User-Centered Design in the Product Development World

Suzanne Currie, Usability and UI Design

My World

l **I'm an Interaction Designer, with degrees in Educational and Industrial Technology, Anthropology and Ethnography**

l **Socio-Technical Systems; context of use is my focus**

l **Now at Navman, Consumer Electronics market. VERY fast-paced, with new products coming out every 6 months.**

l **GPS products for the boat and car and handhelds**

l **Race to get the customer!**

Customer's Choices. His name is Ron.

Which One to Buy?

Ours. Navman's of course ☺

Why?

l **Looks good.**

l **Pretty easy to use.**

l **Seems like it was designed with Ron's needs in mind.**

l **Thinks it'll make his life simpler .. better.**

l **Luxury product for the car; the car will LIKE that.**

l **Cool, interesting, different.**

l **Can't wait to play with it.**

l **Can't wait to show his partner and show her how to use it.**

l **Can't wait to talk about it with his mates.**

l **Price is pretty much okay .. bit expensive, but seems like it's worth it.**

UCD for Product Development　　　　5

Customers Today

l **Customers today are smarter than they have ever been.**

l **Customers are looking for products that:**
  - **are perfectly adapted to their unique tastes**
  - **make their life better**
  - **save them time**
  - **reinforce their social relationships**

l **Then – "I must not be smart enough to use this"**

l **Now – "This product is stupid. I expect better."**

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Good Dose of Realism

l **I am the customer's advocate. I represent their needs.**

l **I work for the business. I satisfy their business objectives.**

OK?

l **I design a solution that brings those two, sometimes conflicting, worlds together.**
  - **Business objective "Unload 500,000 copies of Sheena Easton's album.:**
  - **Customer's objective "Buy the latest White Stripes album."**

l **What's the offering to the customer that satisfies both objectives?**

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Objective-Driven Design

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User Objectives

- **How do we predict what's going to work best for Ron:**
  - **1 year before he's even heard of this product**
- **How do we avoid:**
  - **Poor consumer product reviews**
  - **Customer complaints and product returns**
  - **Takeover by the competition**

- **Answer: Focus on the Real World Usage, adopting User-Centered Design and Usability approach to design and evaluation**

Trends in Product Development

Then …	Now.
Race for impressive functions	**Simple, useful, practical**
Function-centric view	**User needs-centric**
Technology Push	**People Pull**
Function bloat	**Clear purpose and value**
Feature mindset.	**Customer mindset.**

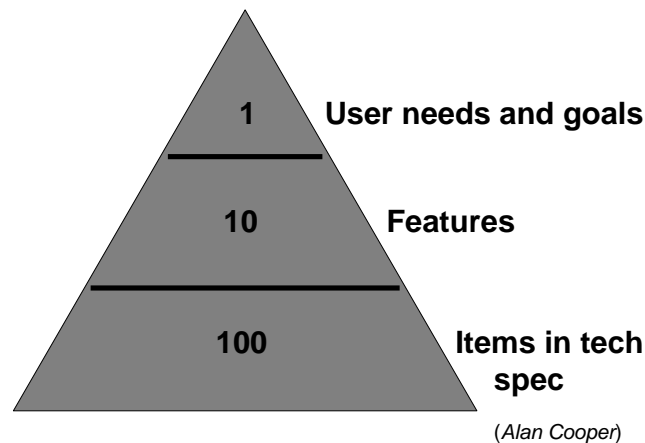| Design the technical solution	Design the interface
↓	↓
Design the interface to go on top of the technical solution	Design the technical solution to fit the interface

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User Needs-Centric

- **1** — **User needs and goals**
- **10** — **Features**
- **100** — **Items in tech spec**

(*Alan Cooper*)

Outside the Company   ## Inside the Company

Ron Sees:

- **Product reviews**
- **Retail store**
- **Product gift box**
- **The product's interface**
- **How it looks in his car**
- **His buddy's product**
- **Product website**
- **Technical support**

He cares about this.

Ron Doesn't See:

- **Business Case**
- **Market analysis**
- **Requirements workshops**
- **Use cases**
- **Prototypes**
- **Entity relationship diagram**
- **Code libraries**
- **Bill of Materials**

He doesn't care about this.

