

# UX Research Methods

## **Embedded Interface Design**

with **Bruce Montgomery**



# Learning Objectives

Students will be able to...

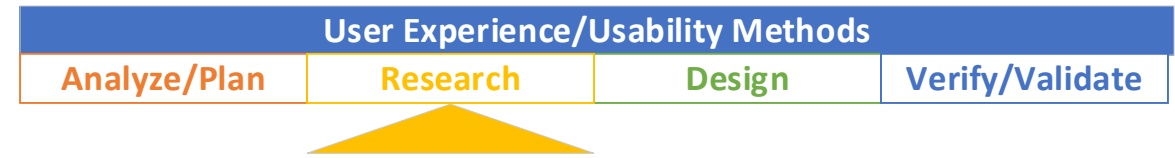
- Understand considerations for selecting methods
- Review, select, and apply selected UX Research methods



# UX Research Methods

## Selected Methods for Review

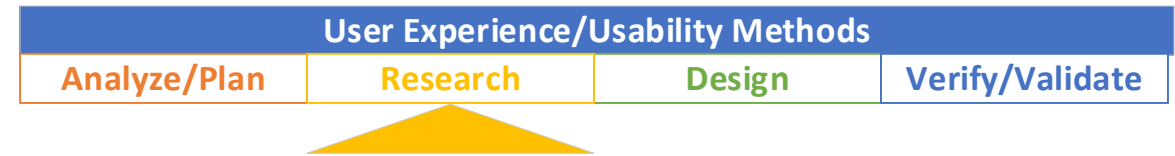
- Contextual Interviews
- Focus Groups
- Journey Lines
- Surveys
- Task Analysis
- Comparative Assessment
- Proof of Concept Models
- Personas (separate lecture)
- Use Cases & UML (separate lecture)



# Selection Criteria

When looking at which methods are appropriate to your design cycle, consider the following method attributes

- Time (preparation, execution, follow-up)
- Complexity
- Goal (generally this phase is focused on learning/analysis, although there may also be some early validation of findings)
- Fit to your overall project – available resources, skills, level of detail, etc.



# Contextual Interview

- Time: a few hours per user, plus a few hours to set observation goals and to review findings
- Watch and listen as users work in their own environment [1]
- What you may learn
  - Issues that users are facing
  - Equipment they are working with
  - How their space is set-up and their interaction preferences
  - How long does it take to complete common or target tasks
  - Whether there are people there and willing to assist the user if they need help completing a task
- Results: qualitative observed data

# Contextual Interview

- Buley cites this method (which she calls, “Guerilla User Research”) as the most important exercise to get a sense of who the users are and what they care about [2]
  - Be prepared to encourage conversation through open-ended questions
- Example: Menlo Innovations researchers observe picture postcards at county clerk’s office [3]
  - The clerks in the county office had difficult days dealing with customers and used vacation postcards at their desks as a way to provide a momentary break
  - The Menlo team observed this, and included those images in their new application, which delighted the users

