

IPM 15/16 – T2.3

Designing for Behavioral Change

Miguel Tavares Coimbra

Acknowledgements: Most of this course is based on the excellent course offered by Prof. Kellogg Booth at the British Columbia University, Vancouver, Canada. Please acknowledge the original source when reusing these slides for academic purposes.

I want to encourage a specific
behavior in my user

Can I design specifically for this?

Do I exercise more due to this technology?

POLAR

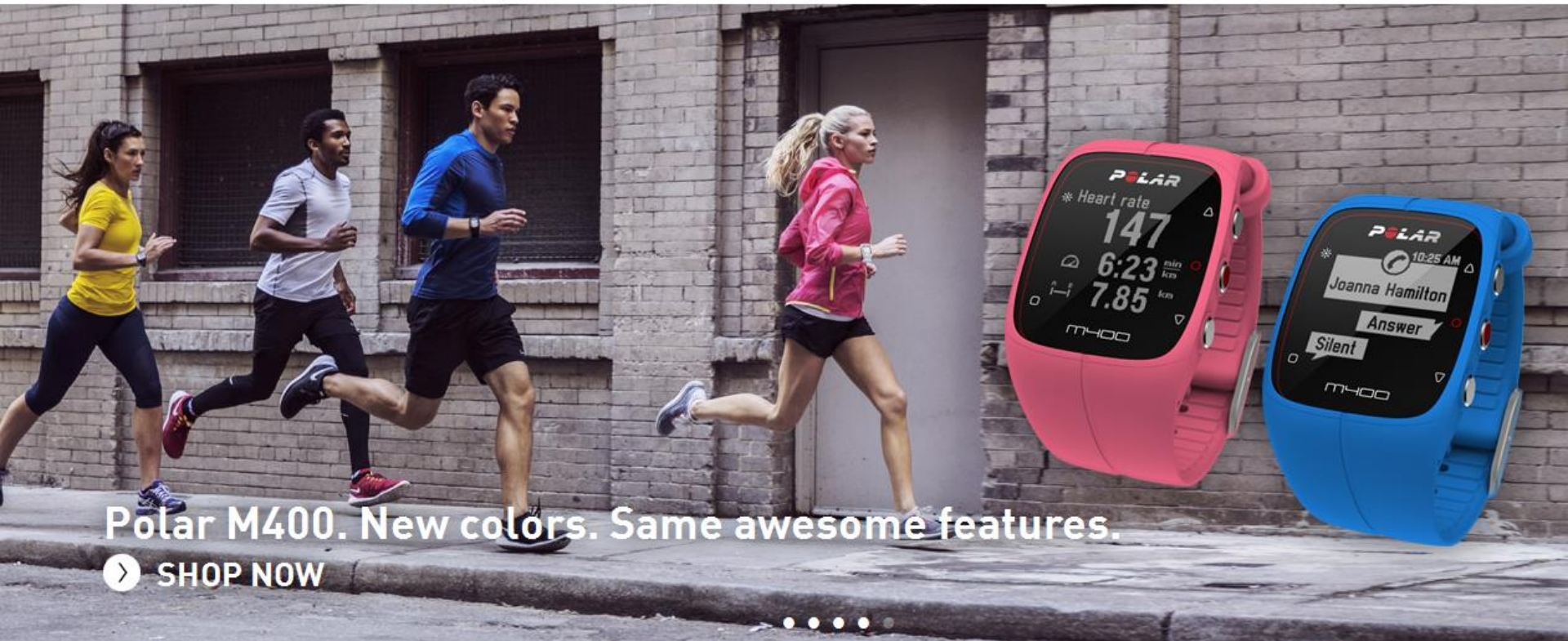
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Behavior(al) Design

- **Social and cognitive psychology**
 - Basic intentions driving human behavior
 - How much motivation do users need to change their behavior?
- **Models of behavioral change**
- **Practical strategies for product design**

