

Cognitive Walkthroughs & Usability Reporting

Irene Rae
Computer Sciences

CS-570 Introduction to Human-computer Interaction



WISCONSIN
UNIVERSITY OF WISCONSIN-MADISON



This is actually a weird 4-part hybrid lecture, hold on to your hats!

Part I: Info on Final Exam

Final Exam: 3 Sections

Key concepts

Short answer, multiple choice, or true/false, testing your understanding of key concepts, definitions, differences, etc.

Reflection

Identifying what methods are appropriate for given problems and their advantages/disadvantages

Applying methods

Applying analysis, modeling, or interpretation methods/schemes to provided data

Topics Covered

Diaries & Cultural Probes

Personas & Scenarios

Human Performance Modeling

Design Patterns

Design Ethnographies

Heuristic Evaluation & Cognitive Walkthroughs

Affordances

Usability Reporting

Part 2: Cognitive Walkthroughs

What is a Cognitive Walkthrough?

Usability *inspection* method

Evaluates **ease of learning** through exploration

Many users learn software by exploration rather than formal training as they perform regular tasks

An *incremental* learning approach

This ensures that new features actually benefit users

What is a Cognitive Walkthrough?

A “review” process

The developer of a new design presents it to other developers

The peers evaluate the design based on a set of criteria

Cognitive Walkthrough Requirements

Task scenarios

One or more specific user tasks

Detailed design

Can be a paper or a hi-fi prototype

Information on the user and context

Assumptions about the user population and context of use

A sequence of actions

Actions that a user should perform to complete the task

Procedure

Given a user task

For each action

Inspectors craft a credible story of why users would choose that action based on assumptions about user background and goals

A set of questions helps this process

Inspectors create success or failure stories

Stories lead to design recommendations or changes

The Four Questions

1. Will the users try to achieve the right effect?
2. Will the user notice that the correct action is available?
3. Will the user associate the correct action with the effect trying to be achieved?
4. If the correct action is performed, will the user see that progress is being made toward solution of the task?

Question 1

Will users try to achieve the **right effect**?

Users will be successful

Because it is part of their original task

Because they have experience using a system

Because the system tells them to do it

Otherwise, users will fail

Question 2

Will users notice that the **correct action is available?**

Users will be successful

- By experience

- By seeing some device (e.g., a button)

- By seeing a representation of an action (e.g., a menu entry)

Otherwise, users will fail

Question 3

Will users **associate the correct action with the effect** trying to be achieved?

Users will be successful

By experience

Because the interface provides a prompt or label that connects the action to what they are trying to do

Because all other actions look wrong

Otherwise, users will fail

Question 4

If the correct action is performed, will the user **see that progress is being made** toward the solution of the task?

Users will be successful

By experience

By recognizing a connection between a system response and what they were trying to do

Otherwise, users will fail

Example Cognitive Walkthrough

Make a calendar entry for April 25, 2014, 12-1pm for a meeting with Kermit the Frog in his office and set up a reminder for 10 minutes before the appointment

Action 1: Create new event entry

Calendar

Today < > Apr 20 - 26, 2014

Day Week Month 4 Days Agenda More

CREATE

April 2014 < > GMT-06

S	M	T	W	T	F	S
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26

Sun 4/20 Mon 4/21 Tue 4/22 Wed 4/23 Thu 4/24 Fri 4/25 Sat 4/26

Easter Sunday

5am

6am

7am

1. Will the users try to achieve the right effect?
2. Will the user notice that the correct action is available?
3. Will the user associate the correct action with the effect trying to be achieved?
4. If the correct action is performed, will the user see that progress is being made toward solution of the task?

