HONORS 499Y - RESEARCH REPORT

Steve Jones

TABLE OF CONTENTS

1 - PRIMARY READING

1.1 - iOS & ANDROID MATERIAL - DESIGN GUIDELINES

1.1.1 - INTRO

Apple

iOS Human Interface Guidelines

“There is a profound and enduring beauty in simplicity, in clarity, in efficiency. True simplicity is derived from so much more than just the absence of clutter and ornamentation—it’s about bringing order to complexity. iOS is a clear representation of these goals.” - Jony Ive

Google

Material Design

“We challenged ourselves to create a visual language for our users that synthesizes the classic principles of good design with the innovation and possibility of technology and science. This is material design. This spec is a living document that will be updated as we continue to develop the tenets and specifics of material design.”

1.1.2 - GOALS

iOS

- Coherent structure applied across entire system
- Create unobtrusive & differential interface
  - Design recedes → Elevates content

Android Material

- Classic design principles + innovation & possibility with new technology
- Underlying system allows unified experience across platforms and device sizes
  - Mobile precepts are fundamental, but touch, voice, mouse, and keyboard are all first-class input methods

1.1.3 - THEMES / PRINCIPLES

iOS

Defer to content

- UI helps users understand and interact with the content, but never competes with it
- Subtle & unobtrusive
- Look past UI to the app’s core functionality and affirm its relevance
- Add details and embellishments with care and never gratuitously
- How to implement
  - Take advantage of the whole screen
    - Ex: Weather - Instantly conveys most important info
  - Reconsider visual indicators of physicality & realism
    - (AKA "F you Android Material Design" & "Sorry about the whole skeuomorphic thing")

        - Bezels, gradients, and drop shadows
            - Can lead to heavier UI elements
                - Overpower/compete w/content
        - Focus on content - let UI play supporting role
    - Let translucent UI elements hint at content behind
        - Ex: Control center
        - Provide context
        - Help users see there is more content available
        - Can signal transience (control center is only up temp.)

Clarity

- Text legible at every size
- Icons precise and lucid
- Adornments are subtle & appropriate
- Sharpened focus on functionality motivates the design
- Use negative space
    - Make important content & functionality more noticeable/understandable
    - Imparts sense of calm - vs overwhelming
        - App looks more focused & efficient
- Let color simplify the UI
    - Key color highlights important state info & subtly indicates interactivity
    - Gives app consistent visual theme
- Ensure legibility by using system font
    - San Francisco - works with Dynamic Type - auto adjust letter spacing & line height
- Embrace borderless buttons
    - Bar buttons default = borderless
    - Content areas - Indicate interactivity using: borderless button uses context, color, call-to-action title

Depth

- Visual layers & realistic motion
    - Convey hierarchy & position
    - Help user understand relationships among onscreen objects
        - Translucent background
            - Floats above screen
            - Separates content from background
    - Impart vitality
    - Heighten delight and understanding
    - 3D Touch Device
        - Peek, pop, & quick actions
        - Give users access to important functionality without losing context
- Layered planes + new approaches to animation and motion, create sense of depth and vitality
    - Distinct functional layers help establish hierarchy and order
    - Use of translucency gives sense of your context

Additional

- Design UI to adapt to various devices and modes
- Use themes of iOS to inform the design of the UI and the UX
- Defy precedent
- Question assumptions
- Let a focus on content and functionality motivate every design decision

iOS APP ANATOMY

UI Elements

- Four Broad Categories
  - Bars
    - Contain contextual info
      - Tell users where they are
      - Controls to help navigate or initiate actions
  - Content Views
    - Contain app-specific content
  - Controls
    - Perform actions or display info
  - Temporary Views
    - Give users important info or additional choices & functionality
- Manage hierarchy of views
  - Using *view controller*
  - Coordinates display of views
  - Implements functionality behind user interactions
  - Manage transitions from screen to screen

Adaptivity & Layout

- Build In Adaptivity
  - Design apps for multiple devices, contexts, orientations

