Behavioral Economics and Nutrition Education: Empowering Individual to Make Lasting Changes

Andrew S. Hanks, PhD, Cornell University

Presented at the 2014 EFNEP-UC CalFresh Statewide Training
Expanded Food and Nutrition Education Program Impact

• In FY 2011-2012
  – 9,581 adults (90% improved behavior in nutrition)
  – 29,794 youth
• At least $3.6 saved in medical costs per each $1.00 spent
• Worth $49 million to society (NY)

• What can my research add?
Nutrition Education + Behavioral Economics

• Economics?!?!?!?!?
• 200+ food decisions each day
• Many factors influence our choices
  – Price
  – Emotions
  – Social norms
• Leverage consumer behavior to improve nutrition
  – Low cost
Objectives Today

1. Background and context

2. Insightful research in consumer behavior

3. Leveraging behavior to encourage healthier choices

4. Synergies between behavioral economics and nutrition education
Background and Context
Institute for Applied Behavioral Economics in Consumer Choice
• **Food & Brand Lab**
  – Consumer Behavior Research
    • Industry and Government Funded
    • How Do Environmental Cues Impact Food Choices

• **The B.E.N. Center**
  • School Focused Research & Outreach
    – Changes Schools Can Make to Encourage Healthy Choices
    – The Smarter Lunchroom Movement
It’s Not Nutrition…….. Until It’s Eaten

Drew Hanks, PhD

- Research Director for B.E.N. Center
- Lead Analyst for Food and Brand Lab
Insightful Research in Consumer Behavior
Hidden Influences in the Daily Diet

- **Distractions**
  - On average, you will consume 28% more food while eating in front of a computer or TV.

- **Larger Plate, Larger Meal**
  - Using a bigger plate to serve a meal typically results in a 25% increase in the amount of food.

- **Fat-free?**
  - People given low-fat granola ate 35% more than people who thought they were eating regular granola.

- **Hide the Candy**
  - Put that candy dish in your drawer; you’ll eat 3 fewer candies per day.

---

Brian Wansink, Ph.D.
We Are All Suggestible

• Which Sign Sells More . . .

  – Limit 12/person vs. No Limit/person
    *Scarcity*
  – 3 for $3.00 vs. 1 for $1.00
    *Value*
  – Buy 18 for the weekend vs. Buy some for the weekend
    *Social Norms*

What’s On Your Counter?

- Convenient cookies and baked goods pack weight on men
- Fresh fruit on the counter correlates with healthier weight in women

Cereal on the Counter is Correlated with 10 more Kilos in Women
Why Does this Happen?

• Something called the “Delboeuf Illusion”

• Our perception of size is related to background and perspective
How about a better example?

• Which One Looks Bigger?
Contrast Matters Too!

• Which Portion Looks Larger?
Our Study Comparing Plate Contrast:
Participants served (and ate) almost 30% more With Low Contrast Plates (Alfredo Pasta on White Plates & Red Sauce Pasta on Red Plates) versus those in the High Contrast Condition.
As Fine as North Dakota Wine

- **Spice Box Restaurant**
  - 117 diners; Pre Fix Meal --> $21
  - SAME WINE but 2 labels
    - Wine from California
    - Wine from North Dakota
  - Post-meal measures
    - Wine & meal taste + consumption

- **What will happen?**
I Wish They All Could be California Wines

- **Wine Labels Influence Taste**
  - Halo Effects
  - Taste follows expectations
  - Has a carry-over effect on food intake
  - Oddly enough, buying the “wine with the ‘purdy’ label” might make sense

AND the North Dakota Folks were more than twice as likely to say “NO” when asked if they wanted to make another Reservation!