Action 2: Name the event

Calendar

Today < > Apr 20 – 26, 2014

Day Week Month 4 Days Agenda More ⌵ ⚙

CREATE ▾

GMT-06

April 2014 < >

S	M	T	W	T	F	S
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26

Sun 4/20 Mon 4/21 Tue 4/22 Wed 4/23 Thu 4/24 Fri 4/25 Sat 4/26

Easter Sunday

5am

6am

7am

Event | Appointment slots

When: Fri, April 25, 12pm – 1pm

What:

e.g., Breakfast at Tiffany's

Create event Edit event »

12p – 1p

1. Will the users try to achieve the right effect?
2. Will the user notice that the correct action is available?
3. Will the user associate the correct action with the effect trying to be achieved?
4. If the correct action is performed, will the user see that progress is being made toward solution of the task?

Action 2: Name the event

The screenshot shows a calendar interface with a week view for April 20-26, 2014. The calendar shows 'Easter Sunday' on Sun 4/20. A modal dialog is open for creating an event on Fri 4/25, with the title 'Meeting with Kermit the Frog' and time '12p - 1p'.

1. Will the users try to achieve the right effect?
2. Will the user notice that the correct action is available?
3. Will the user associate the correct action with the effect trying to be achieved?
4. If the correct action is performed, will the user see that progress is being made toward solution of the task?

Action 3: Enter location

The screenshot shows the Google Calendar interface for the week of April 20-26, 2014. The calendar is in 'Week' view. A yellow notification banner at the top reads: "Added Meeting with Kermit the Frog on Fri Apr 25, 2014 at 12pm. [Undo](#)". A blue event card for "12p - 1p Meeting with Kermit the Frog" is visible on Friday, April 25th. The interface includes a search bar, navigation controls, and a 'CREATE' button.

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4. If the correct action is performed, will the user see that progress is being made toward solution of the task?

Action 3: Enter location

The screenshot shows a calendar interface for the week of April 20-26, 2014. The current view is 'Week'. A meeting event titled 'Meeting with Kermit the Frog' is scheduled for Friday, April 25, from 12pm to 1pm. The event details panel is open, displaying the event title, date and time, and a 'Video call' link with a 'Join video call' button. There are also 'Delete' and 'Edit event' options. The calendar grid shows 'Easter Sunday' on Sun 4/20. A small tooltip is visible over the event slot, showing '12p - 1p Meeting with Kermit the Frog'.

1. Will the users try to achieve the right effect?
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Action 3: Enter location

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The screenshot shows a calendar event creation form. At the top, there are navigation buttons: a back arrow, a red 'SAVE' button, 'Discard changes', 'Delete', and a 'More Actions' dropdown menu. The event title is 'Meeting with Kermit the Frog'. The date and time are set to 4/25/2014, 12:00pm to 1:00pm, with a 'Time zone' link. There are checkboxes for 'All day' and 'Repeat...'. Below this is a section for 'Event details' with a 'Find a time' button. The 'Where' field is empty with the placeholder 'Enter a location'. The 'Video call' section has a green 'Join video call' button and a blue 'Remove' link. The 'Calendar' dropdown is set to 'Rene Rae'. The 'Description' field is empty. The 'Attachment' section has a blue 'Add attachment' link. The 'Event color' section shows a row of color swatches with the first one (blue) selected. The 'Reminders' section is set to 'Pop-up' every '10 minutes' with a close button 'x' and a blue 'Add a reminder' link. The 'Show me as' section has radio buttons for 'Available' and 'Busy' (selected). The 'Privacy' section has radio buttons for 'Default' (selected), 'Public', and 'Private'. At the bottom, there is a note: 'By default this event will follow the sharing settings of this calendar: event details will be visible to anyone who can see details of other events in this calendar. Learn more' and a blue 'Publish event' link.

Action 3: Enter location

Google Search Calendar

← SAVE Discard changes Delete More Actions

Meeting with Kermit the Frog

4/25/2014 12:00pm to 1:00pm 4/25/2014 Time zone

All day Repeat...