Provide a Great Experience in Each Environment

- Maintain focus on primary content
- Avoid gratuitous changes in layout
  - Maintains usage patterns across devices & orientation

Use Layout to Communicate

- Make easy to focus on main task - elevate important content or functionality
- Use visual weight & balance to show users relative importance of onscreen elements
  - Large items catch eye - easy to tap
- Use alignment to ease scanning & communicate groupings or hierarchy
- Make users understand primary content at default size
  - Shouldn't have to scroll for important content
- Prepare for changes in text size
  - Accessibility
- Avoid inconsistent appearances in UI
- Make easy to interact with content & controls
  - Give elements ample spacing
  - Hit target 44x44

Starting & Stopping

- Start instantly
  - Avoid splash screen / startup experience
- Avoid asking for setup info
  - Focus on needs of 80% of users
  - Import info from other sources
  - Settings in app vs. global settings
- Delay login requirement long as possible
  - Ex: App store only needs login upon purchase
- Avoid onboarding experience if possible

        - Not substitute for good app
        - Use animation to engage users & help learn by doing
        - Make easy to dismiss onboarding
    - Avoid asking users to rate app too soon
    - Launch in device's current orientation
    - Provide launch file
    - Avoid disclaimer at start
    - When app restarts - restore state
    - Always Be Prepared to Stop
        - iOS app never displays Close/Quit option
        - Save user data ASAP
        - Save current state when stopping
        - Never quit iOS app programmatically
        - If app features are unavailable display screen describing situation & suggest correction

Navigation

- 3 main styles
    - Hierarchical
        - Nav 1 choice per screen until destination
        - Ex: Settings, Mail
    - Flat
        - Nav directly between primary categories
        - All categories accessible from main screen
        - Ex: Music, App Store
    - Content or experience-driven
        - Nav defined by content / experience
- Users should always know their location and how to reach next destination
- Use nav bar to give easy way to traverse hierarchy
- Use tab bar to display peer categories of content/functionality
- Use page control when each app screen represents individual instance of same type of item/page
- Give users one path to each screen

Modal Contexts

- Different screen modes
- Gives users way to complete task without distractions
- Temporarily prevents interaction with rest of app
- Keep modal tasks simple short and narrowly focused
- Provide obvious way to exit modal task
- Reserve alerts for delivering essential actionable info
- Respect users' preferences for receiving notifications

Interactivity & Feedback

- Interactive Elements Invite Touch
    - Signal interactivity using cues (pressure, color, location, context, icons & labels)
    - 3D Touch - background blur when force touch app icon
    - Key color gives visual indicator of interactivity
    - Back button uses cues - Displays "<", uses key color, label describes previous screen
- In Content Area - Add Button Border Only if Necessary

Users Know Standard Gestures

- Use complex gestures as power user shortcuts
- Avoid defining new gestures

- ❖ Consider using multifinger gestures

Feedback Aids Understanding

- ❖ Helps users know what app is doing & results of their actions
- ❖ Integrate status into UI
  - ➢ “6 unread” in bottom bar
- ❖ Avoid unnecessary alerts

Inputting Info Should Be Easy

- ❖ Make it easy for user to make choices
  - ➢ Date picker > text field
- ❖ Get info from iOS
  - ➢ Contacts, calendar, etc
- ❖ Balance request for input with useful result

Animation

- ❖ Subtle animation makes app experience more engaging & dynamic
- ❖ Communicate status & provide feedback
- ❖ Enhance sense of direct manipulation
- ❖ Help users visualize result of actions
- ❖ Avoid excessive animation

Branding

- ❖ Incorporate brand’s asset’s in refined unobtrusive way
- ❖ Don’t take space away from content people care about
- ❖ Don’t display logo throughout app

Color & Typography

- ❖ Color Enhances Communication
  - ➢ Indicates interactivity, imparts vitality, provides visual continuity
  - ➢ If creating multiple custom colors - make sure work well together
  - ➢ Pay attention to color contrast in different contexts
  - ➢ Take bar translucency & app content into account when using custom bar tint
  - ➢ Be aware of color blindness
  - ➢ Chose key color to indicate interactivity & state
  - ➢ Avoid same color in both interactive & noninteractive elements
  - ➢ Don’t let colors distract users
- ❖ Great Typography Enables Clear Communication

