Mind over platter: What can psychology tell us about consumer behaviour?

Jeff Brunstrom
Product innovation is challenging

- Novel ingredients
- Reformulation to meet changing guidelines/legislation
- Innovation to meet requirements of target populations
- Satiety and weight loss

- Consumer behaviour
The ‘what’ and the ‘why’
What have we learned?

Sustained changes in behaviour

- Variety, colour, segmentation
- Labelling
- Appetite control
- Food reward
- Portion size
- Sensory characteristics
The challenge for psychologists...

“To generate fundamental research and then show application to real-world problems”

- Eating topography ✓
- Food choice ✓
- Memory ✓
- Dietary learning
Eating topography

Horace Fletcher (1849-1919)

The effect of viscosity on ad libitum food intake

N Zijlstra, M Mars, RA de Wijk, MS Westerterp-Plantenga and C de Graaf.
Eating topography and satiety
Self-Control in Decision-Making Involves Modulation of the vmPFC Valuation System

Todd A. Hare, Colin F. Camerer, Antonio Rangel

Every day, individuals make dozens of choices between an alternative with higher overall value and a more tempting but ultimately inferior option. Optimal decision-making requires self-control. We propose two hypotheses about the neurobiology of self-control: (i) Goal-directed decisions have their basis in a common value signal encoded in ventromedial prefrontal cortex (vmPFC), and (ii) exercising self-control involves the modulation of this value signal by dorsolateral prefrontal cortex (DLPFC). We used functional magnetic resonance imaging to monitor brain activity while dieters engaged in real decisions about food consumption. Activity in vmPFC was correlated with goal values regardless of the amount of self-control. It incorporated both taste and health in self-controllers but only taste in non–self-controllers. Activity in DLPFC increased when subjects exercised self-control and correlated with activity in vmPFC.
Expected satiety
Expected satiety
Expected satiety

Mean ratio of expected satiety

- Peanut M&Ms
- Cashew nuts
- KitKat
- Crunchie
- Digestives
- Pringles
- Garlic bread
- Margherita pizza
- Boiled egg
- Fish fingers
- Ritz crackers
- Pretzels
- Banana
- Steak
- Bread & butter
- Chicken tikka
- Pasta & sauce
- New potatoes

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Food choice architecture - drawing on expertise in human decision making

Simulating 250 decisions around lunchtime
Food choice architecture (step 2)
Food choice architecture (step 2)
Food choice architecture – predicting choice

A

B

prop choices predicted

choice beta a.u.

bias total kcal Δkcal Δweight Δenergy density Δpalatability Δhealth Δexp. fullness total kcal x Δkcal total kcal x Δweight total kcal x Δpalatability

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Food choice architecture – predicting choice
Impact Objectives

- Develop a comprehensive understanding of the drivers of, and barriers to, protein intake in middle aged and older adults
- Use knowledge derived about barriers and opportunities to inform future potential dietary interventions
- Generate guidelines to inform protein-based product development

The importance of protein

Professor Emma Stevenson introduces the Protein4Life project, the output of which will help to facilitate increased protein intake to support healthy ageing and aid the food industry in new product development and reformulation of higher protein snack products.

Could you introduce yourself and your key research interests?

I am a Professor in the Faculty of Medical Sciences and Human Nutrition. September 2016. Academics from various backgrounds relating to food and nutrition were invited to attend the event, along with representatives from the food and drink industry. Project proposals had to be multidisciplinary in nature and take a holistic approach to protein intake. Adequate intake of protein is one of the key nutritional factors to maintain independence, predominantly by preventing loss of muscle mass and strength (sarcopenia), frailty and associated co-morbidities later in life.

www.proteinforlife.co.uk
Memory
Memory

Retention

Time

Opening PRIMACY

Closing RECENCY

fortune
fun
kiss
friend
pleasure
blossom
humor
love
trust
laughter
amusement
health

PRIMACY

RECENCY

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Interference of the End: Why Recency Bias in Memory Determines When a Food Is Consumed Again

Emily N. Garbinsky¹, Carey K. Morewedge², and Baba Shiv¹
¹Graduate School of Business, Stanford University, and ²School of Management, Boston University
Memory processes in the development of reduced-salt foods

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c Consumer Science, Unilever R&D, Vlaardingen, The Netherlands

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Dietary learning
Origins and evolution of the Western diet: health implications for the 21st century

Loren Cordain, S Boyd Eaton, Anthony Sebastian, Neil Mann, Staffan Lindeberg, Bruce A Watkins, James H O’Keefe, and Janette Brand-Miller


Poverty and obesity: the role of energy density and energy costs

Adam Drewnowski and SE Spector


obesity reviews

Fast foods, energy density and obesity: a possible mechanistic link


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Dietary learning

Robust conditioned flavor preference produced by intragastric starch infusions in rats

ANTHONY SCLAFAI AND JEFFREY W. NEISENBAUM
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Flavour–nutrient learning in humans: An elusive phenomenon?
Martin R. Yeomans
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Theoretically interesting

What happens when we reformulate?

Does this reduce acceptability?

How long does this take?
Dietary learning

How to do we demonstrate dietary learning?

Over what period will this occur? If ever?

Can we use this to predict consumer behaviour?
Dietary learning

Controlled conditions

Observations over extended periods

Large sample sizes

Novel methods

Programmable vending machine

Online ‘momentary’ product assessment
Acknowledgements