Event details [Find a time](#)

Where

Video call [Join video call](#) | [Remove](#)

Calendar

Description

Attachment [Add attachment](#)

Event color |

Reminders minutes [Add a reminder](#)

Show me as Available Busy

Privacy Default Public Private

By default this event will follow the [sharing settings](#) of this calendar: event details will be visible to anyone who can see details of other events in this calendar. [Learn more](#)

1. Will the users try to achieve the right effect?
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Action 3: Enter location

Google Search Calendar +Rene [grid icon] [bell icon] Share [user icon]

Your event was updated. [Undo](#)

Calendar Today < > Apr 20 - 26, 2014 Day Week Month 4 Days Agenda More [gear icon]

CREATE [dropdown arrow]

Sun 4/20 Mon 4/21 Tue 4/22 Wed 4/23 Thu 4/24 Fri 4/25 Sat 4/26

GMT-06
5am

April 2014 < >
S M T W T F S
30 31 1 2 3 4 5

12p - 1p Meeting with Kermit the Frog

1. Will the users try to achieve the right effect?
2. Will the user notice that the correct action is available?
3. Will the user associate the correct action with the effect trying to be achieved?
4. If the correct action is performed, will the user see that progress is being made toward solution of the task?

Action 4: Confirm

Calendar Today < > Apr 20 – 26, 2014 Day Week Month 4 Days Agenda More ⌵ ⚙

CREATE ▾

April 2014 < > GMT-06

Sun 4/20	Mon 4/21	Tue 4/22	Wed 4/23	Thu 4/24	Fri 4/25	Sat 4/26
Easter Sunday						
5am						
6am						
7am						

Meeting with Kermit the Frog ✕

Fri, April 25, 12pm – 1pm

Where Kermit's Office [map](#)

Video call [Join video call](#)

Delete [Edit event »](#)

12p – 1p Meeting with Kermit the Frog

1. Will the users try to achieve the right effect?
2. Will the user notice that the correct action is available?
3. Will the user associate the correct action with the effect trying to be achieved?
4. If the correct action is performed, will the user see that progress is being made toward solution of the task?

Cognitive Walkthrough Advantages

Easy to learn and apply

Can perform early in the process

Helps to identify labels and controls obvious to the design, but not to a user

Helps to identify inadequate feedback

Cognitive Walkthrough Disadvantages

Diagnostic, not prescriptive

Focuses mostly on novice users

Designers must think like users

Emphasizes task-related issues

Does not provide quantitative results

Questions?

Part 3:

Presentation Pointers

every time you make a powerpoint



edward tufte kills a kitten

Presentation Pointers



Figure out the story you're telling and the main points you're trying to make **before** you start plugging stuff in!

Use images to support your point!



Avoid walls of text

It is often better to avoid large walls of text on a slide because the audience can generally either pay attention to what you are saying, or they can read the slide. While they're busy reading the slide, they probably won't recall anything that you said, which can be really frustrating when they miss important points and then ask you questions about it later. As you have probably intuited from the lecture slides, sometimes this can be really tough to limit because you might have a ton of content to get through, but if you do have a lot of content then try to spread it out in multiple slides or try to **use highlighting**. Remember how little we can actually perceive at any given time and how we need all the help we can get to really redirect people's attention. So having put this slide up, how much did you read and how much do you recall from what I said while this slide was up?

People are drawn to change

It is tempting to use a laser pointer

Bright lights can be annoying to the user

You can direct people's attention without a pointer by using highlighting and animation

Use Tips From Design 101 Lecture!