Icons & Graphics

- ❖ App Icon
  - ➢ Important for apps brand
- ❖ Small Icons
  - ➢ Use built in task icons
- ❖ Graphics
  - ➢ Support Retina
  - ➢ Display at original aspect rations

Terminology & Wording

- ❖ Make users feel comfortable
- ❖ User terminology users understand
- ❖ Give controls short labels or good icons

Integrating with iOS

- ❖ Make app feel at home on platform
  - ➢ Follow themes & guidelines

- ❖ Use Standard UI Elements Correctly
  - ➢ Comfortable for users
- ❖ Downplay File & Document Handling
- ❖ Be Configurable if Necessary
- ❖ Take Advantage of iOS Technologies

Android Material

Material metaphor

- ❖ Unifying theory
  - ➢ Rationalized space
  - ➢ System of motion
- ❖ Tactile reality
  - ➢ Familiar tactile attributes help users understand affordances
  - ➢ Inspired by study of paper & ink
  - ➢ Open to imagination & magic
- ❖ Surfaces and edges
  - ➢ Visual cues grounded in reality
- ❖ Light, surface & movement
  - ➢ Key to convey how objects move, interact & exist in space in relation to other objects
  - ➢ Realistic lighting shows seams, divides space & indicates moving parts

Bold, graphic, intentional

- ❖ Use foundational elements of print-based design
  - ➢ Typography, grids, space, scale, color, and use of imagery
  - ➢ Creates hierarchy, meaning, and focus
- ➢ Emphasis on user actions
  - ■ Makes core functionality obvious

Motion provides meaning

- ❖ User actions initiate motion → transform whole design
  - ➢ In a way that does not break continuity of experience
- ❖ Focusses attention and maintains continuity
  - ➢ Feedback is subtle yet clear
  - ➢ Transitions are efficient yet coherent

Elevation & Shadows

- ❖ Objects in MD possess qualities of objects in physical world
  - ➢ Form spatial model familiar to users
- ❖ Elevation
  - ➢ Relative depth / distance between surfaces along z-acis
  - ➢ Measured in density-independent pixels (dp)
    - ■ All material is 1dp thick
  - ➢ Resting Elevation
    - ■ Default elevation of object
    - ■ If changes → returns to resting
  - ➢ Component Elevations
    - ■ Consistent for component type across apps

- Ex: FAB always 6dp
- Responsive Elevation & Dynamic Elevation Offsets
  - Dynamic Elevation Offsets
    - Components elevation can change - response to user input
    - Normal, focused, pressed
    - Elevation changes consistent
      - All components that lift on press - same elevation change
    - Avoiding Elevation Interference
      - Components may hit other components during elevation change
      - Materials can't pass through each other
      - Ex: FAB moves off screen before user picks up a card

- Shadows
  - Visual cues of object depth & directional movement
  - Component Reference Shadows

Object Relationships

- Object Hierarchy
  - Parent / child materials

ANIMATION

Authentic Motion

- Watching object move demonstrates - light, heavy, flexibly, rigid, small, large
- Mass & Weight
  - Real world connection: forces applied to object to move naturally
    - Strength & duration dictate object acceleration
    - Embraces familiarity with real-world object behaviors
  - Natural Acceleration & Deceleration
    - Smooth - Starts slowly accelerates - decelerates before stop
  - Entrances & Exits
    - Speed & direction changes draw user attention

Responsive Interaction

- Encourages deeper exploration of app
  - Creates timely logical & delightful screen reactions to user input
- User Input
  - Apps responsive to user input
  - Touch, voice, mouse & keyboard - all equally important methods
  - UI elements appear tangible
    - Communicates visual & tactile responses
- Surface Reaction
  - Upon input event - provides instant visual confirmation at point of contact
    - Under finger touch
    - At microphone for voice
  - Touch Ripple
    - Articulates method & duration of touch event (also voice amplitude & touch pressure)
- Material Response

