Discount and Formal UX Processes

Embedded Interface Design

with **Bruce Montgomery**

Learning Objectives

Students will be able to…

- Understand the differences between discount and formal UX processes
- Recognize UX processes and phases for comparison and use
- Consider a typical UX process presented for embedded device UX work

Getting Started

- Review UX Models and Processes
- Typical UX process phases include
  - Analysis/Planning
  - Research
  - Design
  - Verification and Validation
- Great variations in formality and depth of UX processes
  - From very formal and detailed to simple discount approaches

UX vs. Usability Processes

- We know from prior lectures, UX is more than just usability
- However, some processes for user-based product design and development are presented in literature as “usability” processes and some as “UX” processes
- I have a tendency to use the terms interchangeably in discussing UX processes
- In these discussions, it’s better to focus on the content and goal of the process, rather than the label I might apply

Discount vs. Formal UX Processes

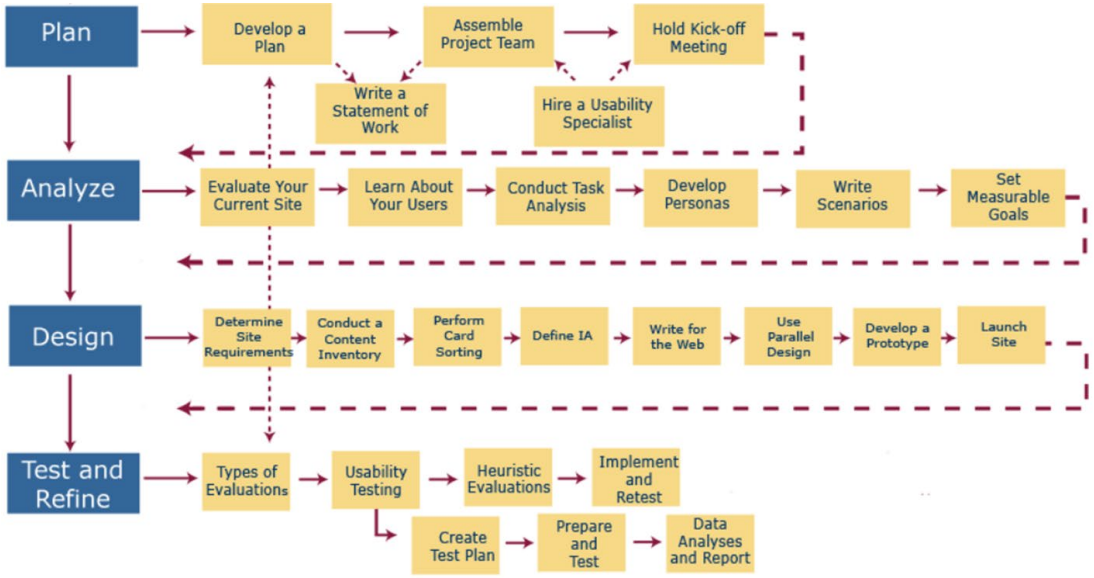
- Formal UX processes
  - Generally, elaborate higher-budget studies
    - usability experts, larger numbers of participants, designed experiments, specialized tools and laboratories, a mix of qualitative and quantitative metrics
- Discount UX processes
  - Focuses on
    - Simplified user testing with a handful of participants
    - Use simple paper or other prototypes over multiple rounds of design
    - Inspect designs using heuristic evaluation
  - Find key issues through early and rapid design iteration
- Term “discount” is attributed to Jakob Nielsen
  - 1989 paper, “Usability Engineering at a Discount”) [1]

