
 - Test the analysis

Designing good questions

•Unlike interviews, hard to ask a follow-up questions

Extra important to get questions right

• A few general guidelines:

- Be specific and clear about how users should answer
- Keep questions short and easy to follow
- Avoid 'double-' and 'triple-barreled' questions
 - E.g., How often have you used the system and what do you like about it?
- Avoid ambiguity and too much room for interpretation
- Avoid biasing responses as much as possible



•Are your questions getting at what you want?

•Can increase validity by...

- Piloting (see how people answer)
- Triangulation (target hypotheses with multiple questions)
- Use previously validated questionnaires (studied extensively to confirm they gather what they intend to gather)

Tradeoffs

•Questionnaires are *limited by length and complexity*

Can't always ask about everything you want to

Try to focus questions on what you really want to learn

- A few focused questions more useful than many general ones.
- If the answer is obvious, you probably don't need to ask it!

•But be careful of focusing too much on what you expect to the exclusion of other explanations

CommunityCrit: Inviting the Public to Improve and Evaluate Urban Design Ideas through Micro-Activities

CommunityCrit allows the public to participate in the urban design process.

By offering a quick and easy way to voice opinions, CommunityCrit empowers anyone to help shape the future of their community.

Currently, we are collecting feedback on an effort to expand the 14th Street Promenade in East Village. The intersection of 14th Street, National Avenue, and Commercial Street—referred to as "El Nudillo," or "the knuckle"—is envisioned as a pedestrian destination, a place of social gathering, and a celebration of East Village and its surrounding neighborhoods.

What do you think El Nudillo should be? Please click below to contribute your voice!



GET STARTED

Narges Mahyar, Michael R. James, Michelle M. Ng, Reginald A. Wu, Steven P. Dow, ACM Human Factors in Computing Systems (CHI 2018).

1) Pick an idea

2) DO OR SKIP ACTIVITIES

Do An Activity

Please select an option below to begin contributing.

Ideas You Have Worked On

Build a tower

Public Art

Pick an Idea to Work On

Here are three random ideas that were submitted by community members. Select one to complete five activities related to that idea. You are always free to skip activities, and you can switch to a different idea by coming back to this page at any time.

1 2 3 4 5

Gateway

Have an idea?

Add your own idea for the future of El Nudillo.

SUBMIT A NEW IDEA

All done?

Please take this short survey so we can improve the experience of CommunityCrit for other community members.

GO TO EXIT SURVEY

Promenade Real

Idea: Build a tower

Submitted by a workshop participant.

Build a tower in the center of El Nudillo. Sketches of tower concepts as shown.



Question 1/5

How could this idea be improved by taking the following submission into consideration?

Submission

14th Street Promenade Workshop

The height limits of East Village/downtown (440 feet) and Barrio Logan (40 feet) converge here. Height should be treated in a sensitive manner.

- This design guideline was submitted by a project organizer.

Please enter your response here.



2

3) Submit a new idea

4) VIEW CONTRIBUTIONS

BACK TO DO AN ACTIVITY

SHOW EL NUDILLO OVERVIEW

Submit A New Idea

What would you like to see or do at El Nudillo, the intersection of 14th Street and National Avenue, by yourself or with family and friends?

Please enter your response here.

Give your idea a name.

Name your idea.

Upload a main image (optional)

Choose File No file chosen

SUBMIT

3

Ideas

Click on an idea to look at the contributions your fellow community members have made.

Promenade Real

It would be brilliant if the entire length of 14th street was closed to motor traffic and was a truly pedestrian promenade. The only exception could be the small Free Ride carts that could transport people up and down the street. This would not only provide a pleasant safe space for people and pets [...]

DO AN ACTIVITY FOR THIS IDEA



Platform connected with bridges

Instead of making a roundabout we can create a two story triangle platform to avoid a major infrastructure change. It is a platform that works with current traffic, but allows people to walk to get where they need, and creates a green space at the ground level. The three pillars can be lightweight t [...]



DO AN ACTIVITY FOR THIS IDEA

12 📕 32

Interactive Art

Love to see interactive rotating art with current cultural subjects. A place for exchanging ideas which helps the community grow together. Sample image from a San Francisco public art piece



DO AN ACTIVITY FOR THIS IDEA

Administering questionnaires

In-person administration	 requires time to administer, but highest completion rate 	
"Take home" (conventional)	 often subjects don't complete / return the questionnaire 	
Email	 permits subjects to answer on their own time responses may tend to be more free-form attachments may be a problem response rates depend on trust in source 	
Web-based forms	 standardize formats and responses Java/Javascript to ensure correct / complete 	
General issues	 payment or incentives anonymity self-selection 	

In-class discussion: how should they differ given **context**?

•To successfully deploy a questionnaire: account for the context and the nature of the questions you're asking.

What are the important considerations?

E.g., In a hospital setting where...

1. You want to ask patients who just tried a new insulin pump what they thought of it

•Versus...

2. You want to widely distributed a survey about general health concerns to people between ages of 20 - 55

Be considerate of your respondents and the context you access them in

- Questionnaire length (short is good)
 - Think in terms of reasonable completion times
 - Do not ask questions whose answers you will not use!
- Privacy invasions/anonymity
 - Be careful how / what you ask
- Motivation
 - Why should the respondent bother?
 - Usually need to offer something in return
- Ability
 - Limitations like literacy and disability can come into play

On deck...

- Next class (Thursday) ...
 - 1. Readings (as posted)
 - 2. All Project milestones are posted online

Deliverables (project milestones)

- 1. Empathize, Oct 10
- 2. Define, Oct 15
- 3. Ideate, Oct 31
- 4. Prototype, Nov 14
- 5. Test, Dec 3

Project discussions [20 min]

- With your group read the 1st milestone's description and discuss:
 - Observation method for your project
 - Focal points
 - Objectives
 - Questions to ask

Activity [20 min]

Questionnaire critique and redesign

- Work in groups of 2-3
- Use the worksheet from the website:
- http://groups.cs.umass.edu/nmahyar/wpcontent/uploads/sites/8/2019/09/325-04-Interviews-Structured_observation.pdf

Extra slides

Summary: questionnaires

- 1. Establish purpose
- 2. Determine audience
- 3. Variety of administration methods (for different audiences)
- 4. Design questions:
 - Many kinds, depend on what you want to learn
 - Most important distinction: open/closed (like structured/unstructured interview questions)
- 5. Be considerate of your respondents
- 6. Motivate your respondents (without biasing them).

Questionnaire example

- Citation of Research Paper that uses the Example Survey:
- Rock Leung, Charlotte Tang, Shathel Haddad, Joanna Mcgrenere, Peter Graf, and Vilia Ingriany. 2012. How Older Adults Learn to Use Mobile Devices: Survey and Field Investigations. ACM Trans. Access. Comput. 4, 3, Article 11 (December 2012), 33 pages.
- DOI=http://dx.doi.org/10.1145/2399193.2399195