



Developing the Cognitive Architecture™ of your Customer  
Base to Drive Long Term Behavior Change

Dr Andrea LaFountain  
Mind Field Solutions Corp.  
[www.mind-field-solutions.com](http://www.mind-field-solutions.com)

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Traditional Models Often Miss the Mark



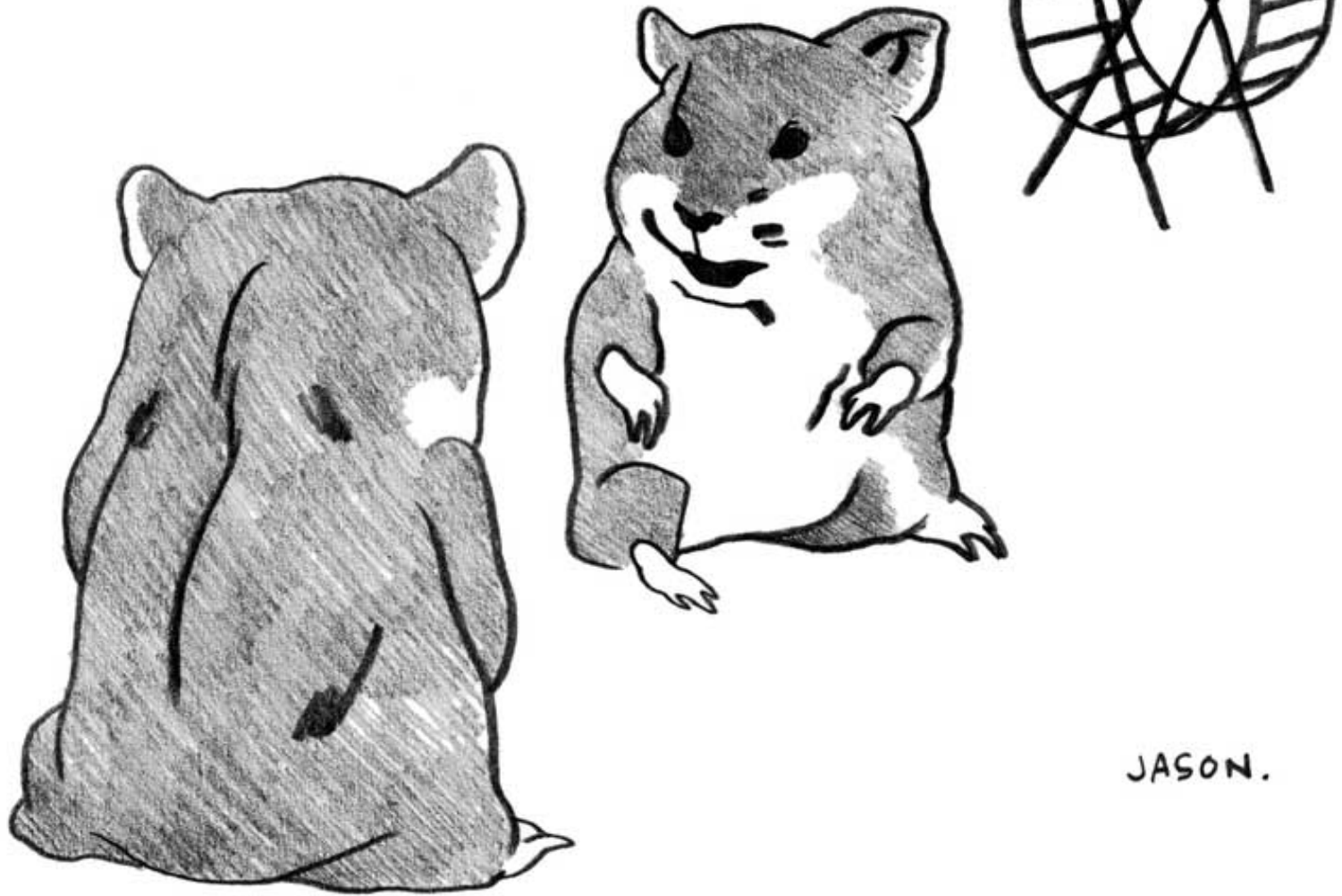
# Cognition is the Foundation for Evidence Based Behavior Change