Example of a Discount UX Process: Krug

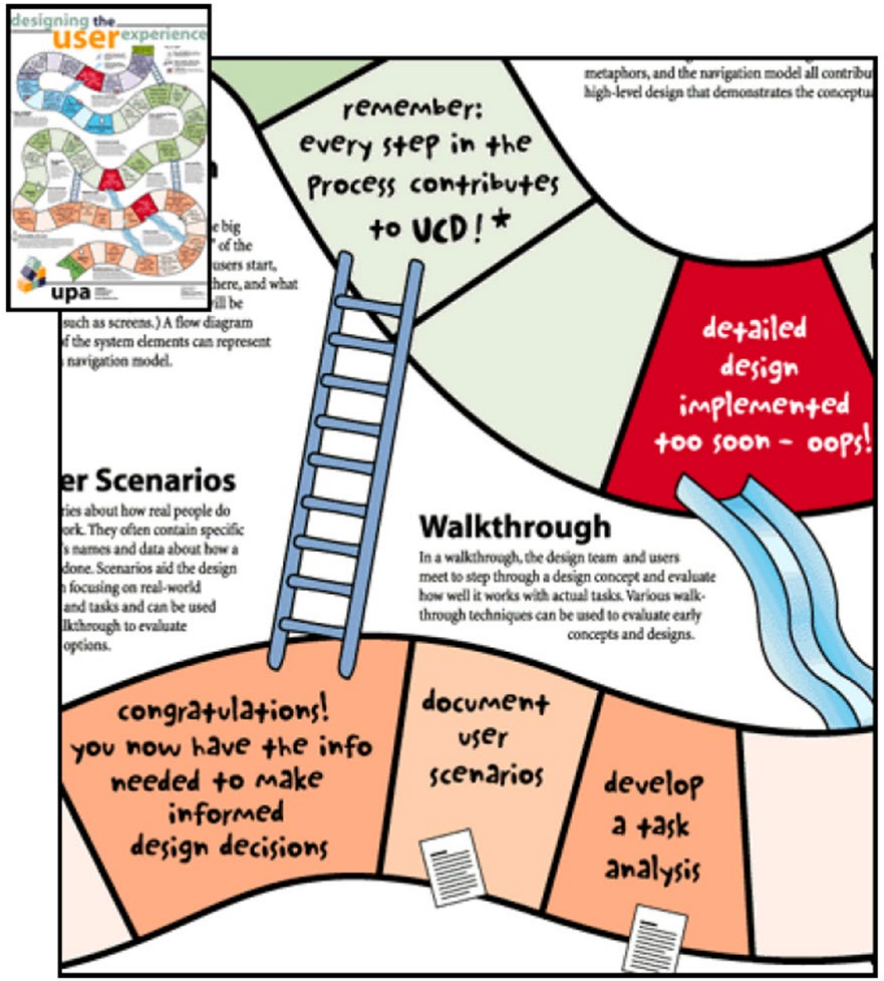
- Low numbers of participants, qualitative assessment, iterative
- Do-it-yourself testing [2]
  - Test one morning a month
  - Test continuously throughout the development process
  - Test sessions with three users
    - Use user surrogates if actual users are not available (frequency is more important)
  - Test on-site using screen sharing to let observers watch
  - Report out is an informal list of observed issues
  - Team and stakeholders review issues and decide on actions or fixes the same day

More Formal UX Process: Usability.gov Step-by-Step Usability Guide

- Divided into Plan, Analyze, Design, Test and Refine phases
- Web-centric
- Standard set of methods
- Public domain
- Well-supported with literature references
  - Reference [3]



UXPA UX Process: “Designing the user experience”



- Described in a poster [4]
- Phases: Analysis, Design, Implementation, Deployment
- More comprehensive and formal than discount

Side by Side UX Processes: UXPA vs. Buley

UXPA (Formal) [4]

- Analysis
  - Stakeholder interviews
  - Project plan w/usability tasks
  - Develop usability goals & objectives
  - Conduct field studies
  - Look at competitive products
  - Create user profiles
  - Develop a task analysis
  - Document user scenarios
  - Document user performance requirements

Buley (Discount) [5]

- Planning & Discovery / Research
  - UX Questionnaire
  - UX Project Plan
  - Listening Tour
  - Opportunity Workshop
  - Project Brief
  - Strategy Workshop
  - Learning Plan
  - Guerilla User Research (field studies)
  - Proto-Personas
  - Heuristic Markup
  - Comparative Assessment
  - Content Patterns

Side by Side UX Processes: UXPA vs. Buley (2)