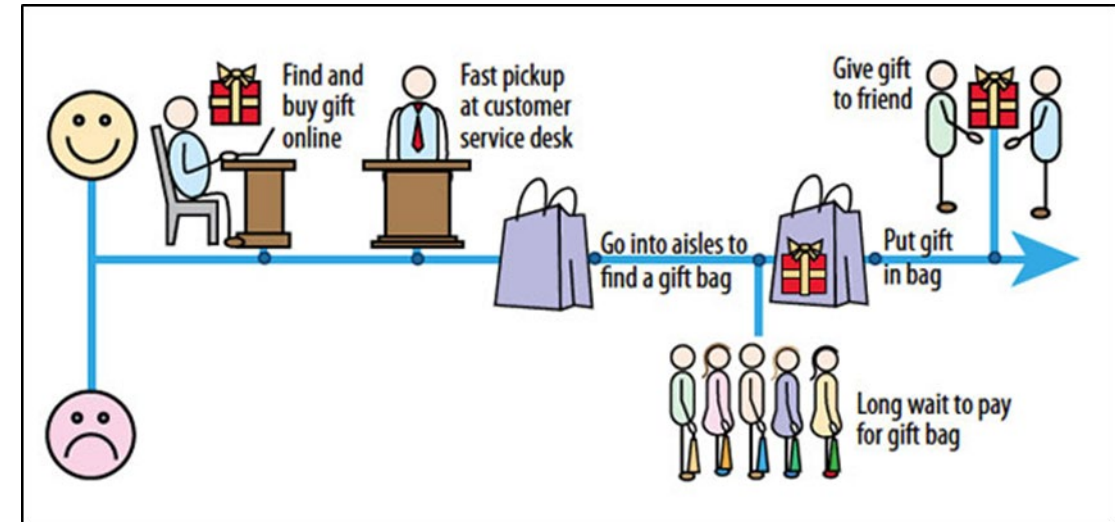


# Focus Groups

- Time: one or two hours per session, plus a few hours to prepare a script and to review findings
- A focus group is a moderated discussion that typically involves 5 to 10 participants [5]
  - Learn about users' attitudes, beliefs, desires, and reactions to concepts
  - Participants often selected based on age, occupation, experience; a representation of the customer base
  - Pre-develop and review script with open-ended questions to encourage discussion
  - Likely more talking than use of devices or systems
  - Record the session or use note-takers

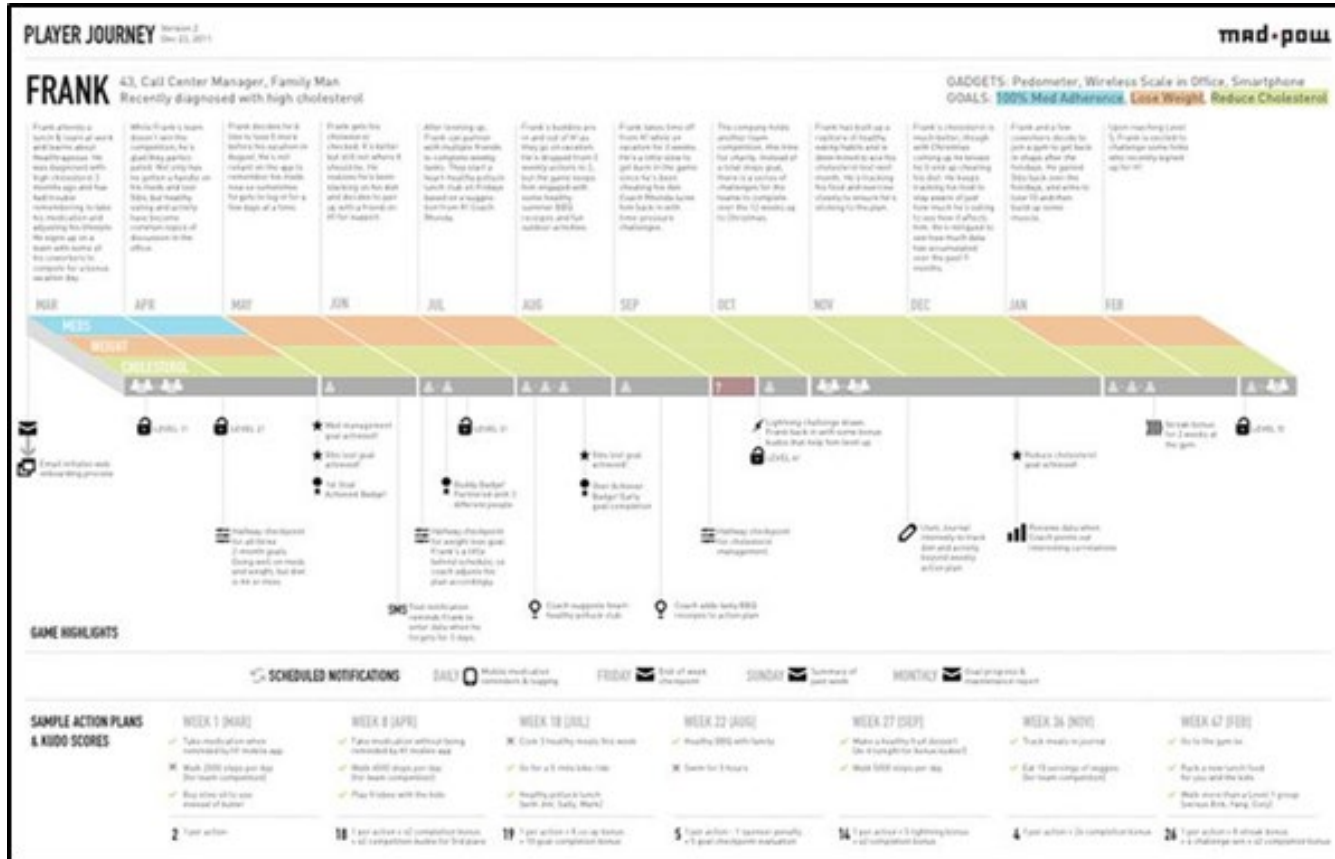
# Journey Lines

- Time: Less than an hour to perform, more time if a template is created
- A method of encouraging users to describe the steps they take in a task, tasks, or device use [5]
- Use as a tool in an interview or a focus group
- May want to pre-prepare a template, but initial pass will be hand-drawn
- Usually tasks and time on X axis, often includes emotional element on Y axis
- Can elicit story telling by users, allow sufficient time



