User Experience: Defined and Applied

Trilinos User Group – 12.2.21
Presented by: Ashley Fate
User Experience is ______________
User Experience is

- Emotions
- Beliefs
- Expectations
- Perceptions
- Physical and Psychological responses
- Behaviors
- Accomplishments
User Experience is:

- Useful
- Valuable
- Desirable
- Accessible
- Credible
- Findable
- Usable

Emotions, Beliefs, Expectations, Perceptions, Physical and Psychological responses, Behaviors, Findable, Accomplishments, Usable
User Experience occurs...

**Before, During, and After** interacting with a product or system.

**Before Use**
Feelings and thoughts on the use, without having actually used it – anticipated use

**During Use**
Effectiveness and efficient achievement of goals without any discomfort/disturbances

**After Use**
Responses that result from the use of the product, system or service. Emotional connection.

**Usability**

**User Experience**

Source: Adapted ProContext Consulting GmbH
UX: A History

1950s – 1980s
Enterprise computing

1980s
PC Revolution

1990s – 2000s
Web Revolution

2000s - Present
Ubiquitous Computing
Vision for UX

Deliver valuable products and services that delight users through a consistent, relentless, user-centered approach.
UX Gaps: Current-State

• Lack of understanding around user’s:
  • Needs and drivers
  • End-to-end workflows
  • Task accomplishment

• Inconsistent look, feel, and interactions

• Connect solutions to support end-to-end experiences
# Understanding Users: Personas

<table>
<thead>
<tr>
<th>Command Line Commander</th>
<th>Tool Adopter</th>
<th>The Optimizer</th>
<th>The Strategist</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Help me quickly or get out of my way.”</td>
<td>“I’ll take what I can get.”</td>
<td>“I am continuously improving my approach to work.”</td>
<td>“I am here for the greater good.”</td>
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## Command Line Commander

I am highly technical from both an engineering and computer standpoint; I rely heavily on Linux and am adept at navigating file structures and running commands from command line.

- Solutions must be extremely intuitive
- Solutions must show me quick value -- help me maintain or increase my efficiency
- The behavior of the tool must match my expectations

## Tool Adopter

My primary focus is on solving engineering problems, rather than refining or leveraging any computer prowess. I am willing to try new tools with patience to learn the long-term benefits to my work.

- Continue adding value and I’ll continue to adopt the tools
- If it’s potentially useful, and I know about it, I’ll work to adopt it

## The Optimizer

I am constantly looking to improve the way I work. I have an adaptable approach to executing my work based on the projects I have and the problems I am trying to solve.

- Show me why it’s valuable, so I will adopt it to enhance my process
- Will adopt approach to increase efficiency and effectiveness

## The Strategist

I have spent years in this domain and I pride myself on my expertise. Peers respect my knowledge and they understand that I will support them however I can.

- Give me solutions that improve quality, efficiency, and consistency
- We should utilize best practices from industry to improve SNL toolsets
- Help to shape, capture, and share best practices
User Persona: The Command Line Commander

Help me quickly or get out of my way.

Help me quickly or get out of my way.

"Help me quickly or get out of my way."

- **Design Drivers**: Solutions must be highly visible. The behavior of the tool must match my expectations. Value needs to be quickly evident in scenarios like new bolts or new bars.

- **Pain Points**: Unsurprising tools. Too many tools and too little documentation. Too little training. Too much complexity.

- **Motivations**: I need you to tell me what you're doing. You need to show me what you're doing.

- **Characteristics**: The command line is a familiar and safe language for me. I am comfortable with text-based interfaces.

- **Problems**: If the interface is too complex, I may not even try it.

- **Standards**: I am bound by the conventions of the operating system and the application. I expect consistency.

- **Features**: I need to see the value of a tool quickly. I expect it to be easy to use.

