MAGIC HAPPENS HERE:
Myths, Models, and Methods in Design

Larry Constantine, L/IDSA
Institute Fellow, M-ITI
Larry@LarryConstantine.com
What Design Teams Really Do

Step 1
- Find users (or potential users)
- Talk with them
- Maybe take notes
- Lots of them
Step 2
- Stand around (or sit)
- Talk about stuff
- Think about stuff

Maybe brainstorm, take notes, and draw stuff
What Design Teams Really Do

Step 3
- Build stuff
- Play around with it
- Fix it
- Repeat until happy (or boss unhappy)

Step 4
- Show it to users
- Ask them what they want different
- Go back to Step 3 (unless delivery deadline near)
No, Really?

Empathise → Define → Ideate → Prototype → Test

Empathise to help define the problem

Learn about users through testing

Tests create new ideas for the project

Learn from prototypes to spark new ideas

Tests reveal insights that redefine the problem

Credit: Teo Yu Siang and Interaction Design Foundation
Why?

Why is the user experience of so many systems so bad?
Why does it take rock-star designers to do it really well?
UxD/IxD done right is complicated:

- Understand problem
- Understand users
- Design solution architecture
  - Partitioning interaction spaces
  - Navigation among spaces
- Design solution details
  - Organization/layout of spaces
  - Details of appearance, behavior,...
- **ALL** interdependent in complex ways
What Drives Design

PRACTITIONER-DRIVEN DESIGN

MODEL-DRIVEN DESIGN

PROCESS-DRIVEN DESIGN

PRINCIPLE-DRIVEN DESIGN

RULES & GUIDELINES
Norman; Schneiderman; Nielsen-Molich; Constantine-Lockwood
Modeling in Software Development

Objective is to construct systems that improve performance, reduce costs, or sell more copies.

If possible, automate code generation from model: “executable models”.

“Research”
Look around, talk with people, think, “workshop”.*

“Model”
Review info, draw stuff, keep going, ask opinions.

“Build”
Code software from model, except when model wrong.

“Deploy”
Deliver, keep debugging, modify to work right.

“It’s about the code!”**

No more magic, but BAD design.

** Bill Gates
* Sometimes “Contextual Inquiry” or “Model-Driven Inquiry”
“Focus upon humans detracts from support for the activities themselves.”

“Check out Activity Theory!”

Constantine, “Beyond user-centered design and user experience.” 2004

* Norman, “Human-centered design considered harmful.” (jnd.org) 2005
Activity Theory, Condensed

- Rubinshtein, Leontiev, and Vygotsky; Engeström, Nardi
- More conceptual framework than theory.
- Three levels of analysis
  - activities: complex, motivated and broadly shaped by overall purpose but essentially unpredictable
  - actions: directed toward specific conscious goal in service of purpose
  - operations: means of executing actions, either deliberately or reflexively, adapted to conditions

Framework can be used to understand ALL human activity.
Human Activity

All human activity is
- mediated by tools (artifacts)
- performed by actors (subjects)
- motivated by purpose (object)
- shaped by rules and differentiated roles
- within a community of practice
- All can be modeled in Human Activity Modeling through simple notation

* after Engeström, 1999
Human Activity

- All human use of and interaction with designed artifacts of all kinds (tools, objects, services,...) takes place within the context of larger activities.
- Designing for use requires understanding the activity context!
  - Activity modeling is a fast, simple way of understanding the activity context for design.
Human Activity Modeling Applied

- interaction design, product design
- service design, service engineering
- multi-modal, multi-channel, multi-device
- project management
- organizational change
- education and pedagogy

- practitioners: Helmut Windl, Larry Constantine, Raymond Fisk, Lia Patrício, Leonel Nóbrega, Ko-Hsun Huang, Jorge Teixeira, Eduardo Fermé, Elsa Fernandes ...
A theory should be as simple as possible, but no simpler.

Also, a modeling notation. Der.
Human Activity Modeling:
Three Views

- What is going on and why? **Context Model**
- Who and what is involved and how? **Participation Model**
- How is it done? (And what is needed to help get it done.) **Performance Model**
Human Activity Modeling:

Three Representations

- **Maps**
  - diagrams/graphics representing interrelationships among elements

- **Inventories**
  - simple lists of members/objects

- **Profiles**
  - structured descriptions, simplified collections of salient attributes
Activity Profile

- **Purpose** – motives, objectives
- **Place and Time** – where, when, conditions, context, duration, schedule
- **Participation** – actors and roles, tools and artifacts, system actors, sources and resources
- **Performance Patterns** – formal and informal rules, guidance, characteristic styles

plus

- **Product Implications** – provisional ideas and concepts
Actors and Roles, People and Personas

Must understand users and customers, but
- **NOT** people
- **NOT** personality, life story
- **NOT** “personas” (archetypal abstractions)

- **Actors** within activities to be supported
- **Roles** played within activities and in relation to artifacts/tools

[Diagram of actors and roles]
**Roles or Personas**

A relationship between actors and activities or artifacts

**PERSONA**
A concocted archetypal person

**ROLE**

**Field Research Assistant**

**Orientation:** enthusiastic, grade-marked participant, learning

**Responsibilities:** assist researcher, take notes, carry equipment, spotting

**Background:** some knowledge of field methods, environmental science or biology, tech savvy, physically fit

**Stu Marker** is a tall, lanky senior in the School for the Environment at UMass Boston. He grew up in Falmouth in a middle-class family with three sisters and two family dogs. He is a highly motivated student and is enthusiastic about his hope to become the first in his family to graduate from college. He is never without his iPhone, which is loaded with diverse apps and in frequent use to converse with his girlfriend in New Hampshire. He skis in the winter and sail-boards in summers. He wants to become a teacher after getting his Master’s in Education.

Concise, focused on design relevance
Participation Map:
Deploying Instrumentation Packages

1 – pedagogy, learned skills
2 – research plan, protocol
A complex system might need to support hundreds of interrelated task cases.
Separation of Concerns

Each refinement layer addresses distinct design issues and tradeoffs.

Or the agile shortcut!
Human Activity Modeling 3.1

- actor, any participant
- focal actor
- optional participant
- actor in role
- player, peripheral participant, mediated (indirect) user
- artifact, any tool
- focal artifact
- system actor, non-human active participant
- system actor in role
- Non-physical Artifact
- Non-human actor
Human Activity Modeling 3.1

- Target: goal, purpose, objective
- Alternate symbol
- Rules, guidelines, conventions, protocols, procedures
- Alternate symbol
- Relationship, connection
- Conflict
- Temporal relationship

Larry@LarryConstantine.com