UCI University of California, Irvine

Informatics 134

Software User Interfaces
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Agenda

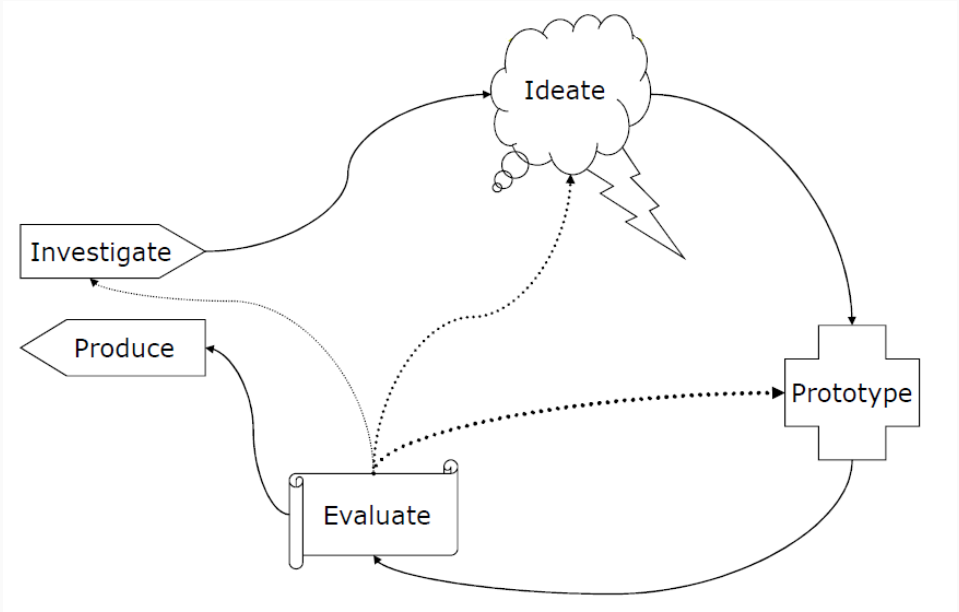
1. Upcoming
2. Evaluation
3. Preparing for a Usability Evaluation
4. A4 Introduction
5. References

Upcoming

Upcoming

- Lecture Thursday, Jensine's research
- Next Tuesday, Final chance for in-class feedback. Come prepared!
- Keep working on T3 (DUE EOQ)
- Keep working on A3 (DUE TONIGHT!)

Evaluation


Ideate
Investigate
Produce
Prototype
Evaluate

Why Evaluate?

Why and Where to Evaluate

Why?

- Feedback on design directions and ideas
- Discover major issues
- Resolve disagreements (or at least help)

Where?

- In a laboratory (controlled)
- In natural settings (uncontrolled)

There are Many Approaches to Evaluation

Usability Goals

- Effectiveness
- Efficiency
- Safety
- Utility
- Learnability
- Memorability

User Experience Goals

- Satisfying
- Pleasurable
- Rewarding
- Fun
- Provocative

Evaluation Goals

Consider your Project...

- What are your usability goals?
- What are your user experience goals?
- How would you define and operationalize these goals?

Evaluation

There are Many Approaches to Evaluation

Usability Goals

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User Experience Goals

- Satisfying
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When to Evaluate

- Early design of an artifact
- Evaluation of working prototype
- Refining or maintaining a product
- Competitive comparison between two products
- Exploring a new design concept
- Demonstrate performance for a procurement contract

Types of Evaluation

Analytic (design judgement, no users)

- Often referred to as ”discount evaluations”
- Standards enforcement
- Heuristic evaluations
- Cognitive walkthroughs

Empirical (involves users)

- Usability testing
- Field studies
- Click-through studies

Study Size

Small vs. Large Study

- Why do small studies?
- Why do large studies?

Evaluation

Study Size

Small Study

- Nielsen - most of the benefits (and bugs) from first 5 users (or not?)
- Little cost
- Limit negative effects on timelines
- Can be done early and often

Study Size

Large Study

- Complex system, complex users
- The data are there, easy to grab (e.g., A/B testing)
- Require strong, statistically significant confirmation (e.g., regulation, safety, high-risk)

Where to Evaluate

In the field vs. in the lab

- Why test in the field?
- Why test in the lab?

Where to Evaluate

In the field...

- When control and replicability are less essential
- Context of use is variable, nuanced, or otherwise difficult to model
- Need to reach a lot of people (in situ, remote, etc)

When to Evaluate

In the lab...

- Require controlled environment
- Replicability is a necessity
- Context of use is straightforward to model
- Context of use is **must** be modeled

These are some guidelines, but in practice, the answer to most of these questions is: IT DEPENDS!

Preparing for a Usability Evaluation

Usability Evaluation

What are some basic needs to run a usability evaluation?

Usability Evaluation

Getting Started

- Dedicated space (room, Zoom, etc)
- Comfortable environment (desk, chairs)
- Devices to run evaluation
- Recording equipment (recommended)
- Communication channels (recommended)
- Usability test plan [Rubin and Chisnell, 2008]

What is a usability test plan?