        - Material can lift up when touched - indicates active state
        - Point of Origin
            - User triggers new material - grows starting at point of input
        - Lift on Touch
            - When card or separable element activated → lift to indicate active
    - Radial Action
        - The visual ripple of ink spreading out from point of input
        - Input Events are Visual
            - Connect input event & on-screen action to tie together

Meaningful Transitions

- Motion design can guide users attention to inform & delight
    - Transports users between navigational contexts
    - Explains changes in arrangement of elements
    - Reinforces element hierarchy
- Visual Continuity
    - Transitions between visual states = clear, smooth & effortless
        - Tells user where to focus attention
    - Considerations - Animations should:
        - Direct user attention
        - Connect transitions visually
        - Use movement with precision
- Hierarchical Timing
    - Make important elements appear first
- Consistent Choreography
    - Make all groups of moving stuff move similarly

Delightful Details

- Animation can be used for icons changing

STYLE

Color

- Summary
    - Bold hues juxtaposed with muted environments, deep shadows, bright highlight
- UI Color Application
    - Choose your palette
        - 3 hues from primary palette
        - 1 accent color from secondary palette
    - Use opacity for text, icons, & dividers
    - Accent color
        - Use for primary action buttons & components (Ex: switches & sliders)
        - Use for web links

Icons

- Product Icons
    - Express brands product
    - Design Approach
        - Inspired by tactile physical quality of material

Imagery

- Bold, graphic, and intentional imagery engages user
- Principles
  - Choose images that express personal relevance, information, & delight
  - Appreciate Context
- Best Practices
  - Stay away from stock
  - Have a point of focus
  - Build narratives
- UI Integration
  - Resolution
  - Introduce scale
    - Levels of importance
  - Text protection
    - To make typography legible on top of imagery - apply scrims (lightweight translucent materials)
  - Avatars & Thumbnails
    - Tap targets - lead to primary view of content
    - Can represent people
  - Hero Images
    - Anchored in prominent position (banner)
    - Draw user in
    - Provide context about content
  - Gallery

Typography

- Roboto - standard typeface
- Font stack
  - Roboto, Noto, and then sans-serif

Writing

- Clear accurate & concise text makes interfaces more usable & builds trust
- Language
  - Speak to the user as “you”
  - “I agree to terms & conditions” & “My music”
  - Be Concise
  - Try to write in the present
  - Write simply & directly
  - Use simple words everyone knows
  - Omit unnecessary phrases
  - Use consistent verbs across arch of an action
  - Lead with goal not method
  - Reveal detail only as needed
  - Never say “never”
- Tone
  - Be friendly, respectful & focus on user
  - Be humble
  - Be inviting

        - ➢ Be positive
        - ➢ Be essential
    - ❖ Capitalization & punctuation
        - ➢ Use sentence-style caps
        - ➢ Capitalize product names only when referring to product as a product
        - ➢ Skip periods and other unnecessary punctuation
        - ➢ Use Contractions
        - ➢ Avoid exclamation points
        - ➢ “1, 2, 3” not “one, two, three”
    - ❖

1.1.9 - FEATURES / COMPONENTS TO COMPARE

- ❖ Icons
    - ➢ iOS - Flat
    - ➢ MD - Physical material

Is it possible to test:

- ● Shadows (Android) vs. Transparency (iOS)

1.2 - Usability 101: Introduction to Usability

Nielsen Norman Group - Jakob Nielsen

What is Usability: **quality attribute** that assesses how easy user interfaces are to use

- ❖ 5 Quality Components
    - ➢ Learnability
        - ■ How easy to accomplish task first time encountering design
    - ➢ Efficiency
        - ■ Once design learned → How quick to perform tasks
    - ➢ Memorability
        - ■ When returning to design after while → How easy to reestablish proficiency
    - ➢ Errors
        - ■ How many errors do users make - how bad - how easy to recover
    - ➢ Satisfaction
        - ■ How pleasant is using the design
- ❖ Utility vs. Usability
    - ➢ Utility: design provides features users need
    - ➢ Usability: how easy & pleasant these features are to use
    - ➢ Useful = usability + utility