Most common tricks:

Use indentation/position instead of bullets to indicate a hierarchy

Changes in **contrast**, **color**, and **size** draw attention

Create visual flow to control attention

Most common mistakes

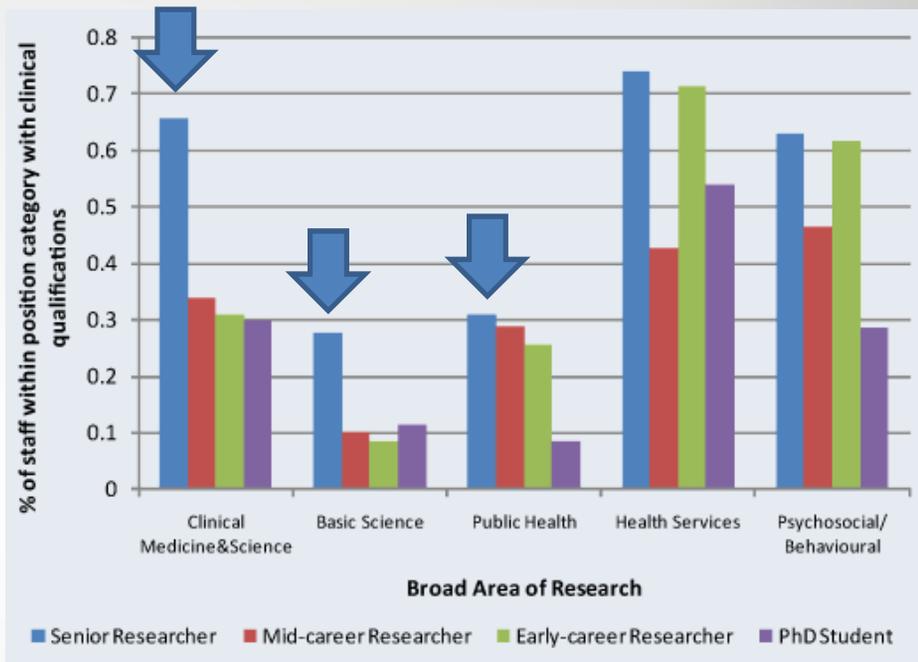
This is a really important graph where I try to present my big conclusions

$$f(x) = a_0 + \sum_{n=1}^{\infty} \left(a_n \cos \frac{n\pi x}{L} + b_n \sin \frac{n\pi x}{L} \right)$$

I also want to explain all this stuff in my equations and I want to explain how I got all this graph stuff

$$\sin \alpha \pm \sin \beta = 2 \sin \frac{1}{2} (\alpha \pm \beta) \cos \frac{1}{2} (\alpha \mp \beta)$$

Let me also try to highlight my main conclusion, because this slide is getting really busy!



What we can conclude from this graph is **that these** blue bars are really important because I want to make sure that they're highlighted!

Questions?

Part 4: Usability Reporting

Potential Scenarios

You own/work for a design/UX company

You work in the design/UX division of a large company

You work as part of a development team in a design/US role

Documentation will be a key part of your job!

Three Types of Reports

Design Brief

Design Proposal

Usability Reporting

I. Design Brief

“A written document for a design project developed in concert by a person representing the business need for design and the designer.”

– Wikipedia

Sometimes called a “creative brief”

This is **why they should hire you/use you**

Components

1. Objectives and goals of the new design
2. Budget and schedule
3. Target user group, audience
4. Scope of the project
5. Available and needed resources
6. Specific requirements and expectations
7. Any definite “do nots”

What's the point?

Briefs are often written internally in a company

Most people/clients don't know how to write one

You need to know how to interpret a design brief and identify what is missing

Objectives & Goals

A description of what the client expects from the design

Is the project new?

What is the product or is it open-ended?

Does the product have to fit with existing stuff?

Internal briefs that might state additional facts/notes

Budget & Schedule

An outline of the budget and expected timeframe of the project

Used to determine how to allocate resources (developers, time, costs, etc.)

Clients may hesitate to provide a budget, you might have to propose one

Both budget and schedule must be **realistic**

Target Audience

An articulation of who the users are

Clients may not know

Clients may say “everyone”

Clients may already have personas developed for their range of products

Project Scope

A more detailed description of the expected functionality, technology to be used, and so on

This information complements the information provided in project objectives and goals

Resources

A description of the technology infrastructure, design elements, and so on that are available for the current project

May also include resources needed, such as space for user studies, equipment, etc.