You need to have a plan before you conduct an evaluation! A good plan should capture the following data:

1. Objectives
2. User profile
3. Method
4. Task list
5. Evaluation measures

Usability Test Plan

1. Test Objectives

   Create very specific objectives for your evaluation

   - Poor examples

     Can users identify trends?
     Is the user-interface usable?

   - Good examples

     Can users emply the slider associated with the timeline to identify outlying dates?
     Can users select filters and select colors so that the relationship between X Y is readily seen?
     Can users find material more quickly in the visual or textual version of the table of contents?

Usability Test Plan

2. User Profile

   Enumerate attributes for your target users and select users that meet the profile

   Can be based on people who fit your persona types

- Example

  Age: 25-30
  Gender: at least 50% women or gender nonconforming
  Computer skills: Daily use of web
  Background: CS student
  Interests: Competitive gaming

Usability Test Plan

3. Method

- Many different approaches to structuring a test design
- The best approach depends on
  - Resources (time, money)
  - Objectives of the study

Usability Test Plan

4. Task List

    A detailed list of tasks

    Each task should include:

        Description: What are the prompts?
        Machine State: Where users begin from?
        Successful completion: When is the task completed?

Example Task Unit

1 Description

Name three important events that took place in the 1770s in America

2 Machine state

Timeline is set to the 1980s

Article on space shuttle is being shown

3 Successful completion

Participant verbally reports the names of three events by using the timeline

Does anyone have a task unit prepared yet?

Usability Test Plan

5. Evaluation Measures
    - Quantitative count data
        - Time, errors, confusions, breakdowns, workarounds, success/failure
    - Your observations
        - Notes about where, when, why, and how the above things occurred
    - Users' comments and feedback
        - Often a questionnaire at end
        - User quotes "I love this app! Except when it crashes"

Usability Test Plan

Running the Test

- Introduce the test
  - **"The [interface] is being tested, not you."**
    "I (we) didn't design or build this; I (we) are just tasked to find out what the problems with it might be."
- Prompt them to continually think-aloud
- Observe tasks times, errors, confusions, breakdowns, workarounds, and success/failure
  - Make notes, videos, audio recordings

Usability Test Plan

Allowing Them to Stray

- If you build extra time into your tests, you can allow users to stray a bit as they work
  - They should stay on task
  - But they might wander down a rabbit hole
  - This can yield good data, but takes more time
- Eventually, you may have to interrupt and prompt them to find their way back. If they can't, help them, and note a major failure (in the intervention not the user!)

Usability Test Plan

Answering a User's Questions

- Try not to!
  - You wouldn't be there in real life
  - You want to see if they can figure it out
  - You want to see how hard it is!
  - You want to see how catastrophic the outcome is if they keep struggling
- Answering users' questions for help ruins your data and contaminates them
- A safe response to most questions: "[I'm not certain], why don't you try something else?"

Usability Test Plan

Being a Good Moderator

- Spend almost all your time listening, observing carefully, and planning what to say (or not say) next
- Encourage participants in a neutral fashion
- When people become quiet say: ”Can you keep talking?”

Usability Test Plan

Think Aloud Prompts

- ”Tell me what you are thinking.”
- ”Tell me what you are trying to do.”
- ”Are you looking for something? What?”
- ”What did you expect to happen just now?”
- ”What do you mean by that?”

Usability Test Plan

Debrief

- Tell them more details about what you were interested in discovering, with their help
- Answer any questions they have
- Now you can show them how to accomplish tasks that they had failures on
- Thank them for their time
- Compensate them!!! (but not for class :)

Tips Usability Evaluations

- Keep it simple
- Keep your objectives specific
- Be consistent with all participants (follow your script!)
- Conduct a pilot test to uncover your problems
- Have a detailed plan for analyzing the data

A4 Introduction

A4: Speculative Story

Envision a toolkit for tomorrow's user interfaces

- Wearable Technologies
- Augmented Reality
- Virtual Reality
- Voice Assistants

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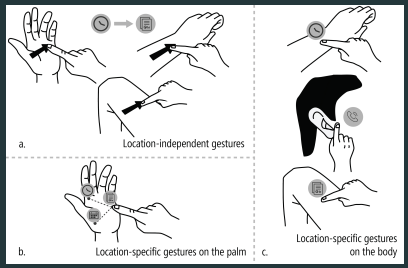
A4: Speculative Story

Envision a toolkit for tomorrow's user interfaces

- Wearable Technologies
- Augmented Reality
- Virtual Reality
- Voice Assistants
- Conversational Agents
- Future advances (eyewear, on-body interaction, projected displays, etc.)



A4: Speculative Story

What will the toolkits, widgets, and interactions look like for these types of systems?

A4: Speculative Story

What will the toolkits, widgets, and interactions look like for these types of systems?

(show them an example, Mark)

Pick a speculative interface and envision *three* novel interactors to control your interface

No programming!

Deliverable: Slide Deck (5-10 slides)

Develop assets to document and demonstrate your interactors

References

References i

Rubin, J. and Chisnell, D. (2008).
Handbook of usability testing: how to plan, design and conduct effective tests.
John Wiley & Sons.