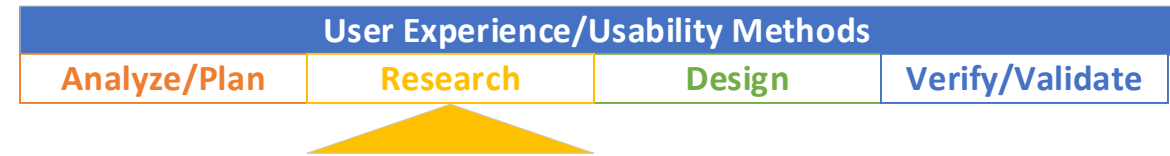


# Journey Lines



- Can also extend into a more formal reporting tool of an investigated UX process – journey maps [6]

# Surveys

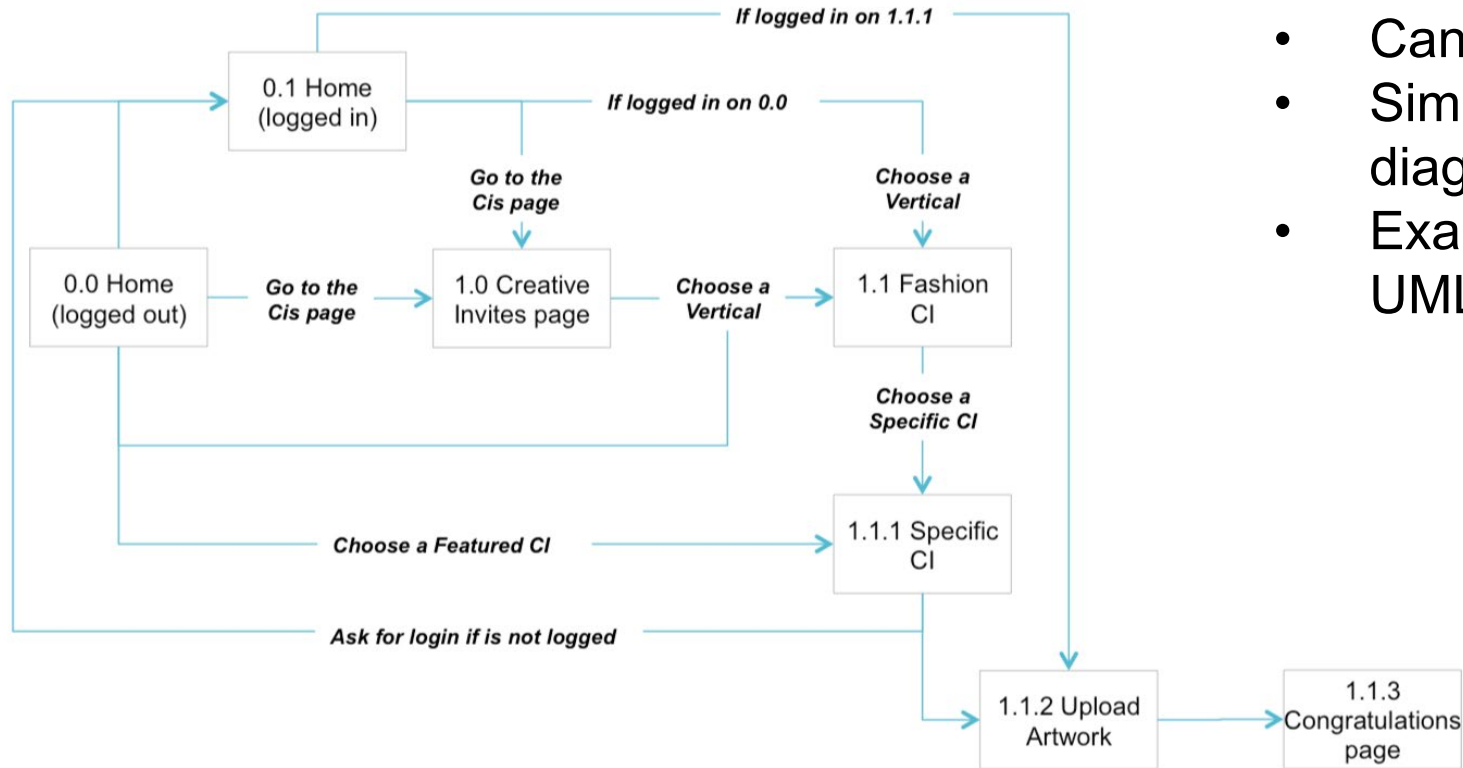


- Time: Days to prepare and analyze results, weeks (?) to receive replies
- Surveys are structured questionnaires that your target audience completes, often on line or on paper
  - Surveys can vary in length and format (and participation...)
  - Before starting – what's the purpose, who will be targeted, how will you collect and analyze results
  - Keep surveys brief and mix open-ended and closed questions
  - Typical questions: what do users use a device for now, what do they like or dislike, what ideas or suggestions do they have, etc.
  - We will review surveys in detail in the Verify/Validate phase using pre-certified survey tools to gather quantitative data

# Task Analysis

- Time: Varies with depth of analysis and review
- One of the most common UX research approaches
- Process of learning about users by documenting in detail how they perform tasks and achieve goals [7]
- Performing a task analysis helps you understand:
  - Goals, actions, experiences, environment, work perceptions, workflows, frequency, sequences, complexity, durations, etc.
- Typical steps [8]:
  - Select task, break into subtasks
  - Consider the level of detail needed for decomposing the task
  - Provide the task analysis to someone who knows the task well enough to confirm

# Task Analysis



- Can be text based or diagrammed
- Similar to use cases or other UML diagrams we'll discuss
- Example diagram from [9] is similar to a UML state or activity diagram

# Comparative Assessment

- Time: Varies from hours to days with depth of analysis and review
- What do customers expect in the product?
- Similar to a competitive assessment, but targets do not have to be competing
  - Establish the vision and expectations for your UX
  - Pick products to assess (5 is good, 10 is too many)
  - Create areas to assess:
    - Content, design, features and functionality, continuity or flow, intuitiveness
    - Strengths, weaknesses, opportunities
  - Ideally, walk through each product with a group