Specific Requirements

A description or examples of specific expectations on how the product might look or behave

Examples:

We do not want to use Microsoft services

We have a clean and modern look in mind

Do Nots

A description of dealbreakers and things that should be avoided

Most clients will not be able to articulate this, but they will know what they don't like when they see it (prototyping)

Powerful in redesigns (e.g., why the redesign is needed), longer term relationships (e.g., like last time), or internal design briefs

Forms of Design Briefs

Experienced clients

They will know how to create a design brief

Inexperienced clients

You may have to create a **checklist and/or formal questionnaire** to get this information

You might provide clients with a **guide document** for what you will need for your design

You might **interview** your clients

A DESIGN BRIEF

A DESIGN BRIEF

THE CLIENT SHOULD INCLUDE

- . company name
- . type of company
- . situated in
- . and its business intentions...

PRESENTATION SHOULD COVER

- . what the client wants from the designer

THE AUDIENCE SHOULD INCLUDE

- . age
- . gender
- . interest / characteristics
- . socio-economic

THE PURPOSE CAN

- . advertise
- . promote
- . inform
- . guide
- . teach

THE CONTEXT IS

- . placement of your presentation
- . how it works with its audience

THE CONSTRAINTS CAN BE

- . time
- . money
- . colour
- . imagery
- . materials
- . methods
- . presentation

SIGNITURES & DATES ARE TO BE INCLUDED.

SAMPLE

CLIENT

Markel an all in one beauty salon, is a newly established business which will specialise in massaging, manicure and hairdressing. The new store will be located in Melbourne's inner city Chapel Street. Markel is looking for the services of a graphic designer to create a funky and fresh new look so that it can rise above all its competitors.

AUDIENCE

Markel's targeted audience will be aimed mainly at female's - late teens to those in their 40s. A high disposable income and interest in beauty health and general care for their wellbeing are characteristics of the market Markel wants to be apart of.

PRESENTATION 1 - GRAPHIC IMAGE FOR NEW LINE OF T-SHIRTS & CORPORATE IDENTITY / LOGO

The client requires a graphic image for a line of T-shirts. The garment will be worn by all the staff in the salon, it will be used as a company uniform. The need for a corporate identity is also needed to help brand and promote the new store.

PURPOSE

The purpose of the visual communications are to capture the attention of, promote and inform potential customers of the new all in one beauty salon - Markel. The contemporary look will help to create a colourful, positive and up beat store that makes it's client's feel relaxed and beautiful.

CONTEXT

The new line of T-shirts will be issued to all employees and given as freebies in the hope it will create greater exposure within the local area. The corporate identity / logo will be applied to all business card and displays before the opening of the store.

CONSTRAINTS

The design constraints are (1) T-shirt ground colour is to be white and the design work bright, colourful, clean and simple. (2) The idea of beauty as a focus is also to be incorporated. (3) The company logo is to designed using 1 colour. (4) The logo must be incorporated into the graphic for the T-shirt and (5) the design work is to be completed within the designated time frame.

METHODS - Drawing (freehand observational drawing) - Photography - Computer - Printing

POSSIBLE PRESENTATION FORMAT

The possible presentation format (1) Printed T-shirt design (2) Concept board displaying the Corporate Identity.

CLIENT SIGNATURE

STUDENT SIGNATURE

TEACHER SIGNATURE

DATE

2. Design Proposal

Back your design brief with a **proposal**

Outlines what you will do in response to the brief

Most often completed when you own your own business, but may be used internally in large companies to justify projects

This is **what you intend to do**

Proposal Pieces

Executive summary – overview of project

Project goals

Timeline, deliverables, milestones

Implementation process details

Resources required

Rights and ownership (copyright, etc.)