Business is a Jungle

l **Software Engineers** often want to create something wizzy for the customer, and assume that the customer will be grateful for it.

l **Product Managers** are worried about keeping ahead of the customer so that there's another product to put out that will rake in the bucks.

l **Competitors** are watching out for other good designs; struggling to stay ahead.

l **Product Analysts** (in the product review mags) are helping advocate for the customer, but have their favorite companies to represent.

l Then there's me. The go-between. I have to crack the whip, keep myself in check, and satisfy the business and the customer.

Ron's Choices

In the Store

l **The products seem similar to Ron, but using them reveals a world of difference.**

l **He wants to set up a route from his house to his most important customer, and then he wants to add a contact from his Palm Pilot into the GPS product.**

l **He finds:**
  - **2 time-waster products**
  - **1 that seems okay**
  - **1 that just seems to work better than the rest**

*Moral: Evaluate before the users do .. they will sooner or later*

In the Car

l **Situational Awareness**
l **Dynamics**
l **Human Performance**
l **Driver Distraction**
l **Cognitive Load**
l **Perceptual Abilities**
l **Motor Skills**

HCI and User Interface Design

l **User Interface Design is an applied science**

l **HCI is the science**

l **Research findings from HCI GREATLY influence the tools and activities of UI Design**
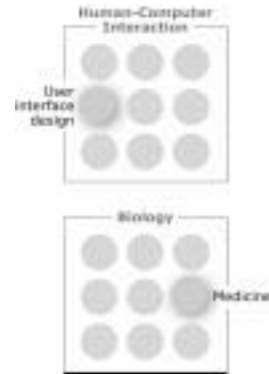
Example: Paul Green, UMTRI

l **University of Michigan Transportation Research Institute, Human Factors Division**

l **Driver-Response-Time System**

l **Driving Simulators**

l **UMTRI Instrumented Car**

l **Eye-Fixation Recording System**

Human Computer Interaction

l **Optimizing the performance of the human and computer, together, as a system**

l **The system of relationships for Ron, the driver, and his product:**

- **Ron-to-Product**
- **Product-to-Ron**
- **Ron-to-Car**
- **Passenger-to-Ron**
- **Passenger-to-Product, etc.**
- **Each of these relationships has unique requirements with which the product can assist**

Human Computer Conversations

Imagine that your product is a person or group of people.

l **Are they giving you the bare minimum or are they overwhelming you with loads of detail you don't need?**

l **What is the right balance for you?**

l **If you can do this mental activity, then you're on your way to understanding the conversation between the user and the product.**

l **It is this conversation, and the quality of it, that is the focus of design.**

l **The mechanics of the conversation is called Interaction.**

Human Information Processing

The Brains Subsystems

l **Perceptual System (read, scan)**

l **Cognitive System (think)**

l **Motor system (respond)**

l **External environment**

l **Sensory registers**

l **Perception**

l **Consciousness (can lead to Long term memory)**

l **Short term memory (can lead to Long term memory)**

l **Cognitive functions**

l **Motor responses**

Personas

l **Business Traveler**

l **Soccer Mum**

l **DINKs**

l **Adventurer Travelers**

l **Retirees Touring in Campervan**

l **Service People**

l **Commuters**

Ultimate Goal

l **To offer the best possible user experience with the greatest number of users of the system.**

l **Compromises.**

l **Universal Design.**

l **User Testing.**

Thanks for the Invite, Beryl & Co.

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Books

- **User-Centered Requirements Engineering: Theory and Practice, Alistair Sutcliffe,**
- **Writing Effective User Cases, Alistair Cockburn**
- **Institutionalization of Usability: A Step-by-Step Guide, Eric Schaffer**
- **Usability Inspection Methods, Jakob Nielsen and Robert L. Mack, Editors**
- **Designing Web Usability, Jakob Nielsen**
- **Flow: The Psychology of Optimal Experience, Mihaly Csikszentmihalyi**
- **Studying Those Who Study Us, Diana E. Forsythe**
- **The Visual Display of Quantitative Information, Edward R. Tufte**
- **The Art of Human-Computer Interface Design, Brenda Laurel, Editor**
- **Object Modeling and User Interface Design: Designing Interactive Systems, Mark van Harmelen, Editor**
- **Many, many more.**