How I Got Here

1. Physical therapist & CME trainer
2. Medical eLearning developer
3. User experience consultant
Objectives

In this session you will learn to:

• Create usability goals for an eLearning product
• Develop a usability test script
• Facilitate a usability test for an eLearning product

Main Topics

Overview of User Centred Design

• What is Usability & User Experience?
• How is the User Experience Designed?
• What is a Usability Test?
• How Does Usability Testing Apply to eLearning?

Practical Considerations

• Who are the Test Participants?
• Why Usability Test & Why Doesn’t Everyone Test?
• How Do You Get Client Buy-in?
• When & Where to Usability Test?

How to Run a Test

• How to Usability Test?
• Demonstration
What is Usability?

“The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction.” (ISO 9241)

What is The User Experience?

The quality of experience a person has when interacting with a product or service. A good user experience includes usability and utility as well as . . .
What is The User Experience?

. . . the more emotional attributes of aesthetic and social appeal.

How is the User Experience Designed?

Using an iterative process called
• User-Centred Design or
• User-Experience Engineering
User & Task Analysis

User and task analysis ensure development resources are assigned to useful products with appropriate features.

Techniques such as site visits, interviews, focus groups, surveys, and customer response analysis are used to determine what users need, how they think, and the environmental constraints they function within.

• *Like needs analysis*

Usability Goals

Usability goals are quantitative targets of specific usability attributes: learnability, efficiency, and user satisfaction.

Usability goals keep the design process focused on the user’s priorities and guide design decisions.

• *Like learning objectives*
Usability Design

Usability design begins with conceptual design to ensure that a product’s structure is intuitive to its users.

Once a high-level framework is developed and tested, visual design of specific screens, windows, and dialogue boxes can begin.

Design efforts are initially directed to the development of a prototype.

• *Like* instructional design

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Evaluation & Testing

Prototypes or full systems can be evaluated by an expert (heuristic evaluation) or a group of developers and usability specialists (collaborative evaluation). This contrasts with usability testing, where representative users perform tasks with a product and the results are evaluated against preset usability goals. If the goals are not met, the prototype is redesigned and re-tested.

• *Like* learning objective evaluation
What is a Usability Test?

“The evaluation of a product’s usability through direct observation of user behavior during a structured task.”
Also called a usability evaluation or simply an evaluation.

Key Concepts:
- User not Usability Expert (unlike a heuristic evaluation)
- User Behavior not User Opinion (unlike a survey)
- Direct Observation not Indirect Observer (unlike a server log)
- Structured Task not Any Task (unlike an ethnography)

Usability Testing and eLearning

You can test the following:

- The user interface. Mostly navigation but could also include platform features (chat tools, course publishing, etc.)
- The content. Text, pictures, video, interactive exercises
Who are the Test Participants?

A representative sample of the learner population

Why Usability Test?

Reasons
• Your learners are not like you
• Learners cannot explain their navigation and content issues

Goals
• Find navigation and content issues
• Verify that usability and learning goals are met
• Choose between competing designs
• Bring the development team and client on board
**When to Usability Test?**

**Prerequisites**
- Usability requirements & goals
- Prototype

**Phases**
- Low fidelity
- High fidelity

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**Why Doesn’t Everyone Test?**

**It takes time and costs money:**

<table>
<thead>
<tr>
<th>Step</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design test plan &amp; materials</td>
<td>32</td>
</tr>
<tr>
<td>Design test environment</td>
<td>8</td>
</tr>
<tr>
<td>Run pilot test</td>
<td>8</td>
</tr>
<tr>
<td>Revise test tasks/materials</td>
<td>8</td>
</tr>
<tr>
<td>Run test/collect data</td>
<td>32</td>
</tr>
<tr>
<td>Summarize data</td>
<td>16</td>
</tr>
<tr>
<td>Document/present results</td>
<td>40</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>144</strong></td>
</tr>
</tbody>
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*Adapted from Mayhew, 1999

**Why invest the resources when:**
- Learners are like me
- Learners can explain their navigation and content issues
How Do You Get Client Buy-in?

• Usability testing provides excellent return on investment
• $1 yields $2-$100 in increased revenue and reduced development and support costs (Kiewe, 2006)
• You must explain the value added
• Risk management is the most effective motivator
• Usability testing is a market differentiator

Where to Usability Test?

<table>
<thead>
<tr>
<th>User's Environment</th>
<th>Usability Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>• High ecological validity</td>
<td>• Low ecological validity</td>
</tr>
<tr>
<td>• Poorly controlled</td>
<td>• Well controlled</td>
</tr>
<tr>
<td>• Inexpensive</td>
<td>• Expensive</td>
</tr>
<tr>
<td>• Convenient for the user</td>
<td>• Inconvenient for the user</td>
</tr>
<tr>
<td>• Potential interruptions</td>
<td>• No interruptions</td>
</tr>
<tr>
<td>• Videotaping inconvenient</td>
<td>• Videotaping convenient</td>
</tr>
<tr>
<td>• Third-party observations</td>
<td>• Third-party observations</td>
</tr>
<tr>
<td>intrusive</td>
<td>intrusive</td>
</tr>
</tbody>
</table>


How to Usability Test?