- Summarize in text/spreadsheet or a diagram – leads into developing design guidelines
- Reference [2]

# Proof of Concept Models

- Time: Varies from hours to days with details and scope
- Early assessment of UX-related (or other) hardware or software elements
- A proof of concept (PoC) IS NOT a prototype [10]
- PoC models are developed to assess feasibility, not user acceptance
- The models should be done to verify that there is a UX component or tool that meets constraints and will work within our expected design space
- They should be done quickly with the intent of disposing of the model once it is assessed
- These are not UX or UI mockups or versions of what users would interact with
- Really an engineering exercise, and may extend into mechanical, hardware, and software design understanding for later design requirements



# Summary

- Again, in an actual project, you'd have to consider which method is the best fit and provides valuable information for the effort you'd spend
- We'll look at two more research methods in detail:
  - User Personas
  - Use Cases (both text and UML diagrams) and other UML uses

# Next Steps

- Project 2 demos today...
- Project 3 due Monday 10/21
- Super Project Proposal (not graded, but required) – Friday 10/11
- Active Quiz due Friday at class time – no new quizzes for next two weeks – leading up to midterm
- EID Midterm is Wednesday 10/16 in class
- Class staff available to help
  - Shubham - Tues 12-2 PM, Fri 3-5 PM in ECEE 1B24
  - Sharanjeet - Tues 2-3 PM, Thur 2-3 PM in ECEE 1B24
  - Bruce - Tue 9:30-10:30 AM, Thur 1-2 PM in ECOT 242





# References

- [1] <https://www.usability.gov/how-to-and-tools/methods/contextual-interview.html>
- [2] User Experience Ream of One, Buley, 2013, Rosenfeld
- [3] Joy Inc., Rich Sheridan, 2015, Penguin
- [4] <https://www.usability.gov/how-to-and-tools/methods/focus-groups.html>
- [5] <http://uxpamagazine.org/using-journey-lines/>
- [6] <https://uxmastery.com/how-to-create-a-customer-journey-map/>
- [7] <https://www.usability.gov/how-to-and-tools/methods/task-analysis.html>
- [8] <http://www.usabilitybok.org/task-analysis>
- [9] Fixing Bad UX Designs, Maioli, 2018, Packt
- [10] <https://www.entrepreneur.com/article/307454>