	<b>Cognition</b>	<b>Behavior</b>	<b>Attitude</b>	<b>Personality</b>
<b>What is it?</b>	Decision Making Process	Action	Opinion/ Perspective	Set of Traits
<b>What does it look like?</b>	Not directly observable	Observable	Observable	Observable
<b>What does it do?</b>	Directs / Motivates behavior	Pulls through Cognition to advance goal	Minimal contribution towards action	Minimal contribution towards action
<b>How is it uncovered?</b>	Sophisticated modeling (i.e. Not conducive to self report)	Direct Observation (e.g. Rx Activity)	Self Report (e.g. survey data)	Psychometric testing (e.g. MBTI)
<b>Level of Self Awareness?</b>	Unaware	Mod. – High awareness	High awareness	Moderate awareness
<b>Impact on Behavior?</b>	High: Directly Drives Behavior	--	Low impact on behavior	Low impact on behavior
<b>Potential ROI?</b>	High: Through causal manipulation	Low: Past behavior does not predict future behavior	Low: Does not predict behavior	Low: Does not predict behavior

**Myth:** The best predictor of future behavior is past behavior

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- \* **Only when the situation and environment remains stable**
  - e.g. Sterile, static, uncomplicated, unstressful, planned, co-ordinated, uni-dimensional, environment – Not my life!
- \* **Only true of adherers – it's the non-adherers we need to isolate**
- \* **Adherence to one brand does not suggest adherence to another**
  - Does your brand have a unique value proposition?
    - e.g. Acne cream vs cancer treatment
- \* **Your customer is a complex, cognitive processor – applying knowledge they don't know they have in an emotional state with multiple competing priorities amid the mundane minutia of the day**



JASON.

*"I usually do two hours of cardio and then four more of cardio and then two more of cardio."*

# Relativity in Pricing Decisions

## - Experiment 1 -

### Creating the Relative Value Proposition through ‘Decoys’

Subscription options for the *Economist*  
100 Sloan MIT School of Management Students tested for purchase decisions

Option	Cost	% choosing at T1	% choosing T2
Economist online only	\$59	16	68
Print only	\$125	0	N/A
Online plus print	\$125	84	32
		100	100

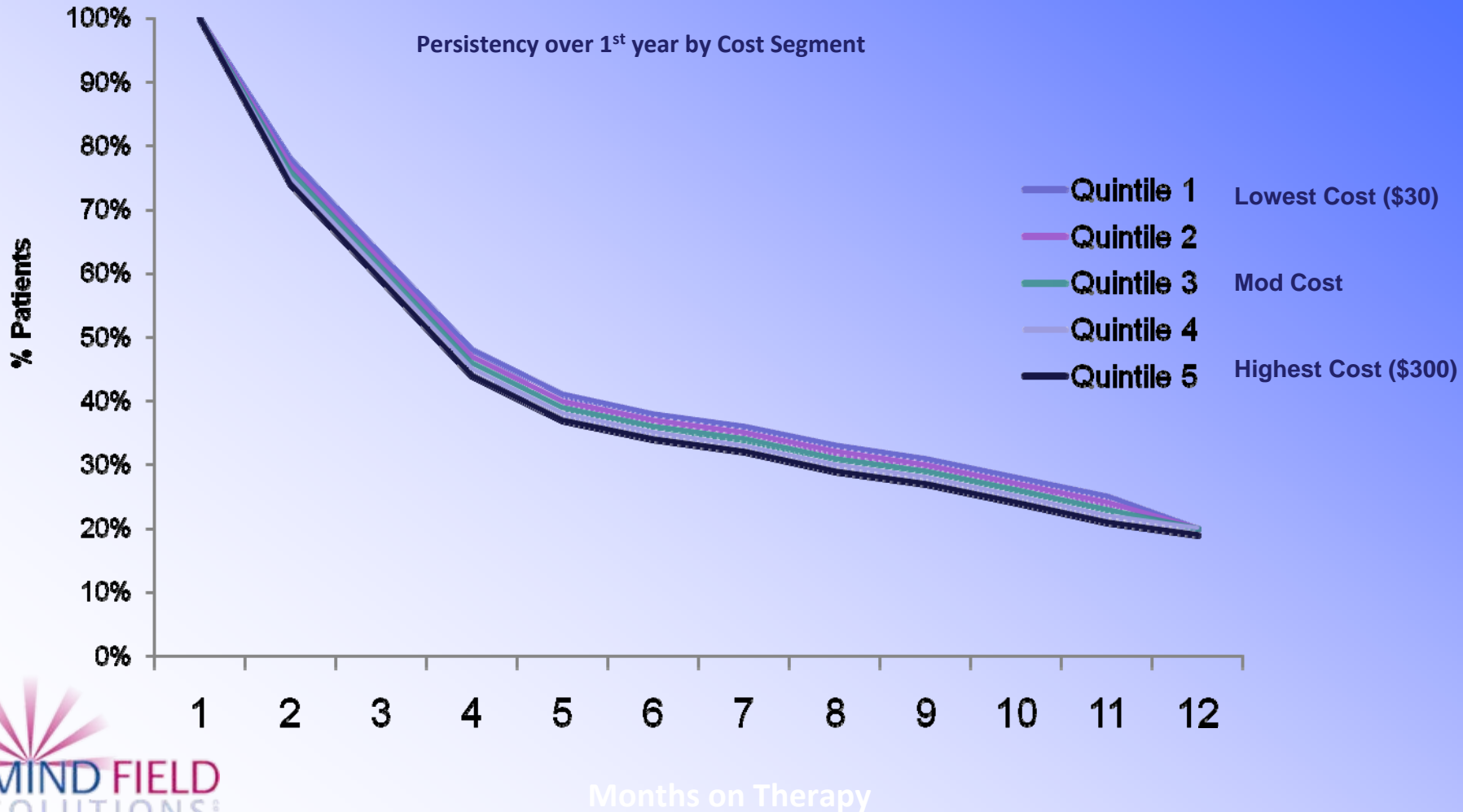
\*We don't have an internal 'value meter'