Why is Usability Important

- ❖ People leave difficult designs
- ❖ Employee productivity
    - ➢ more usable software → less time wasted
- ❖ Usability increases ROI

How to Improve Usability

- ❖ User testing

- Get representative users
- Have users perform representative tasks
- Observe users activity
  - Where users succeed
  - Where users have difficulties
  - Let users talk
- Test users individually
- Let them solve problems on their own (don't contaminate test)
- Testing 5 users is enough for most important usability problems
  - http://www.nngroup.com/articles/why-you-only-need-to-test-with-5-users/
  - Then revise & fix flaws (iterative design)

1.3 - When to Use Which User-Experience Research Methods

Nielsen Norman Group - Christian Rohrer

UX research methods answer wide range of questions

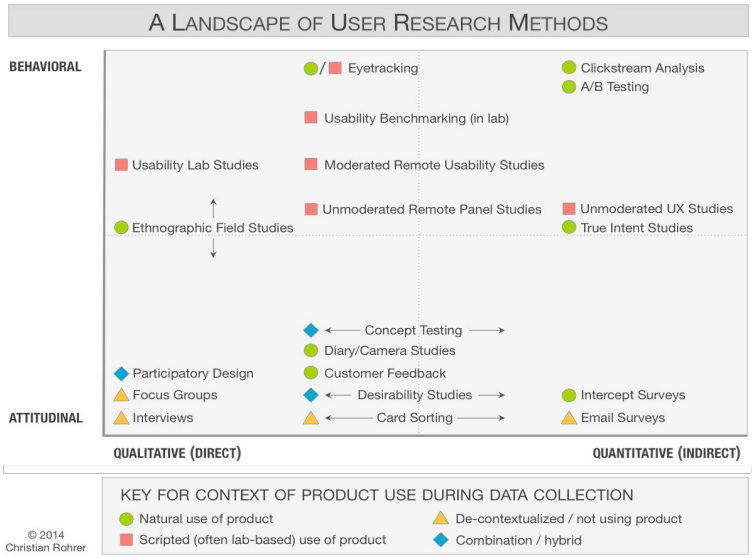
Map 20 methods to decide when to use which

- Map across 3 dimensions and over time
  - Attitudinal vs. Behavioral
    - "What people say" vs "what people do"
  - Qualitative vs. Quantitative
    - Qualitative studies - observe/gather data behavior directly
      - Why or how to fix problem
    - Quantitative studies - observe behavior indirectly
      - How many
  - Context of Use
    - **Natural** or near-natural use of the product
      - minimize interference from the study
    - **Scripted** use of the product
      - focus the insights on specific usage aspects
    - **Not using** the product during the study
    - **Hybrid** of the above

20 UX Methods

- Usability-Lab Studies
  - Participants in lab - one on one with researcher
  - Given set of scenarios that lead to tasks using product
- Ethnographic Field Studies
  - Researchers meet & study participants in their natural environment
- Participatory Design
  - Participants given design elements to construct ideal experience in way to express what matters most & why
- Focus Groups
  - Groups of 3-12 participants
  - Led through discussion & exercises
- Interviews
  - Researcher meets with participant 1 on 1 - discuss opinions of topic
- Eyetracking
  - Measure where participants look while performing tasks