---

Norms Influence Satiety

- Regular portion
- Double portion

Individuals ate 10x more when the portion was called a single portion
Trigger Foods

Priming

• On days when green beans & bananas were on the hot lunch line:
  – Students did NOT take fruits/vegetables were 6% less likely to take a cookie & 11% less likely to take an ice cream

• On days when applesauce & fruit cocktail were on the hot lunch line:
  – The same students were 6% more likely to choose a Little Debbie snack and 15% more likely to choose chips/Slim Jims etc.
Leveraging Behavior to Encourage Healthier Choices
What We Know About Food Decisions

• Two decision-making mechanisms
  – Deliberative – Rational
  – Emotional – Naïve, knee-jerk reactions

• Depends on cognitive resources available
  – Stress or distraction leads us to eat more and eat worse
Hot vs. Cold Decisions

**Cold State**
- We consider
  - Prices
  - Health information
  - Logic
- We buy
  - Smaller portions
  - Moderate foods

**Hot State**
- We eat for
  - Taste
  - Convenience
  - Size
  - Visual effect
  - “This decision is an exception”
- We buy
  - Bigger
  - More hedonistic
Behavioral Economics:

The intersection of Economics and Psychology

- **Reactance**
  - Rebelling against a threat to freedom
  - Limits on ketchup
  - "Don’t press this button"

- **Attribution**
  - It was my choice, I will repeat it in the future
  - Choosing between celery and carrots
Choice Architecture

• Choice architecture
  – *Designing the choice to lead* an individual to a particular outcome *without forcing* them
  – Uses the *tools of psychology* to access economic decision-making

• Generally, adjusting the choice architecture is *cheap*
  – *Big bang for the buck*
Order of Food on a Buffet Line

• Two separate lines:
  – Line 1: Cheesy eggs, bacon, potatoes, cinnamon rolls, granola, yogurt, fruit
  – Line 2: Reverse order from Line 1

• What happened?
Order of Food on a Buffet Line

- First foods most
  - Over 75% of diners took first food they saw
- First 3 foods comprised 66% of what they took
- Cheesy eggs first → 31% more food items
- Fruit first → disrupting the behavioral script
What Does This Mean for Kids?

• Kids have not fully developed their rational system
  – Little understanding of long term consequences
  – Like a hot state – all the time
  – Reactance to paternalism

• Fortunately, **most kids find some healthy foods to be appealing and acceptable**
  – We can make some foods cool
  – *We can lead them* to make the right choice
School Lunches

• NSLP provides on average more than brown bag lunch:
  – 3x as many dairy products
  – 2x as much fruit
  – 7x as much vegetables

• NSLP participants more likely to have a healthier weight and eat a greater variety of foods

• Vegetarian options available in 30% of all US H.S. and middle schools

• School meals are served in age-appropriate portion sizes

SNDA Data, 2005
Smarter Lunchrooms

• What if we *design* the lunch room to *gently encourage the decisions we want*?
  – Use behavioral theory to *encourage* better choices
  – Some of these changes can be *extremely low cost*
  – This avoids *reactance*
    • Banning certain foods can be self-defeating
  – *Encourages future healthy choices*
Hot/Cold Study

Behavioral Interrupt

• Upstate NY schools with pre-ordering of lunch items through SmartBoards

• Students who did **NOT** pre-order (Hot State):
  - 11.8% less likely to take a fruit
  - 8.9% more likely to take a snack food
  - 25% more likely to take a starchy side
Cut the Fruit!

Sliced   Vs.   Whole
Cut the Fruit!

• Why wouldn’t kids take whole apples?
  – Too messy
  – Braces
  – Lost my two front teeth

• Solution?
  – Serve apple slices
Apple Waste also decreased by.............30%
Example 2: Corning (NY) Middle School

- “Nobody buys salad.”

- Should we add more stuff or subsidize the price?
Increase **Convenience** of Healthier Foods

Daily Salad Sales increased 200-300% within two weeks

New Location for Salad Bar

- Hot Lunch Line
- Cash Register #1
- Cash Register #2
- Old Location for Salad Bar
Give Milk the Edge

Choice Architecture

• Rearranging the coolers to highlight white milk resulted in an increased rate of purchase by approximately 46%

• Removal of flavored milks in lunchroom caused daily milk sales to decrease nearly 11%
We can probably do better . . .

Hearty Vegetable Soup
Clam Chowder
Hamburger 1.75 - 2.50
Large Hot Dog 2.25
Grill Chicken Roll 3.50
The Name Game

• Use cool or appealing labels to describe foods

• Carrots $\rightarrow$ X-Ray Vision Carrots $\rightarrow$ *Doubled* the consumption of carrots

• Bean Burrito $\rightarrow$ Big Bad Bean Burrito $\rightarrow$ Increased burrito consumption by *more than 40%*! (It could have been more, but they *sold out* in the second of three lunch periods!)

