Behavior Change and the Science of Habit

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October 2016
Many behavioral outcomes we care about

- Early reading in children
- Fasting practices
- Safe food storage
- Supplement adherence
- Mosquito net usage
- Wash behaviors
- Modern contraceptive use
- Exclusive breastfeeding
- Male circumcision
- Maternal nutrition
Many behavioral outcomes we care about

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High deliberation/low habit
(infrequent, different settings)

Low deliberation/high habit
(frequent, same setting)
Why does it matter? New/infrequent behaviors ≠ old/frequent behaviors

Behavioral
• Around 45% of daily life is “habitual” (Wood et al., 2002)

Cognitive
• From declarative to procedural memory (Poldrack et al., 2001)
• Action chunking (Graybiel, 2008)
• Outsourcing control to context/the environment (Neal et al., 2011)

Neural
• Functional changes in the brain (Sakai et al., 2003)
• ...and even structural changes (Draganski et al., 2006; Maguire et al., 2000)

See Wood & Neal (2007, 2016)
This really matters for behavior change....

A. Behavior Prediction Meta-analyses

Things we do rarely

Rational Planning (Intentions / Attitudes) \( \rightarrow \) Habit Strength \( \rightarrow \) Future Behavior

\[ \text{Rational Planning (Intentions / Attitudes)} \rightarrow \text{Habit Strength} \rightarrow \text{Future Behavior} \]

\[ \text{Rational Planning (Intentions / Attitudes)} \rightarrow \text{Future Behavior} \]

Things we do often and in the same environment...

Rational Planning (Intentions / Attitudes) \( \rightarrow \) Habit Strength \( \rightarrow \) Future Behavior

\[ \text{Rational Planning (Intentions / Attitudes)} \rightarrow \text{Habit Strength} \rightarrow \text{Future Behavior} \]

\[ \text{Rational Planning (Intentions / Attitudes)} \rightarrow \text{Future Behavior} \]

B. Do Intention-Based Interventions Change Behavior?

✓ Large effect, Cohen’s \( d = .77 \)

✗ Small effect, Cohen’s \( d = .22 \)

1Ouellette & Wood (1998) Psychological Science
What this looks like in the real world – for rich and poor alike

**Knowledge**… (NCI, 2001)
- 8% knew they should eat 5/day in 1991
- 35% knew they should eat 5/day in 1995

**Behavior**… (Casagrande et al., 2007)
- 11% U.S. complied in 1988-1994
- 11% U.S. complied in 1995-2002

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Handwashing in Bangladesh...

Rabbi & Dey (2013)
What can we do? A habit-friendly approach

DRIVER
- Attitudes
- Intentions/Goals
- Social Norms
- Rational Benefits

BRAIN SYSTEM
- System 2
- System 1

CHARACTERISTICS
- “MENTAL ECONOMIST”
- “MENTAL SATISIFICER”

Habits

Habit and Behavior Change

Kahneman (2011). *Thinking fast and thinking slow.*
Marteau, Hollands & Fletcher (2012). *Science.*
What can we do? A habit-friendly approach

**Habit and Behavior Change**

Kahneman (2011). *Thinking fast and thinking slow.*
Marteau, Hollands & Fletcher (2012). *Science.*
TRADITIONAL, “HABIT HOSTILE,” PERSPECTIVE

COMMUNICATIONS
- Fear appeals + deep emotion
- Rational/informational

POINT OF PURCHASE
- Maintain existing cues but provide information & dramatic warnings

PRODUCT INNOVATION
- Provide “rational” switching option

https://www.youtube.com/watch?v=NWm6PUGpfVU
NEWER, “HABIT FRIENDLY,” PERSPECTIVE

**COMMUNICATIONS**
- Create disruption through context change.
- Connect intention with action.
- Increase perceived control and fluency for change.

**POINT OF PURCHASE**
- Disrupt purchase cue ecosystem
- Disrupt packaging ecosystem by:
  - Eliminating cues where possible
  - Make cues socially unacceptable where removing impossible

**PRODUCT INNOVATION**
- Provide “rational” switching option embedded in form factor that piggybacks on existing behaviors.

https://www.youtube.com/watch?v=g_YZ_PtMkw0
IDEA 1: Leverage context change

**Key Idea:** Disruptions to the physical environment and/or familiar action sequences create a “window of opportunity” for a new behavior to form (Neal et al., 2011).