- Usability Benchmarking
  - Tight scripted usability studies
  - Multiple participants
  - Precise & predetermined measures of performance
- Moderated Remote Usability Studies
  - Screen sharing
- Unmoderated Remote Panel Studies
  - Panel of trained participants
  - Use video recording & data collection software on own devices
  - Use product & think aloud
- Concept Testing
  - Researcher value proposition of product
- Diary/Camera Studies
  - Participants record & describe aspects of their lives relevant to product
- Customer Feedback
  - Info provided by self-selected sample of users
  - Feedback link, button, form
- Desirability Studies
  - Participants given visual design choices
- Card Sorting
  - Users organize items into groups & assign categories
  - Create or refine info architecture
  - Exposes uses mental models
- Clickstream Analysis
  - Analyze record of screens/pages user clicks/sees
- A/B Testing
  - AKA: “multivariate testing,” “live testing,” or “bucket testing”
  - Test how users interact with each design
  - Measure effect on user behavior
- Unmoderated UX Studies
  - Automated - use research tool to capture behaviors & attitudes (embedded survey questions)
  - Give participants goals / scenarios to accomplish
- True-Intent Studies
  - Ask random site visitors their goal/intention upon entering site
  - Measures subsequent behavior
  - Asks if were successful upon exit
- Intercept Surveys
  - Survey triggered during use of site
- Email Surveys
  - Survey recruited participants via email



1.4 - The State of Mobile User Experience

Nielsen Norman Group - Raluca Budiu

Summary

- New research shows improvement in mobile UX
  - 2009, Jakob Nielsen deemed mobile usability an oxymoron
  - Medium / devices are better
  - More focus on designing experience tailored for mobile
- Responsive-design trend inspired sites/apps to prioritive content over UI elements
  - mobile content cannot be arbitrarily limited
  - content must be prioritized over “chrome” (UI elements: buttons, menus, links) on mobile
    - Ex: Hide nav under hamburger
- Still need to learn
  - Just because it’s responsive doesn’t mean more usable
  - Mobile content must be layered
    - Prioritize gist - defire details to secondary pages
  - Fit desktop based info architecture into 2 level nav that’s usable on mobile
    - Deep info arch doesn’t translate well on mobile
      - Ex: Cascading menus
- What it means for Desktop Users
  - quite catastrophic for the desktop

1.5 - How Many Test Users in a Usability Study?

Nielsen Norman Group - Jakob Nielsen

Summary

- Answer is 5... Except when it’s not
- Most arguments for using more are wrong
- Some tests should be bigger - some smaller

Test 5 Users - http://www.nngroup.com/articles/why-you-only-need-to-test-with-5-users/

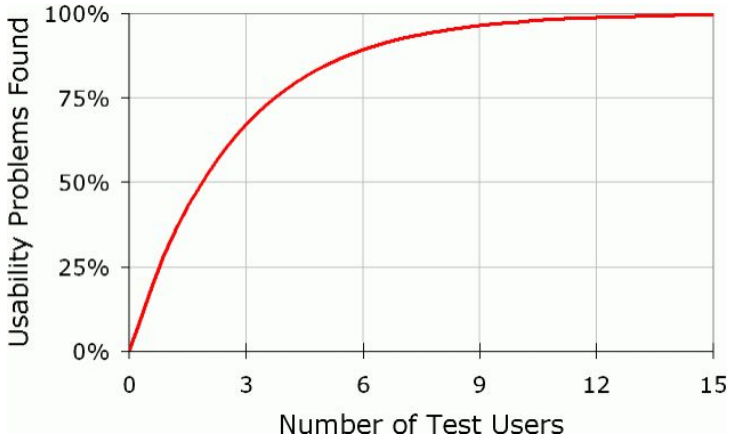
- Elaborate usability tests - waste of resources
- Best results come from testing no more than 5 users
- Iterating & running as many small tests as affordable

Exceptions

- Quantitative studies - http://www.nngroup.com/articles/quantitative-studies-how-many-users/
  - Aimed at stats not insights
  - Test 20+ users to get statistically significant numbers
- Card sorting
  - Test 15+ users
- Eyetracking
  - Test 39 users for stable heatmaps

Exceptions shouldn't worry you

- Majority of research should be qualitative - http://www.nngroup.com/articles/accuracy-vs-insights-quantitative-ux/
  - Better to accept a wider margin of error in usability metrics than to spend the entire budget learning too few things with extreme precision
- Insights to drive design - more important than - numbers to impress people in PowerPoint
- Small test = better ROI
  - Testing cost ^ each participant → number of findings reaches point of diminishing returns past 5 users