UXPA

- Design
  - Brainstorm design concepts and metaphors
  - Screen flow and navigation
  - Design walkthroughs
  - Low-fidelity prototypes
    - Conduct usability testing on prototypes
  - High-fidelity detailed design
    - Conduct usability testing on prototypes
  - Document standards and guidelines
  - Create a design specification

Buley

- Design / Testing & Validation
  - Design Brief
  - Design Principles
  - Sketching
  - Sketchboards
  - Task Flows
  - Wireframes
  - Paper and Interactive Prototypes
  - Black Hat Session
  - Quick-and-Dirty Usability Test
  - Five-Second Test
  - UX Health Check

Side by Side UX Processes: UXPA vs. Buley (3)

UXPA

- Implementation
  - Ongoing heuristic evaluations
  - Work closely with delivery team
  - Iterative usability testing as soon as possible
- Deployment
  - Surveys for user feedback
  - Field studies for actual use info
  - Check objectives using usability testing

Buley

- Part of Design, Test & Validation cycles

A Home-Grown UX Process

- Analysis
  - Work Breakdown for UX Effort
  - User and Task Analysis
  - Field Studies and Competitive Analysis
  - Use Cases, Profiles, Task Templates
- Design
  - Develop and Test Low-Fidelity Prototypes
  - Develop and Test High-Fidelity Prototypes
- Implementation
  - Heuristic Evaluations
  - Small Repeated User-based Usability Tests
- Deployment
  - Surveys (Standard and Custom)
  - Field Studies (again)

- A process I taught and used in my work, similar to doctoral research
- Dependent on user or surrogate access
- Iteration emphasized in design and implementation
- Middle ground between formal and discount, could be simplified

Menlo's High-Tech Anthropology® UX Process

- From Menlo Innovation, a software contract house in Ann Arbor, Michigan
- Goal: "to end human suffering in the world as it relates to technology"™
- "The only way to understand what makes a new system successful is to study and observe the potential end users in their native environment."
- A balanced UX process, it includes:
  - job shadowing, personas, use cases, hand-drawn screen mockups, object models, workflow assessments, and high-level screen designs
- Ensure that the user's needs are met
- We'll look at some of the specific Menlo techniques later in the course
- Reference [6]

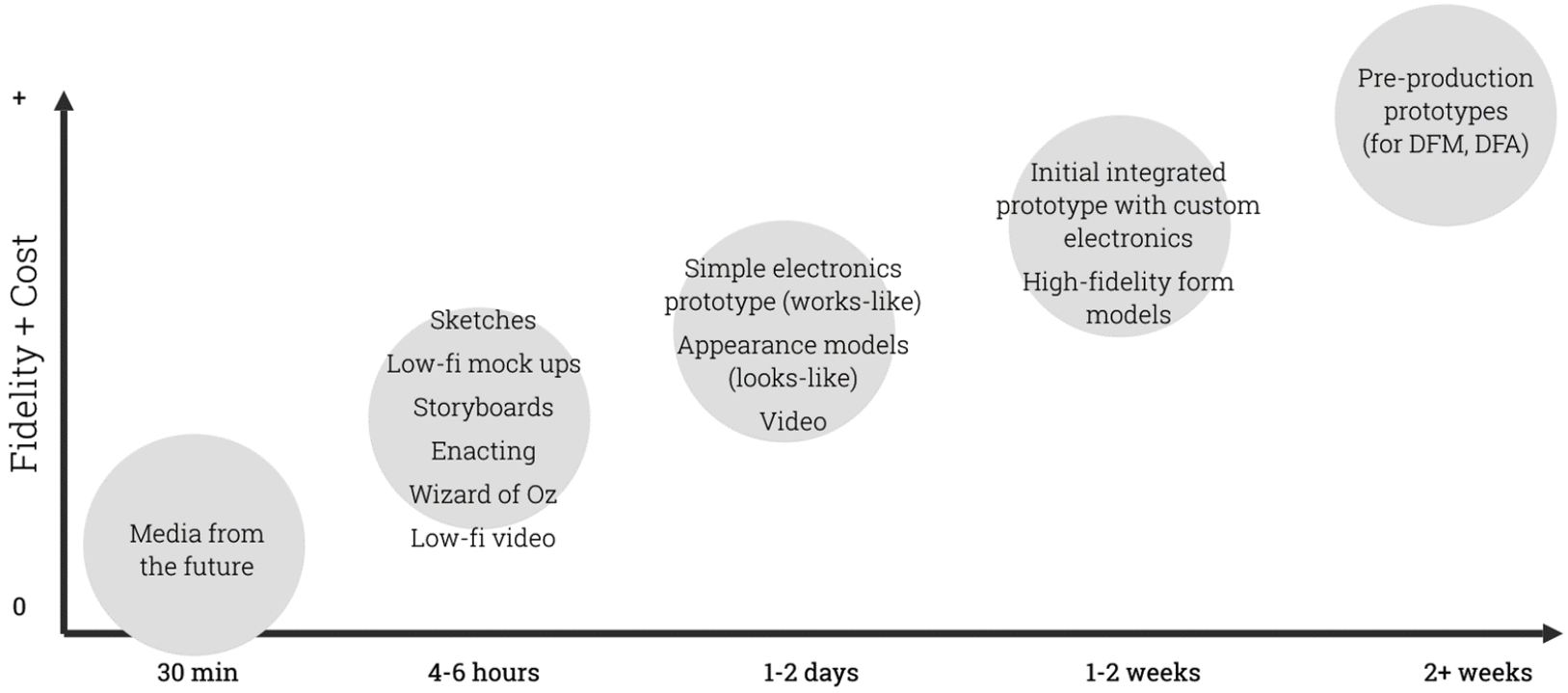
An Aside: Menlo Innovation's "Joyful" Workplace

