

FIELD STUDIES

QUESTIONNAIRES

690A- Advanced Methods in HCI

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Includes slides from Prof. Karon MacLean and Jessica Dawson

TODAY

- Questionnaires [30 min]
- In class activity [20 min]
 - Redesign a questionnaire
- Discussion of readings [20min]

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 data different kinds of questions can collect
- 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?

- closed or open questions
- 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 computers at work:

☐ often

☐ sometimes

☐ rarely

In your typical work day, do you use computers:

☐ over 4 hrs a day

☐ between 2 and 4 hrs daily

☐ between 1 and 2 hrs daily

☐ less than 1 hr a day

STYLES OF QUESTIONS: COMBINING OPEN-ENDED & CLOSED QUESTIONS

- gets specific response, but allows room for user's opinion

It is easy to recover from mistakes:

disagree agree
1 2 3 ④ 5

comment:...

...the undo facility is great!...

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?)

Characters on the computer screen are hard to read:

strongly agree

strongly disagree

1

2

3

4

5

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

Moodle is:

poorly	1	2	3	④	5	well designed
clear	1	2	③	4	5	confusing
attractive	1	②	3	4	5	ugly

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

__3__ 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
- ☐ paper manual
- ☐ ask a colleague

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

- ☒ word processor
- ☐ data base
- ☐ 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

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

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

Promenade Real

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

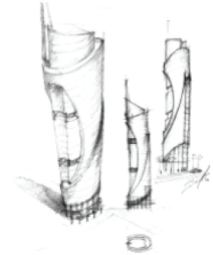
1

2) DO OR SKIP ACTIVITIES

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.

Skip >

SUBMIT

2

3) SUBMIT A NEW IDEA

[← 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

4) VIEW CONTRIBUTIONS

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

13 36

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

10

4

18

VALIDITY

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

ADMINISTERING QUESTIONNAIRES

in-person administration	<ul style="list-style-type: none">• requires time to administer, but highest completion rate
“take home” (conventional)	<ul style="list-style-type: none">• often subjects don’t complete / return the questionnaire
email	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• standardize formats and responses• Java/Javascript to ensure correct / complete
general issues	<ul style="list-style-type: none">• 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

ACTIVITY [20 MIN]

questionnaire critique and redesign

- Work in groups of 2-3

DISCUSSION ON QUESTIONNAIRE READINGS [20 MIN]

Get into group of 3-4 answering the following questions:

- What surprised you? or
- What you disagreed with?
- Others?

ON DECK...

Next class (Thursday) ...

1. Readings (as posted) and researcher journals
2. First Interim Project milestone

✧ due on Monday Feb 11

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>