Very active research topic



STANFORD PERSUASIVE TECH LAB

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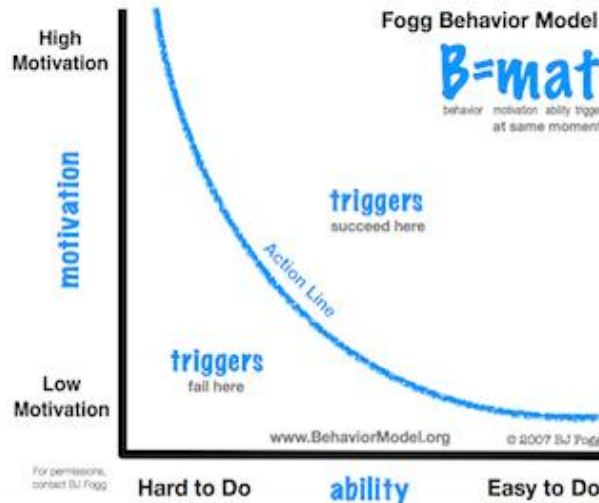
EVENTS

ENGAGE

Designing for Behavior Change

Our goal is to explain human nature clearly and map those insights onto the emerging opportunities in technology.

[Learn more](#)



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GO

DESIGN RESOURCES for BEHAVIOR CHANGE

Tools for understanding human nature, hot triggers, & new habits.

GO

Welcome to the Lab



MACHINES DESIGNED TO CHANGE HUMANS

Yes, this can be a scary topic: machines designed to influence human beliefs and

INFORMATION FOR:

Behavior Models

Fogg's Behavior Model

Fogg Behavior Model

$$B = mat$$

at the same moment

High
Motivation

motivation

triggers

succeed here

triggers

fail here

**Activation
Threshold**

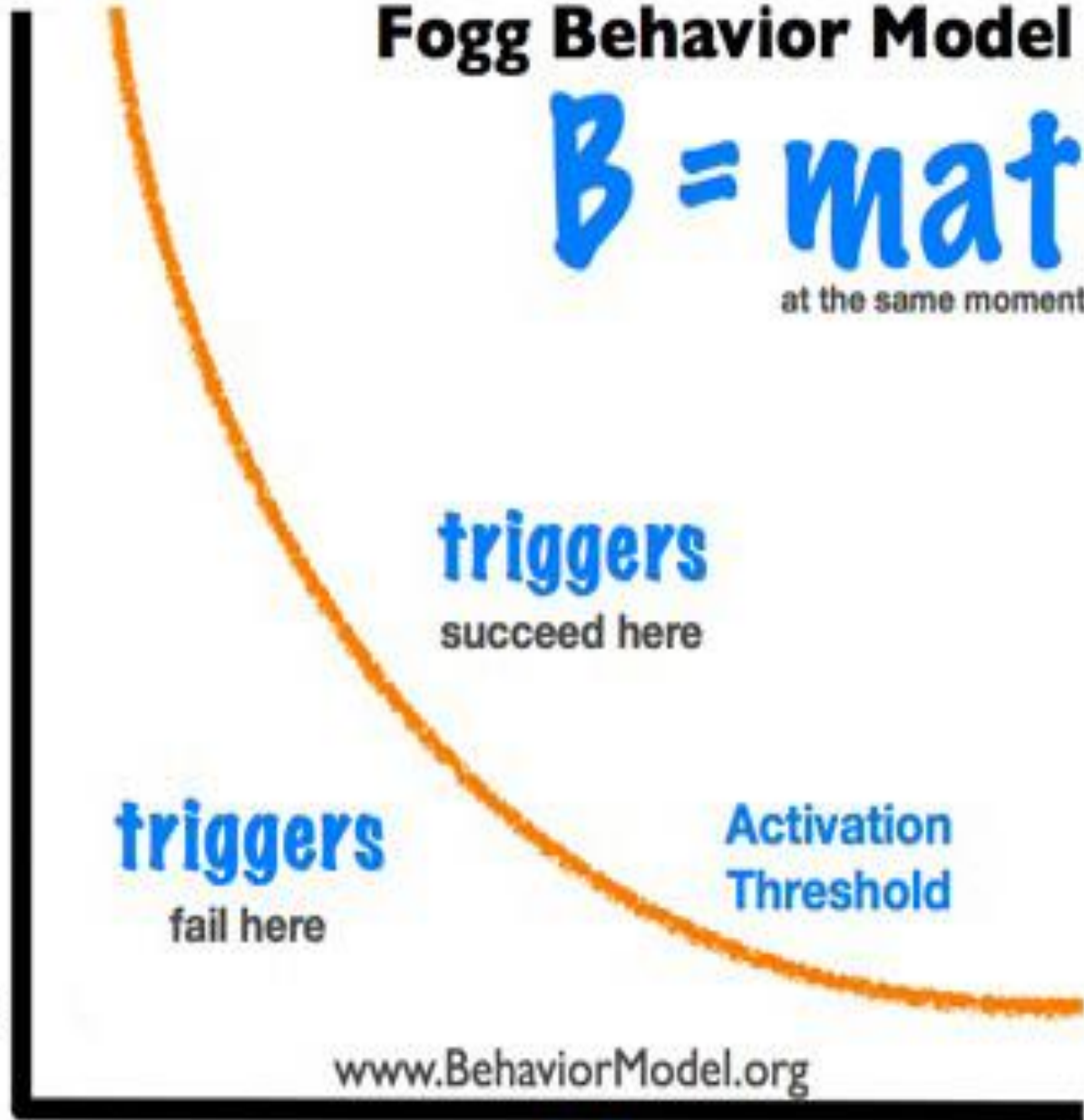
Low
Motivation

www.BehaviorModel.org

Hard to Do

ability

Easy to Do



Fogg's Behavior Model

- Three components simultaneously affect behavior: Motivation, Ability, and Trigger
 - Motivation, on the y axis, is the willingness that people have to do the behavior
 - Ability, on the x axis, is their ability to do so
 - Finally trigger, a region bounded below (by the orange line), is a call to action or prompt for them to do so

“Put hot triggers in the path of motivated people”

BJ Fogg

Model's components

- **Motivations**
 - include pleasure, pain, hope, fear, social acceptance, and social rejection.
- **Ability**
 - is directly affected by training as well as the perceived ease of the target behavior.
- **Triggers**
 - can be facilitated, signaled, or sparked depending on the level of ability or motivation the person has with the target behavior in mind.

High
Motivation

1 **facilitator**
high motivation
low ability

3 **signal**
high ability
high motivation

Low
Motivation

2 **spark**
high ability
low motivation

Low
Ability

High
Ability

Behavior Models

Theory of Planned Behavior

Icek Ajzen, University of Massachusetts at Amherst

Theory of planned behavior

- Human behavior as a result of **conscious intention**
- Influenced by a person's **attitude** toward that behavior
- Our decision to act is based on:
 - whether we're in favor of doing the behavior
 - how much social pressure we feel to do it
 - whether we feel in control of the action in question

Attitudes
Behavioural beliefs x
Outcome evaluations

Subjective norms
Normative beliefs x
Motivation to comply

Perceived behavioural control
Control beliefs x
influence of control beliefs

INTENT

BEHAVIOUR

Effect on design

- This model is interesting because it correlates **intent** and **behavior**, showing designers how to increase or decrease a given activity by changing someone's **attitude**:
 - More in favor of doing the behavior
 - More social pressure to do it
 - More feeling of control of actions and consequences

Social scientists have created many three-part models to describe humans. The first such model I can find is by Lilian Ripple (Chicago) in her [1955 paper](#) "Motivation, Capacity, and Opportunity as Related to the Use of Casework Service: Theoretical Base and Plan of Study."

Although Ripple's model and others may seem similar to mine on the surface (the three words sound similar, right?), a careful reading shows how the models can be quite different. Case in point: In the last five pages of Ripple's article she includes an appendix that defines what she means by her terms. For example, her use of the word "motivation" is clearly different from how I use that word. (An aside: I admire how Ripple fills five full pages explicating her three terms -- interesting to see!)