1.6 - Planning a Usability Test

Usability.gov

Purpose:

- document what to do
- how to conduct test
- what metrics to capture
- how many participants
- what scenarios to test

Elements of a Test Plan

- Scope
  - Indicate what to test
    - Name of product
    - How much of product test will cover

- Purpose
  - Identify concerns questions & goals for test
  - "Can users navigate to important information from the prototype's home page?"
- Schedule & Location
  - When & where to perform test
- Sessions
  - Describe session
  - Length
- Equipment
  - Device choice and info
  - Recording audio/video
  - Testing software
- Participants
  - Number & types of participants
  - Describe how they will be recruited
- Scenarios
  - Number & types of tasks to test
  - Typically ~10 tasks for 60 min session
- Metrics
  - Post task completion - ease & satisfaction questions
- Quantitative Metrics
  - Ex: successful completion rates, error rates, time on task
- Roles
  - List of staff who participates in testing & roles

Identifying Test Metrics

- Successful Task Completion
  - May want to give participants multiple choice questions
- Critical Errors
  - Deviation at completion from targets of scenario - can't finish task
- Non-Critical Errors
  - Recovered by participant
  - Make task less efficient
  - Ex: Opening wrong menu and going back
- Error-Free Rate
  - Percentage of participants who complete task without any errors
- Time On Task
- Subjective Measures
  - Reported by participant
  - Satisfaction, ease of use, ease of finding info, etc
    - Use Likert scale
- Likes, Dislikes & Recommendations

1.7 - Recruiting Usability Test Participants

Usability.gov

How many participants are enough?

- NNG Study (above)

Screening Participants

- Questions to help rule in/out target audience

Costs of Recruitment

- Recruiters charge fee for participants recruited
- Incentives for participants

1.8 - Recruiting Participants & the Legend of "General Public"

Usability.gov

- Age Range
- Gender
- Ethnicity
- Education
- Language
- Familiarity
- Previous Usage
- Technology qualifications
- Internet Usage

1.9 - Running a Usability Test

Usability.gov

Moderating Technique

- Concurrent Think Aloud (CTA)
  - Used to understand participants thoughts as they interact
  - Encourage stream of consciousness
  - Pros:
    - Understand thoughts as occur
    - Real-time feedback & emotional responses
  - Cons:
    - Can interfere with usability metrics (ex: time on task)
- Retrospective Think Aloud (RTA)
  - Moderator asks participants to retrace steps upon completion of session
    - Often watch video replay of actions
  - Pros:
    - Does not interfere with usability metrics
  - Cons:
    - Overall session longer
    - Tough & less accurate to recall thoughts → poor data
- Concurrent Probing (CP)
  - As participants work on tasks - when they say something interest or do something unique - researcher asks follow-up question
  - Pros:
    - Understand thoughts as they work
  - Cons:
    - Interferes with natural process / flow
- Retrospective Probing (RP)
  - Upon completion of session - ask participant about thoughts & actions
  - Often used in conjunction of other methods

- Pros:
  - No interference with usability metrics
- Cons:
  - Tough & less accurate to recall thoughts → poor data

Best Practices

- Make participants feel comfortable & respected
- Test site not users - make them understand they are helping test site
- Remain neutral
  - If asked question: “What do you think?” / “Im interested in what you would do.”
- Don’t help / lead participants
- Measure both performance & subjective (preference) metrics
  - Performance & preference don’t always match
  - Performance measures: success, time, errors, etc.
  - Subjective measures: users satisfaction & comfort ratings

1.10 - Reporting Usability Test Results

Usability.gov

http://www.usability.gov/how-to-and-tools/methods/reporting-usability-test-results.html

Quantitative Data

- Record
  - Success rates
  - Task time
  - Error rates
  - Satisfaction questionnaire ratings
- Add participant demographic data - see if data differs based on demo variables

Qualitative Data

- Record
  - Observations of paths users took
  - Problems experienced
  - Comments/recommendation
  - Answers to open-ended questions