- Pairing
- Open and Collaborative Workspace
- Daily Company Stand-up
- Forty Hour Work Week
- Pets and Babies at Work
- Do the Simplest Thing That Could Possibly Work (MVP?)
- Origami Project Management
- Work Authorization Boards (Story Cards, Yarn, Stickers)
- Estimation without Fear
- Test-Driven Development
  - Reference [7]

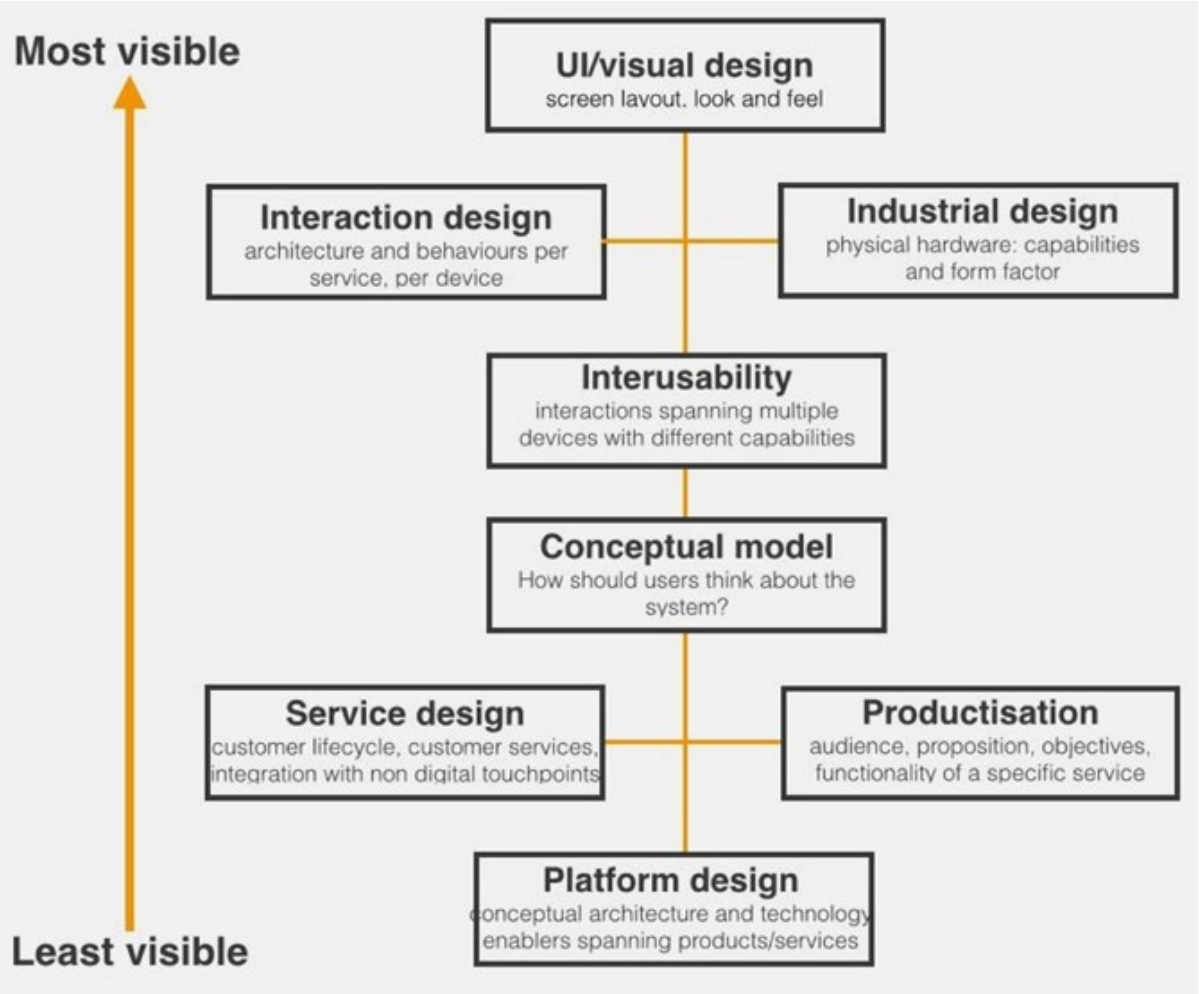
Rare focus: UX Design for Devices

- Talk by Martin Charlier, an author of Designing Connected Devices [8]

Think of methods in terms of their iteration time



Facets of UX in Connected Products



- UI/Visual Design, Interaction Design
- Industrial Design, Interusability
- Conceptual Model, Service Design
- Productisation, Platform Design
  - From Designing Connected Products, Reference [9]

Choosing a UX Process

- Use existing, create, or blend?
- Process/assessment complexity vs. return
  - Formal vs. Discount
- Impact of a design miss?
- Time
  - Krug – at least a morning a month
- Resources
  - Cost, people, facilities
- Usability Goals
- Type of Design

