User Experience (UX) in Web Development

An Introduction to UX Methods and Principles Applied in Web Development

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Development of User-Centered Design & Experience (DUDE)
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Agenda

• What is UX?
• Why UX?
• Design Principles
• Technical Approach
• Q & A
What is UX?

Business goals

User goals
User Experience (UX) accounts for a person's behaviors, attitudes, and emotions about using a product, system, or service.
What is UX?

Relative Fields of Study

- Human Factors
- Human Computer Interaction (HCI)
- Quality Function Deployment (QFD)
What is UX?

Overall Goal

Reduce the friction between a task someone wants to accomplish and the tool that they are using to complete that task.
What is UX?

Affordance

The relation between an object, or an environment, and an organism that affords the opportunity for that organism to perform an action.
What is UX?

Good Affordance
What is UX?

Bad Affordance
What is UX?

User-Centered Design

• Focus on the needs, wants, and limitations of the end users throughout the design process.

Technical Approaches:

• **Cooperative Design** - Involving designers and users equally

• **Participatory Design** - Focused on the participation of users

• **Contextual Design** - Researchers aggregate data from customers and apply these findings into a final product
Why UX?
Why UX?

Misconceptions

1. So… It’s Marketing, Right?

2. UX is Time Consuming

3. UX is a Luxury

4. UX is Not Statistically Significant
Why UX?

Misconception #1 - So… It’s Marketing, Right?

- Marketing describes *what* people want
- UX describes *how* to achieve what people want
Why UX?

Misconception #2 - UX is Time Consuming

<table>
<thead>
<tr>
<th>Today</th>
<th>Tomorrow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs Analysis</td>
<td>Call Center</td>
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<tr>
<td>User Requirements</td>
<td>Maintenance</td>
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<tr>
<td>Prototyping</td>
<td>Documentation</td>
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<tr>
<td>Test &amp; Evaluation</td>
<td>User Training</td>
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</table>
Why UX?

Misconception #3 - UX is a Luxury

• Paying a consultant

• Paying someone in-house

• Paying for resources (e.g., lab and equipment, participant recruitment services, participant compensation)
Why UX?

Misconception #3 - UX is a Luxury

• $1 to resolve problems early

• $10 to resolve that same problem during development

• $100 to resolve the same problem after launch
Why UX?

Misconception #4 - UX is Not Statistically Significant

• Quantitative vs. Qualitative

• Small sample sizes means more one-on-one

• 5 users uncover 80% of major problems
Design Principles
Design Principles

What Makes a **Bad Website?**
Design Principles

What Makes a **Bad** Website?

**Sphere Research Corporation**
3384 Sunnydale Rd.
West Kelowna, BC, Canada, V1Z 2V4
Phone: +1 (250) 769-1834
FAX: +1 (250) 769-4106

*IMPORTANT! Shipping Costs went up significantly January 1, 2013, see full details in our FAQ.*

*Updated July 1, 2013*

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**Slide Rule Universe**

- **Sliding Rule Pins and Tie Clips**
- **Pickett New in the BOX Menu Rules**
- **Circular Slide Rules**
- **New in the BOX Menu Rules**
- **Useful Full Size Slide Rules**
- **Cheap / Student Slide Ruler**
- **Exotic Slide Rules**
- **Slide Rule Books**
- **Pocket Slide Rules**
- **Drawing Tools**
- **New Slide Rule Cases**

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**WOW, you are visitor!**

- **Follow us on Twitter**
- **We have MUGS!**

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**FREE Stuff**

Keep in mind, in 50 years, the computer you are using to view this webpage will be landfill, but your trusty slide rule will just be nicely broken in!
Design Principles

What Makes a Good Website?
Design Principles

What Makes a **Good** Website?
What Makes a Good Website?

Design Principles

visualize your mood

Start Creating
Design Principles

Eye-Tracking Research
Design Principles

Eye-Tracking Research

- F-Shape
- Golden Triangle
Eye-Tracking Research

Users spend 80% of their time looking at information above the page fold and only 20% of their attention below the fold.
Design Principles

Serial Position Effect

• Primary Effect: Recall things first events

• Recency Effect: Recall events

Recommendations

• List important items in the beginning and last

• Recency Effect: Recall events
Design Principles

**Gestalt Principles**

- Closure
- Common Fate
- Figure-ground Relationship
- Continuation
- Law of Prägnanz
- Proximity
- Similarity
- Uniform Connectedness
Design Principles

Figure-Ground Relationship
Design Principles

Figure-Ground Relationship
Design Principles

Common Fate
Design Principles

Similarity
Proximity

A higher plain
Design Principles

Hick’s Law
The more alternatives, the longer it takes you to make a decision

Working Memory Capacity:
Humans can only hold seven ± 2 items in working memory
Design Principles

What Makes a **Bad** Website?
Design Principles

Hick’s Law

- Difficulty in remembering multiple paths
- Inefficiency
- Increased likelihood of selecting wrong choice
- Users are less likely to adopt
Design Principles

Human Limitations

Netflix, a longtime favorite, has been under fire for raising its prices. Faced with having to pay about $16 for separate streaming and DVD plans instead of $9.99 for both, some of Netflix's 22.3 million U.S. customers took to social media out of their anger, while tech bloggers scratched their virtual heads and competitors reacted to the water.

More than 4,800 customers posted comments on the Netflix blog on Tuesday, mostly expressing concern about the limited streaming catalog and threatening to drop one or both services rather than pay the new price for both.