Costs, fee schedule

Expectations/deadline repercussions

Contact details

Other Optional Pieces

Target audience

Current situation

Biographies of team

Past projects and successes

Definitions

3. Usability Reporting

The **usability report** takes you, your team, and your clients from *findings* to *recommendations*

It is not just “mopping-up” to pull together loose ends in a project

The report supports and initiates change, directs actions, provides a historical record, educations, and most importantly, communicates

This is **what you did** and **what they should do about it**

Purposes of reporting

Document findings, recommendations, and agreements

Record that the study happened and what its goals and objectives were

Explore methodological issues or protocol burbs that may have influenced the outcomes

Give direction to designers and developers about how to remedy problems

Report to management the highlights related to business concerns

Report Organization

Executive summary/background

Method

Results

Findings and recommendations

Yes! It looks a lot like a processbook!

Executive Summary

A brief synopsis of the test logistics, major findings and recommendations, further research required, and overall benefits of the test

Keep to a **single page** if possible

Can be expressed in a standardized table

Method

The nature of the research

How the study was set up

Participant characteristics/demographics

Data collection and analysis methods

Results

Summaries of results from qualitative and quantitative data

Quantitative:

Task completion, errors, prompting when needed, ratings, etc.

Qualitative:

Responses to free-form questions, types of errors, etc.

Do not include all the raw data, but representative excerpts

Include raw data as an appendix or as a pointer

Discussion

Describe and discuss findings, explain, recommend for next steps

Should be a summary of report!

Divide into general (global issues) and specific (nitty-gritty) findings/recommendations

Include positive findings to indicate what should be promoted

Recommendations

Represent different perspectives, most findings will involve tradeoffs

Try to get buy-in/sell recommendations you feel passionate about

Draw on data to sell the recommendation

Recommendations: Issues to focus on

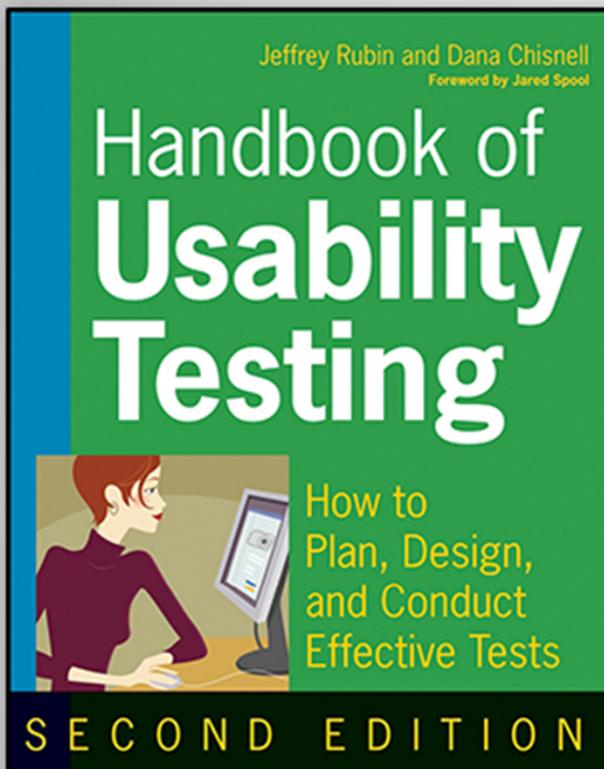
Focus on solutions with the widest impact

Ignore political considerations in the first draft

Include both short-term and long-term recommendations

Talk about where further research should be done

Other Resources



Handbook of
Usability Testing

Rubin & Chisnell



Creating the perfect
design brief

Phillips



Managing the brief for
better design

Blyth & Worthington

Questions?

Remaining Semester

Next Tuesday: Guest Lecture

Next Thursday & Friday: No class

No office hours next week

Tuesday, 5/6: The current state of HCI

Thursday & Friday: Project presentations?

Review session?