- **Barriers**: I need to be able to see the value of a tool quickly. I expect it to be easy to use.
A Great Experience

- Easy to Use
- Adds Value
- Visually Pleasing
A Great Experience

- Easy to Use
- Adds Value
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UX
Strategic & Tactical
UX works at 2 levels:  
**Strategic & Tactical**

**Strategic**
- Data-driven decision making
- Creating a shared vision and roadmap
- Gathering actual requirements, along with data
- Prioritizing projects
- Removing silos
- Reducing development costs
- Increasing on-time delivery

**Tactical**
- Improving the user experience across all products, solutions, and projects
UX works at 2 levels: 
**Strategic & Tactical**
What We Do

RESEARCH
Understand user needs and goals and how the environment impacts their jobs.

- Card Sorting
- Content Inventory
- Experience Mapping
- Focus Groups
- Task Analysis
- Contextual Interviews
- Ecosystem Map
- Personas
- Use Cases and Scenarios

DESIGN
Create potential solutions based on what we know about users and their goals.

- Wireframing
- Prototyping
- Standards
- Storyboarding
- Eye Tracking
- A/B Testing
- Pattern Library

TEST & REFINE
Iteratively evaluate design solutions and make improvements.

- Usability Testing
- Heuristic Evaluations
- First Click Testing
- Metrics Analysis
- Surveys
## What We Do: Trilinos

### FY22+

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Levels of UX Strategy

1. Individual Products
2. Across products, services, and company touchpoints
3. Transformational Strategy throughout the ecosystem
Levels of UX Strategy: UI/Product Design

1. Individual Products & Initiatives

   - Defined problem statement: team agreement
   - Design feasibility
   - Emphasis on usability
   - Project baseline and targeted success measures
User Feedback Elicitation: CLI

<table>
<thead>
<tr>
<th>Option 1</th>
<th>Option 2</th>
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| volumes_to_mesh:  
  - include:  
    volumes: [tid, cid, ...]  
    volume_ranges: [[xmin 1d, xmax 1d], [xmin 1d, xmax 1d], ...]  
    volume_names: [name, cname]  
  - exclude:  
    volumes: [tid, cid, ...]  
    volume_ranges: [[xmin 1d, xmax 1d], [xmin 1d, xmax 1d], ...]  
    volume_names: [name, cname]  
| geometry_toIgnore:  
  volume_names: [name, cname]  
  volumes: [tid, cid, ...]  
  volume_ranges: [[xmin 1d, xmax 1d], [xmin 1d, xmax 1d], ...]  
| output:  
  default_behavior: OneBlockPerVolume (default) | OneBlockPerVolumeName | OneBlockPerCubitVolumeName | OneBlock | NoBlocks  
  element_order: linear (default) | quadratic  
| blocks:  
  - name: <block name>  
    Type: tet (default) | shell | beam  
    volume_names: [name, cname]  
    volumes: [tid, cid, ...]  
    volume_ranges: [[xmin 1d, xmax 1d], [xmin 1d, xmax 1d], ...]  
  |  
| sidsets:  
  - id: <id>  
    volume_names: [name, cname]  
    volumes: [tid, cid, ...]  
    volume_ranges: [[xmin 1d, xmax 1d], [xmin 1d, xmax 1d], ...]  
  |  

| geometrical_elements:  
  volume_names: [name, cname]  
  volumes: [tid, cid, ...]  
  volume_ranges: [[xmin 1d, xmax 1d], [xmin 1d, xmax 1d], ...]  
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  surface_ranges: [[xmin 1d, xmax 1d], [xmin 1d, xmax 1d], ...]  
  curves: [tid, cid, ...]  
  curve_names: [name, cname]  
  curve_ranges: [[xmin 1d, xmax 1d], [xmin 1d, xmax 1d], ...]  
|}


Levels of UX Strategy: Service Design

Strategy across products, services, and touchpoints

- Defined problem statement: multiple teams
- Mapping & understanding end-to-end experiences
- Many teams leveraging:
  - UI guidelines
  - standards
  - frameworks
  - components
- Project baseline and targeted success measures across internal programs

Consistent Design Patterns ● Shared User Data ● Credibility Evidence
Levels of UX Strategy: Transformational

User-centered, transformational strategy

“Everything in concert”

- Defined vision statement: agreement throughout the ecosystem
- Mapping experiences
- Cognitive shift: user-centered
- UI Design System
- Baseline and targeted success measures
- User-obsessed

User Support  ●  Repositories  ●  Computational Resources
Questions?