- Casserole
  - *Macaroni Veggie Mania*
Give ‘em a Choice!

- People report being more satisfied with an option if they have chosen it than if it is forced on them, even when the default option is what they would have chosen anyway!

- Kids given a choice between carrots and celery ATE 91% of the vegetable taken vs. 69% when carrots alone were offered.
Make Healthier Foods More Convenient

![Bar chart showing grams consumed per student for different categories of milk before the introduction of a convenience line.](chart)

- **Healthier Foods**: 282.39
- **Less Healthy Foods**: 182.49
- **White Milk**: 27.85
- **Flavored Milk**: 190.74
- **Total Milk**: 218.59

*Before the Introduction of a Convenience Line*
## HUSSC Guidelines for 2012

<table>
<thead>
<tr>
<th>Additional Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School Food Service Excellence</strong></td>
</tr>
<tr>
<td>--School Food Service Manager is a certified food handler (local or national certification)</td>
</tr>
<tr>
<td>--School has a Farm to School initiative</td>
</tr>
<tr>
<td><strong>--Smarter Lunchroom techniques</strong> are used to encourage fruit consumption: Fruit is displayed in two locations, one of which is near the cash register, on all lunch lines. Attractive displays, signage and staff encouragement are used to draw attention to the fruit and encourage children to select them.</td>
</tr>
<tr>
<td><strong>--Smarter Lunchroom techniques</strong> are used to encourage vegetable consumption: Students are given the opportunity to provide input into vegetable offerings and to identify creative/descriptive names for the offerings. Creative/descriptive names are displayed with vegetables on the lunch line as well as on a poster or menu board outside the school cafeteria.</td>
</tr>
<tr>
<td>--When offered, dark-green, red, and orange vegetables and dry beans and peas are displayed first or most prominently among vegetable side dishes on the lunch line</td>
</tr>
<tr>
<td><strong>--Smarter Lunchroom techniques</strong> are used to encourage consumption of dry beans and peas: Entrees that include beans or peas are displayed first or most prominently on the lunch line amongst other entree items on at least 2 days within the 4-week menu cycle submitted. Dry beam and pea entree items are given creative/descriptive names with student input.</td>
</tr>
</tbody>
</table>
Smarter Lunchrooms™

- Smarter Lunchrooms™
  - Move the fruit
  - Name the healthier foods
  - Signs and verbal prompts
  - Place white milk so it is more visible than other options
- Less than $5 per school--one time fee
Synergies Between Behavioral Economics and Nutrition Education
Behavioral Economics and Nutrition Education

- Principles of behavior can be leveraged in just about any situation
- Choice architecture → very low cost
- Empower individuals to change behavior
Remember: C.A.N. D.O.

- **Convenience**
  - What is on your kitchen counter?
  - In school lunchrooms, are more nutrient dense foods easier to take?
  - In food pantries, are there bundles of goods that contain healthy foods?
Remember: C.A.N. D.O.

- Attractive
  - Do the healthier options look appetizing?
  - Are there fun or appealing names for nutritious choices?
  - Are healthier options served in an appealing manner?
Remember: C.A.N. D.O.

- **Normative**
  - Is someone encouraging selection of nutritious options?
  - Is there a “leader” taking the healthier items?
  - Does signage use suggestive selling?
Remember: C.A.N. D.O.

- Defaults
  - Are we serving healthier items as the default?
  - Does the default order place the more nutrient dense foods first?
  - Do pre-packaged or pre-plated meals contain the more nutritious options?
Remember: C.A.N. D.O.

- **Options**
  - What food options are available?
  - Are the more indulgent foods still served?
  - Is there a variety of nutritious options available?
Smarter Lunchroom Self-Assessment

• Scorecard
Always remember...

- It’s not nutrition until it’s eaten
THANK YOU!

The Food & Brand Lab, The Smarter Lunchrooms Initiative, & The BEN Center

- www.SmarterLunchrooms.org
- BEN@cornell.edu
- www.foodpsychology.cornell.edu/

Follow us on twitter
- @CUFood_BrandLab
- @SmartLunchrooms
References