Reporting Severity Levels of Problems

- How severe is problem
  - Does this problem have implications on other pages?
  - Note on 3 or 4 point scale
    - Critical: if not fixed users can’t complete task
    - Serious: many users will be frustrated → may give up
    - Minor: users annoyed - still can complete task

Writing Usability Test Report

- Templates: http://www.usability.gov/how-to-and-tools/resources/templates.html
- Background Summary
  - What you tested
  - Where/when test held
  - Equipment info
  - What was done during test
  - Testing team
  - Descriptions of problems of running the test & what worked well

- Methodology
  - So others can recreate test
  - Describe test sessions
  - Type of interface tested
  - Metrics collected
  - Overview of task scenarios
  - Describe participants
    - Provide background/demographic data
- Test Results
  - Analysis of what facilitator recorded
  - Describe tasks with highest & lowest completion rates
  - Summary of successful task completion rates by:
    - Participant
    - Task
  - Average successful task rate
- Findings & Recommendations
  - List all findings - back each with data/rationale

Incorporating Visuals to Illustrate Specific Points

- Screenshots visualize what was tested
- Short video clips to illustrate specific points

1.11 - Not Your Parent's Mobile Phone: UX Design Guidelines For Smartphones

Tim R. Todish

Summary

- Mobile realm presents new unique constraints & offers interesting opportunities

Mobile Constraints

- Form Factor
  - Desktop → Mobile
    - Screens smaller
    - Different optimal screen space
      - Action buttons in lower third - Easily tappable
- Input Methods
  - No mouse
    - No click
    - No hover states
    - Exciting opportunities to take advantage of touch & gestures
- Technical Constraints
  - Battery life
  - Processing power
- Data Transfer & Pricing
  - Not unlimited data

Good General Practices

- Mobile First Methodology
  - Prioritize most important features & content
  - Take advantage on non-desktop abilities
- Behaviors & Archetypes

- Build on behaviors users accustomed to
- Use design patterns specific to target devices

- Encourage Exploration
  - Teach users how to be quicker & more efficient
- Provide Immediate Feedback
  - No tactile response - Must give touches feedback
- Context
  - Ex: On the go apps - design for speed
  - Device - Tablets = mostly home use

2 - ADDITIONAL READING

The following books will also be used as resources. I may not read them fully but I will go through each and find anything relevant and helpful to my project. If I find the book is not very useful I will just read relevant parts. If I find it very useful I will read the complete book thoroughly.

2.1 - Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability

Steve Krug

http://www.amazon.com/Dont-Make-Think-Revisited-Usability/dp/0321965515/ref=asap_bc?ie=UTF8

2.2 - Rocket Surgery Made Easy: The Do-It-Yourself Guide to Finding and Fixing Usability Problems

Steve Krug

http://www.amazon.com/Rocket-Surgery-Made-Easy--Yourself/dp/0321657292/ref=asap_bc?ie=UTF8

2.3 - Designing with the Mind in Mind: Simple Guide to Understanding User Interface Design Rules

Jeff Johnson

http://www.amazon.com/Designing-Mind-Simple-Understanding-Interface/dp/012375030X?&tag=rnwap-20

2.4 - The Design of Everyday Things

Don Norman

http://www.amazon.com/The-Design-Everyday-Things-Expanded-ebook/dp/B00E257T6C/ref=dp_kinw_strp_1

2.5 - Emotional Design: Why We Love (or Hate) Everyday Things

Don Norman

http://www.amazon.com/Emotional-Design-Love-Everyday-Things/dp/0465051367

2.6 - Designing the User Interface: Strategies for Effective Human-Computer Interaction

Ben Shneiderman, Catherine Plaisant, Maxine Cohen, Steven Jacobs

http://www.amazon.com/Designing-User-Interface-Human-Computer-Interaction/dp/0321537351

2.7 - Human–Computer Interaction: Fundamentals and Practice

Gerard Jounghyun Kim

http://www.amazon.com/Human-Computer-Interaction-Fundamentals-Gerard-Jounghyun/dp/1482233894