What Could/Should a Theory Do?

- A health behavior theory describes the expected relation between phenomena (i.e., constructs, behavior).

  - “…there is nothing so practical as a good theory.”
    --Kurt Lewin (1943-44), “Problems of research in social psychology”
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• **Guide the development of intervention techniques**: Specify factors that influence the key constructs that, in turn, affect behavior
What Might a “Good Theory” Do?

Intervention → Behavior

Construct(s) → Conceptual Theory
What Might a “Good Theory” Do?

- Intervention
- Mediator(s)
- Behavior
- Action Theory
- Conceptual Theory
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What might a good theory do?

• **Guide the development of intervention techniques**: Specify factors that influence the key constructs that, in turn, affect behavior
• **Specify when a theory does not apply**: Provide precise predictions regarding the conditions under which specified relationships do and do not hold (Setting, Populations, Behavior)
What Might a “Good Theory” Do?

**Intervention** → **Behavior**

**Mediator(s)**
- **Moderator (action)**
- **When (context)**
- **For Whom (people)?**
- **For What (behavior)?**

**Moderator (conceptual)**
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• Specify when a theory does not apply: Provide precise predictions regarding the conditions under which specified relationships do and do not hold (Setting, Populations, Behavior)

• Engage with how behavior unfolds over time: Provide precise predictions regarding the timing and time course of specified relationships
What Might a “Good Theory” Do?

Intervention → Behavior_{T2} → Behavior_{T3}

Mediator(s)_{T1}

Timing: When does it matter?
Specificity: What matters when?
What Might a “Good Theory” Do?

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What Might a “Good Theory” Do?

Intervention \rightarrow \text{Behavior}_{T2} \rightarrow \text{Behavior}_{T3}

\text{Mediator(s)}_{T1} \rightarrow \text{Behavior}_{T2} \rightarrow \text{Mediator(s)}_{T2.5}

Timing: When does it matter?
Specificity: What matters when?
What Might a “Good Theory” Do?

Intervention → Behavior_{T2} → Behavior_{T3}

Initiation

Expectations/Self-efficacy_{T1} → Satisfaction_{T2.5}

Maintenance

Rothman et al (2004; 2011); Baldwin et al. (2006); Hertel et al. (2008)
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• **Provide precise predictions regarding the nature of the specified relationships** (e.g., linear change; threshold models)
What Might a “Good Theory” Do?

Are the underlying effects: linear? curvilinear? thresholds?

Intervention → Behavior_{T2} → Behavior_{T3}

Initiation

Expectations/Self-efficacy_{T1} → Satisfaction_{T2.5} → Maintenance

Rothman et al (2004; 2011); Baldwin et al. (2006); Hertel et al. (2008)
How can “Big DATA” help theories evolve into good theories?

- Implementation of methods/tools that enable investigators to both imagine and test more complex theoretical premises
  - Design and use of methods that afford collection of data across settings/time
  - Scale and scope of observations afford the opportunity to test more complex models (explore both \textit{a priori} and \textit{post-hoc} variability across setting, populations, behavior; over time)
  - Application of simulations to examine different models (and underlying specifications)