This website will continue to gather references to other models, theories, and frameworks that relate to my Behavior Model. Because this is a website and not a print publication, my researchers and I can add to this list of related work. Among the most prominent are:

- Social Cognitive Theory / Self-Efficacy - Bandura
- Heuristic-Systematic Model (HSM) - Chaiken, Liberman & Eagly
- Elaboration Likelihood Model (ELM) - Petty & Cacciopo
- Theory of Reasoned Action / Planned Behavior - Fishbein & Ajzen
- Transtheoretical Model / Stages of Change - Prochaska
- Resistance & Persuasion - Knowles
- Cognitive Dissonance - Festinger
- Hierarchy of Needs - Maslow
- Attribution Theory - Heider
- Expectancy Theory - Vroom
- Self-Determination Theory - Ryan & Deci
- Cost-Benefit models (various)
- Learning Theories (Behaviorism) - Watson, Skinner



Dr. BJ Fogg founded the Persuasive Tech Lab at Stanford University, where he directs research and design. In addition, he devotes at least half his time to industry projects and innovations, all of which focus on using technology to change behaviors in positive ways.

BJ is the author of *Persuasive Technology: Using Computers to Change What We Think and Do*. He is the co-editor of *Mobile Persuasion: 20 Perspectives on the Future of Behavior Change*.

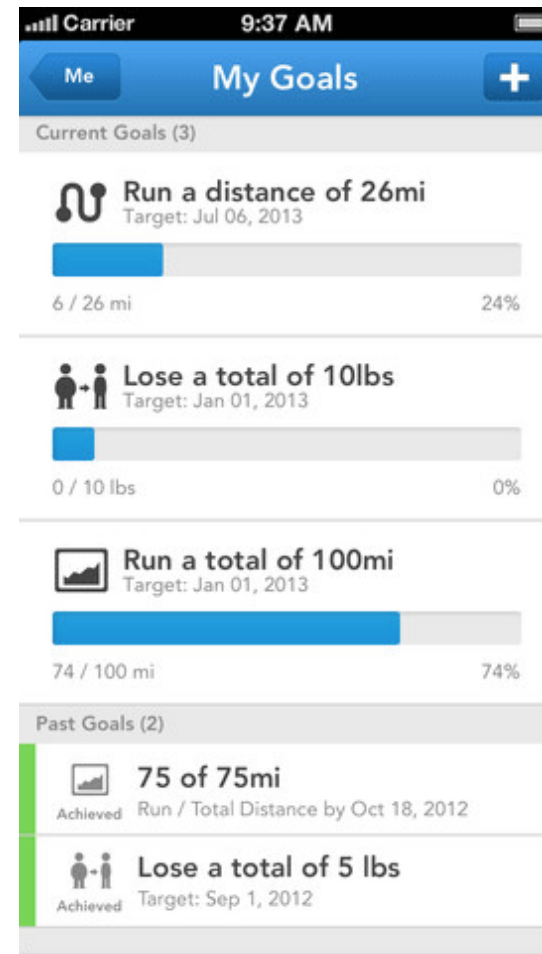
To see more of BJ's work, go

Seven strategies to influence behavior

- **Reduction**
 - Simplifies a task that the user is trying to do.
- **Tunneling**
 - Guides the user through a sequence of activities, step by step.
- **Tailoring**
 - Provides custom information and feedback to the user based on their actions
- **Suggestion**
 - Gives suggestions to the user at the right moment and in the right context.
- **Self-monitoring**
 - Enables the user to track his own behavior to change his behavior to achieve a predetermined outcome.
- **Surveillance**
 - Observes the user overtly in order to increase a target behavior.
- **Conditioning**
 - Relies on providing reinforcement (or punishments) to the user in order to increase a target behavior.

Example - Runkeeper

- Uses five of the seven strategies outlined by Fogg:
 - Reduction – Runkeeper simplifies the task of running by automatically tracking a user's miles and their goals. In effect, it eliminates the need to manually learn how long your route was, calculate your progress towards your goals, and organize this information in one place.
 - Tunneling – By breaking challenging distances into smaller and more easily achievable steps, Runkeeper helps you set goals and work towards them run by run.
 - Tailoring – Depending on your specific goal, Runkeeper creates a customized running plan for you.
 - Self-monitoring – Runkeeper helps you measure your progress over time visually and by the numbers towards your goal.
 - Conditioning – Runkeeper encourages you to develop a healthy habit of running frequently through positive reinforcement.