Public Transport vouchers more effective when targeting recent movers

(Verplanken, Walker, Davis, & Jurasek, 2008).

OD Interventions targeting workers during seasonal migration for work (away from habitual environment)

Mobarak et al. (in progress).
IDEA 2: Manage perceived and actual friction for new behavior / add to the old

**Key Idea:** When a new behavior requires even small amounts of effort, decision-making or added steps, relapse to old ways of acting will be much more likely (Murray & Haubl, 2007).

Indoor smoking bans add friction to undesired behavior, reducing frequency. (Orbell & Verplanken, 2010).

Pre-sorted medications increase regimen adherence

Iron Fish in Vietnam
**Key Idea:** When behaviors become ritualized (i.e., linked with deep personal or culturally relevant meaning) they can (a) attract more attention/psychological engagement, (b) be seen as more credible, (c) emotionally bind people to each other around group-based values, and (d) be more likely to be socially transmitted (Lienard & Boyer, 2006; Rosano 2012).

Statues of the Madonna submerged in Bohol, Philippines to prevent use of dynamite to fish.

Ritualized inking of the finger to signal voting.

“No toilet, no bride” campaign in India.
IDEA 4: Leverage reminders and situational cues

Key Idea: Following through on an intention requires a person to remember the new behavior, but it is easy to forget or neglect it. Reminders, especially in that appropriate context, can mitigate forgetting (Cole-Lewis, & Kershaw, 2010; Elder, Ayala, & Harris, 1999; Fry, & Neff, 2009).

In schools, use of painted footsteps from toilet to wash station to nudge students towards Handwashing (Dreibelbis, 2016).

Arabic script written on walls near common OD sites discourages OD (Bangladesh).
IDEA 5: Target “Small Doable Actions”

**Key Idea:** Focus narrowly on a single, changeable behavior that will yield a large improvement in outcomes for a large group of people.

Alive and Thrive Campaign

New Zealand Driving Safety

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Mom, I don't need water.
IDEA 6 A: Reducing abstractness and “temporal distance”: A. Social outcomes

Key Idea: By highlighting social consequences of negative health outcomes, people see them as more imminent and likely (Murdock & Rajagopal, 2016).

Adding social consequence caused by the long-term outcome make the outcome seem closer in time and more likely to occur.
**Key Idea:** Providing tangible artefacts/icons to signal progress

<table>
<thead>
<tr>
<th>Non Financial Incentives</th>
<th>Financial Incentive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emotional Trigger</strong></td>
<td><strong>Post Match</strong></td>
</tr>
<tr>
<td><em>Hi Daddy, please save as much as you can for our future.</em></td>
<td><em>Save at least 100 Shillings to receive 10 shillings extra 10% and 20%</em></td>
</tr>
<tr>
<td><strong>Tangible Icon</strong></td>
<td><strong>Pre Match (loss aversion)</strong></td>
</tr>
<tr>
<td><em>You saved this week. Please scratch around 1</em></td>
<td><em>We just deposited 100 shillings into your account. Save at least 100 Shillings to keep it 10% and 20%</em></td>
</tr>
</tbody>
</table>

- **Savings intervention in Kibera**
  - Akbas, Ariely, Robalino, & Weber (2016)
IDEA 6B: Reducing abstractness and “temporal distance”: B. Tangible icons

**Key Idea:** Providing tangible artefacts/icons to signal progress

- Savings intervention in Kibera

Akbas, Ariely, Robalino, & Weber (2016)
Summary

IDEA 1: Leverage context change

IDEA 2: Manage perceived and actual friction for new behavior / add to the old

IDEA 3: Add ritualized elements into the change process

IDEA 4: Leverage reminders and situational cues

IDEA 5: Target “Small Doable Actions”

IDEA 6 A: Reducing abstractness and “temporal distance”: A. Social outcomes

IDEA 6B: Reducing abstractness and “temporal distance”: B. Tangible icons

Some additional resources...
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Thanks to...