\*We rely on context to construct value propositions and inform purchase decisions



Dan Ariely (2008) *"Predictably Irrational: The Hidden Forces that Shape our Decisions"*

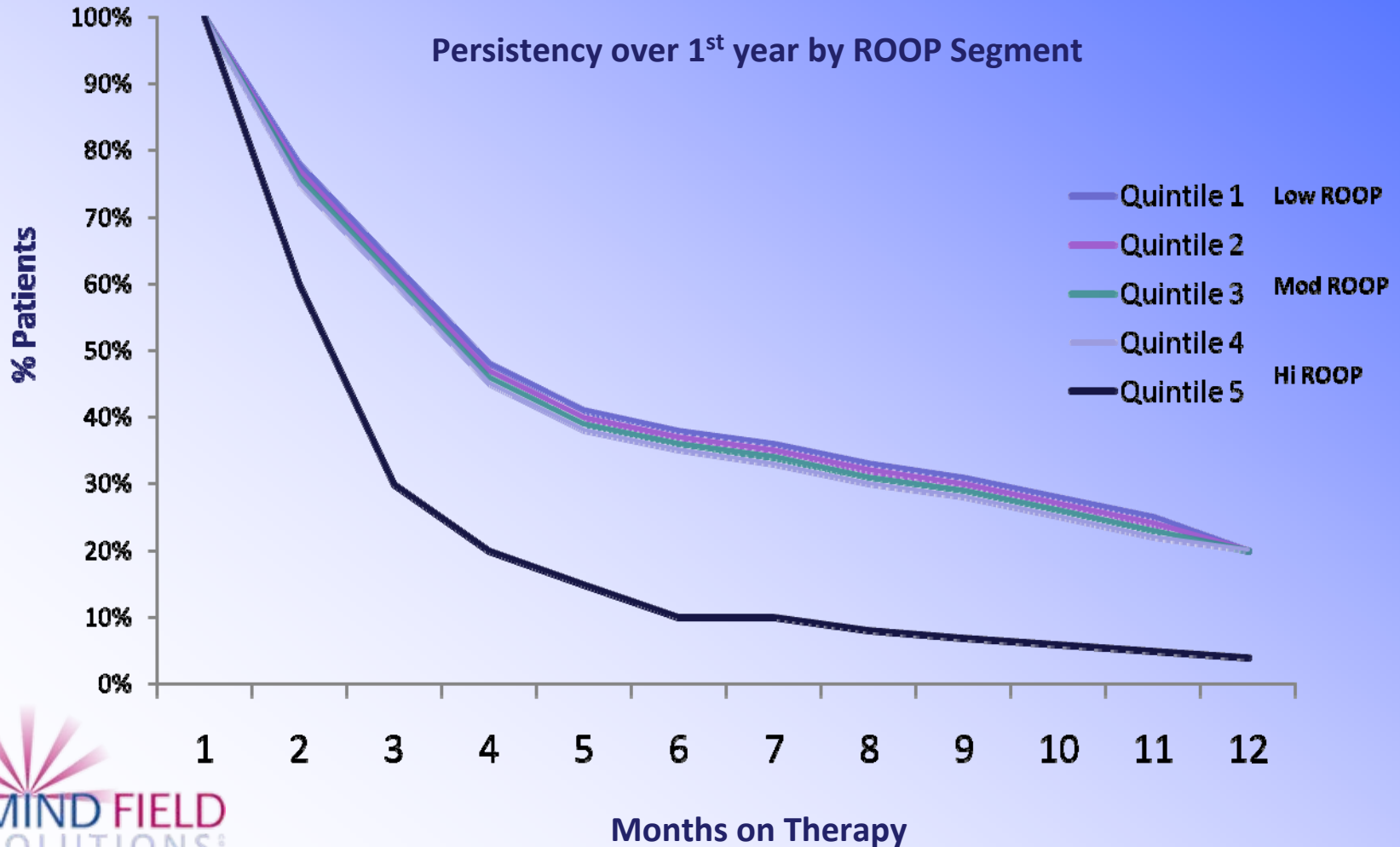
The lowest paying segment (quintile 1 ≈ \$30/month) were just as non-adherent as the highest paying segment (quintile 5 ≈ \$300/month)