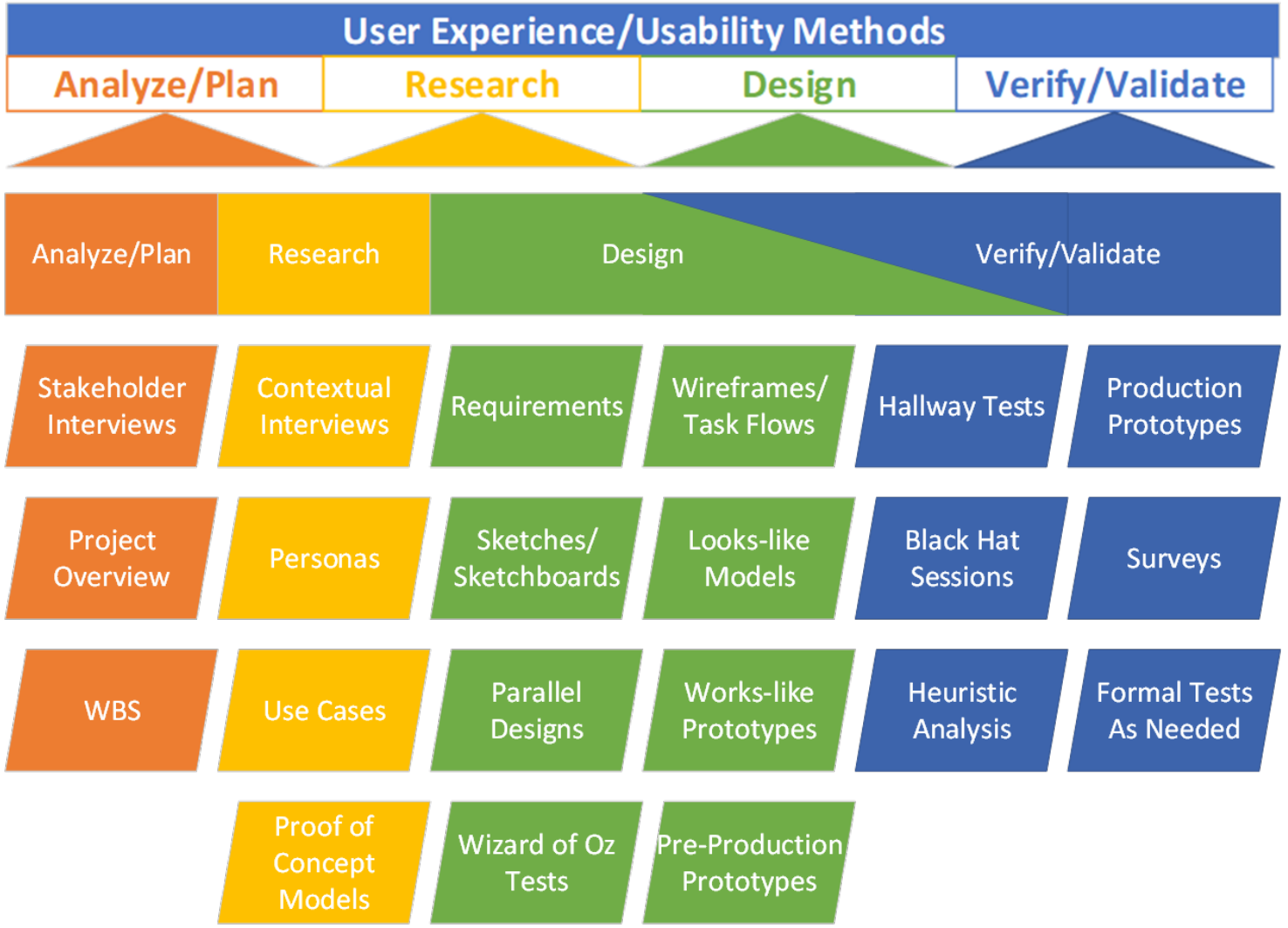
Successful UX Process Implementation

- Start UX process at beginning of design
  - Earlier than you may think makes sense
- Involve users (or surrogates) at all stages
- Be open to alternatives
  - Avoid premature optimization
- Progressive elaboration
  - Move from lower to higher fidelity (details and complexity) of design as you go
- Iterate on designs
  - Focus on small number of most important problems
  - When fixing a problem, do the least you can do

A Typical UX Process for Device Design

This diagram represents one possible UX Process, focused on device design.

We'll look at these four process phases, including the methods here, plus others from other sources, with a focus on evaluating and applying the UX methods to embedded device UX design cycles…



Summary

- Discount vs. Formal UX processes
- Wide variety of published processes
  - Often using fairly standard methods
  - Generally similar development phases
- Some literature around device development
  - Most UX resources focused on Web or Software
- How to choose (or make) a process
- How to succeed in a UX process
- What a typical device-centric UX process might look like

References

[1] https://www.nngroup.com/articles/discount-usability-20-years/
[2] Rocket Surgery Made Easy, Krug, 2010, New Riders
[3] https://www.usability.gov/
[4] http://www.mprove.de/script/00/upa/poster.html
[5] User Experience Team of One, Buley, 2013, Rosenfeld
[6] https://www.infoq.com/articles/joyinc-hightech-anthropology/
[7] http://menloinnovations.com/our-story
[8] https://www.webexpo.net/prague2016/talk/designing-for-connected-products/#modal
[9] Designing Connected Products, Rowland et al., 2015, O'Reilly