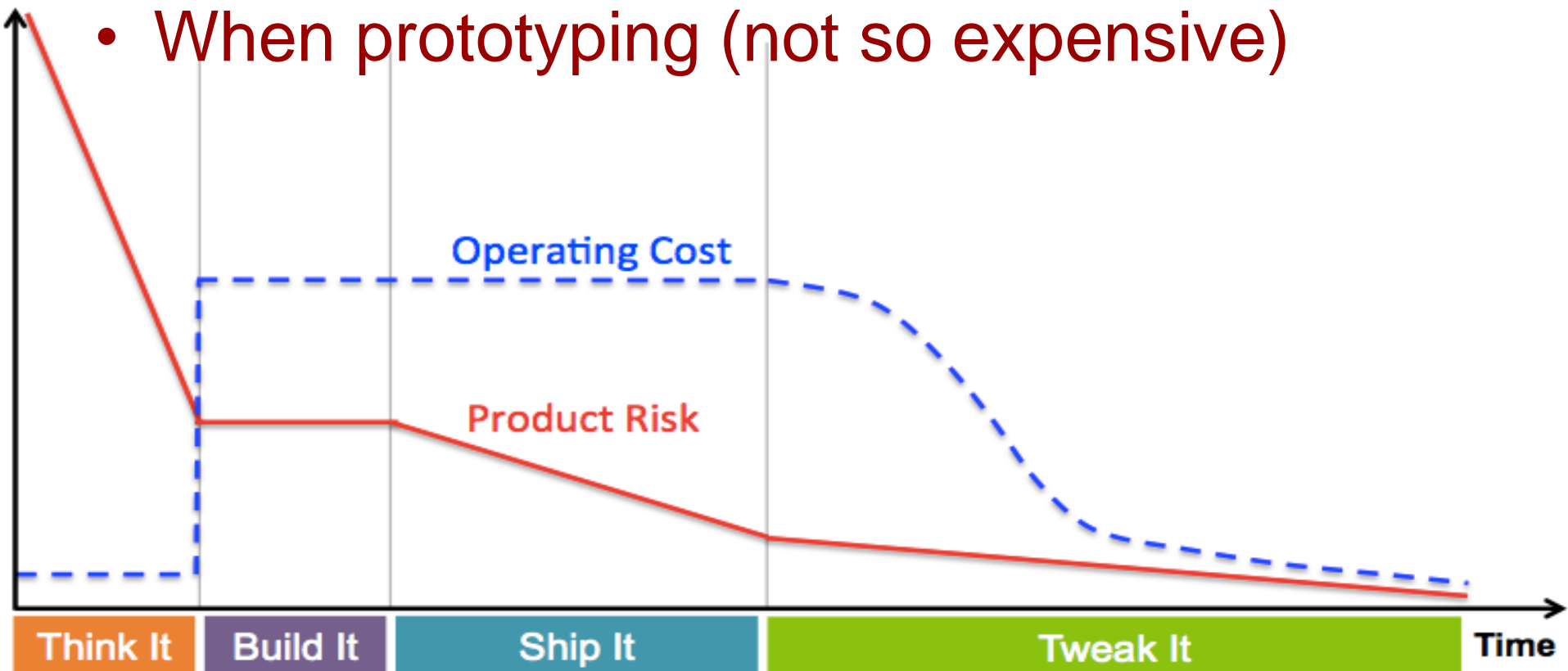
Behavioral design process

- 1. Determine the target behavior**
 - What is my desired behavior?
 - How motivated are users for this?
 - How difficult is the target behavior for the user?
- 2. Select the right trigger to apply to the target behavior**
 - Use the Fogg Behavior Model to determine the type of trigger (facilitator, signal, spark)
- 3. Brainstorm and pick the right strategy(s) and implementation(s)**
 - Consider Fogg's seven strategies

Evaluating technology acceptance

When can we know if a technology has been / will be accepted?

- When it hits the market (very expensive)
- When the technology is ready (expensive)
- When prototyping (not so expensive)



TAM – Technology Acceptance Model

- Assessment via questionnaires during late design phases (high-fidelity prototypes)
 - Pros: cheap to apply during design phases
 - Cons: Subjective, hard to interpret