Netflix also announced the new price plan on its Facebook page, sparking almost 20,000 comments by the end of the day. Comments included, "Great idea to kick the people while their [sic] down for customer satisfaction. Greedy, Greedy, Greedy," and "Can you even IMAGINE how much champagne was flowing at the Redbox/Hulu/Amazon offices today!? HA! Good for them!"

A Facebook page titled Cancel Netflix is proposing a movement to cancel Netflix services by September 1, when the pricing change is set to go into effect.
Design Principles

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Technical Approach
Needs Analysis

Method for gathering, understanding, and prioritizing user needs

**Methods for Gathering User Needs:**

- Client Interviewing
- Focus Groups
- Questionnaires & Surveys (online or in person)
Prioritization of User Needs

Not all needs are equally important

- **Musts** are fundamental to a project’s success; failure to meet a “must” means the project is likely to fail

- **Shoulds** have priority; failing to meet a “should” is tolerable, but missing too many becomes problematic

- **Nice-to-Haves** are complementary features; in/exclusion has no significant weight on a project’s success
Once prioritized, needs can provide a structure for layering out content.

**Prioritization of User Needs**

- **Musts**
  - Activity Window(s): Job, Mentor, On-Going Project, Scholarship Preview
  - Info About What a HSI Is
  - Info About HSI Benefits
  - General Contact Information
  - Info On How Grants Work
  - Student Success Stories

- **Shoulds**
  - List of Grant Openings and Requirements
  - List of Job Openings and Requirements
  - List of Professors & Staff Involved
  - College Roadmap to a Degree
  - List of Scholarship Openings and Requirements
  - Social Network (e.g., Facebook, Twitter, Linkedin)
  - Links to Other Relevant Sites (e.g., HACU, helpful CSUN pages)

- **Nice to Haves**
  - Info On How Outsiders Can Get Involved
  - Info On How to Be a Mentor
  - List of On-Going Projects
  - Videos
  - Cultural Events on Campus
  - Ability to Donate
  - Log-In Feature for Students
  - Log-In Feature for Mentors
In turn, a menu structure of how content is grouped is created.
**Prototyping**

**Low Fidelity:** Rough draft of planned concepts. Can be hand drawn.
Prototyping

**High Fidelity:** Interactive demonstration of concepts. Shows where content will be placed. Uses image and text placeholders for content.
Usability Testing

**What is it?**

Process by which products are tested by those who will use them, is intended to help product developers.

**Value**

A usability test with 5 users will typically uncover *80%* of the site-level usability problems.
Usability Testing

Steps:

1. Know What to Measure
2. Design Task Scenarios
3. Testing Protocols
4. Recruit Participants
5. Run!
6. Evaluate and Report
Step 1: Know What to Measure

Examples

• Time
• Number of Errors
• Type of Errors
• Task Completion
• Need for Assistance
• Pathways Taken
Step 2: Design Task Scenarios

**Task #1**

You are in danger of being placed in disqualified status as a Junior.

—> Find a policy about academic disqualification to determine what GPA you must maintain as a Junior to not become disqualified.

**Task #2**

You are an undergraduate and you need to take some time off for medical reasons.

—> Find a policy about how to submit a medical withdrawal.
Design Principles

Task Scenarios

• Realistic - Correct circumstances

• Actionable - How vs. What

• Avoid Clues - Don’t give away solutions!
Step 2: Design Task Scenarios

Example of an Ideal Path:

Home > Opportunities > Student Jobs > Student Assistant Position

Number of Steps: 5

Actual Path Taken:

Home > Get Involved > About > Home > Opportunities > Student Jobs > Student Assistant Position

Number of Steps: 7
Step 3: Apply Protocols

**Think Aloud Protocol:** Users verbalize their thoughts *during* each task

“I’m searching for a Student Assistant position… I’m clicking ‘Opportunities’, because I think that’s where I’ll find it”

**Retroactive Think Aloud:** Users report their thoughts *after* a task/study

“I was looking for the Student Assistant position... I clicked on Opportunities"
Step 4: Recruit Participants

Recruiting

- Psychology Subject Pool
- Staff or students involved with other unrelated projects
- Staff or students not apart of the web team
Step 5: Run!

Wait, not yet!

**Pilot Testing:**

- Testing is *never* flawless on the first run
- Run a pilot study to learn how the study will run
Step 6: Evaluate & Report

- Summarize findings
- Provide recommendations for improvement

![Pie chart showing the percentages of enjoyment for different features: General Ease of Use (31%), Image Editing Tools (19%), Grid System (19%), Importing Images Ease of Use (19%), and Look and Feel (12%).]
Step 7: User Requirements

User Requirements

• User Requirements Document (URD)

• Clear and verifiable
Step 7: User Requirements

Examples

<table>
<thead>
<tr>
<th>Poorly Defined</th>
<th>Well Defined</th>
</tr>
</thead>
<tbody>
<tr>
<td>The system must be user friendly. (Duh!)</td>
<td>The GUI should provide suitable fields and options to allow all the above information to be added to the particular artist information.</td>
</tr>
</tbody>
</table>
Step 7: User Requirements

Examples

<table>
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<th>Well Defined</th>
</tr>
</thead>
<tbody>
<tr>
<td>The database needs to show up quickly.</td>
<td>When the user accesses the database, it must appear on screen within 2 seconds.</td>
</tr>
</tbody>
</table>
Questions & Answers