**Seven Steps:**
1. Complete Prerequisites
2. Plan
3. Develop Materials
4. Pilot Test
5. Recruit Participants
6. Test
7. Summarize, Analyze, & Report

Prerequisites & Plan

**Prerequisites**
1. Usability goals
2. Prototype

**Plan**
1. Choose test focus
   - Navigation, Content, or Both
2. Choose a user focus
   - Cannot test everyone
3. Design a test task
   - Cannot test all tasks
Develop Materials

1. User introduction
2. Informed consent & Non disclosure agreement
3. Pretest questionnaire
4. Test tasks
5. Data collection sheet
6. Posttest questionnaire
7. Test script

Develop Materials (2)

User introduction
• Thank you & about the product
• We are testing the interface, not you
• It’s weird. I’m just going to observe.

Data collection sheet
• Action, User comments, Observations

Posttest questionnaire (usually a Likert Scale)
• The instructions and prompts are helpful:
  Strongly Agree 1 2 3 4 5 Strongly Disagree

Standard instruments available, ie: Software Usability Measurement Inventory (SUMI)
**Pilot Test**

1. Recruit pilot user
2. Set up test environment
3. Run pilot test
4. Revise materials & environment
5. Adjust timing

*Don’t skip the pilot!*

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**Recruit Participants**

- 3-10 users per test run
- 1-2 hours per test, 30 min between them
- Consider participant motivation
- Consider an incentive
- Recruitment is work, be persistent
Test

Facilitator Role

• Consider think aloud, pair testing, or posttest review
• Don’t lead or help
• Ask questions to gain insight
• Avoid distracting users
• Ask posttest questions

Observer Role

• Take notes

Questions to Gain Insight

✓ Ask

• What are you thinking?
• Is that what you expected?
• What is your understanding?

✗ Avoid

• Why (encourages justification)
Summarize, Analyze, & Report

Summarize & Analyze
- Count # of errors, time per task or per error
- Use only descriptive statistics like averages

Report
- List elements that work
- List issues, including frequency & severity
- Make suggestions for improvement

Demo: Dreamweaver Tutorial

Need two volunteers who don’t know Dreamweaver or Web design
A Short Script
1. User introduction & test tasks
2. Data collection sheet (action, user comment, observations)
3. Posttest questionnaire (a few open-ended and Likert questions)

For These Goals
1. Navigate through the tutorial successfully (use pause, play, rewind as needed)
2. Be able to create a rollover during the tutorial
3. Explain the value of preloading an image
4. Give the tutorial a 4 or 5 out of 5 on a Likert satisfaction scale

Facilitator Role
- Read introduction & test tasks
- Ask questions to gain insight
- Ask posttest questions

Observer Role
- Take notes on data collection sheet
- Need an observer to take notes
Script: Data Collection Sheet

<table>
<thead>
<tr>
<th>Action</th>
<th>User Comment</th>
<th>Observation</th>
</tr>
</thead>
</table>

Script: User Introduction & Test Tasks

Today we are going to test our tutorial for DreamWeaver’s rollover feature. We are interested in learning how easy the tutorial is to use and how effective and satisfying it is. We are testing the tutorial, not you, so relax and enjoy the process. Feel free to criticize the tutorial at any time.

We will be observing you while you are working, but cannot offer you help unless you’re absolutely stuck. This may seem a little weird at first but after a while you’ll forget we are here.

We’d like you to work together as a team and talk to each other or verbalize your thoughts as you go through the exercise. This helps us understand how the tutorial is perceived.

The tutorial is in the form of a digital video which you can stop, start, and rewind at any point. We’d like you to watch it and try to do what it teaches in DreamWeaver. You can pause, rewind, and restart the video at any point. You can also go back and forth between DreamWeaver and the video if you like.
Script: Posttest Questions

1) How easy did you find playing, pausing, rewinding the video?
   - Very easy  1  2  3  4  5  Very difficult

2) How easy did you find learning to create the rollover?
   - Very easy  1  2  3  4  5  Very difficult

3) What is the benefit of preloading an image?

4) In general, how satisfied are you with the tutorial?
   - Very satisfied  1  2  3  4  5  Very dissatisfied

5) Do you have any complaints about the tutorial?

6) Do you have any suggestions for improving the tutorial?

7) Is there anything else you would like us to know?

Scripting > Testing > Reporting

List the following:

- What worked
- Issues, including frequency & severity
- Recommendations for improvement
References & Reading


Thank you!

Howard Kiewe
howard [at] kieweconsulting [dot] com
+1 (514) 485-6373
www.kieweconsulting.com
User experience, usability, & e-learning research & design
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