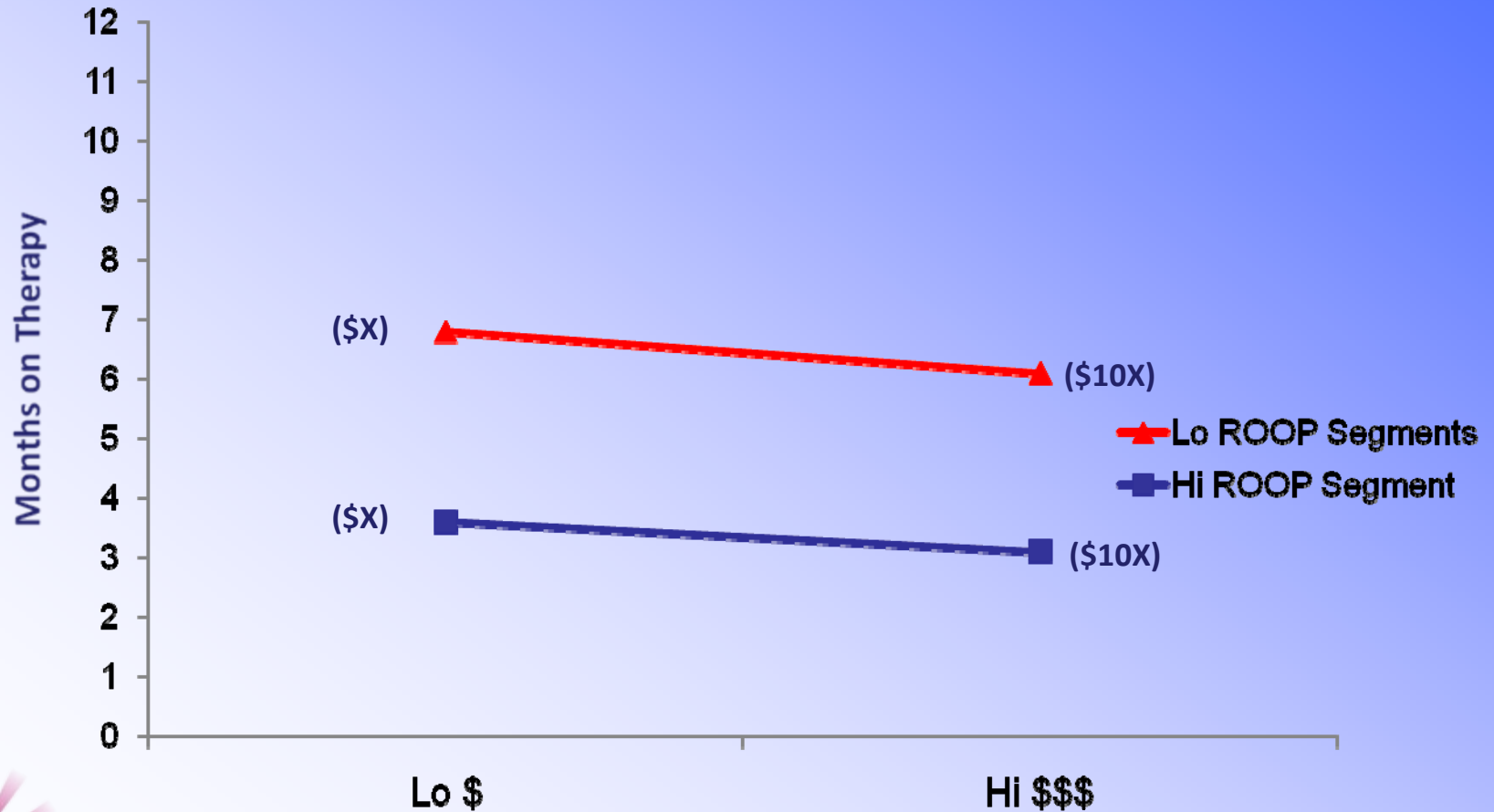
# Relative **Out-Of-Pocket** Payment for Brand X as a Proportion of Total Monthly Outlay for All RXs

Segment	Definition of Segment	Brand X Proportion	Rank Order
Quintile 1	\$Brand X : Total monthly OOP = 0%-20%	$(\$10/\$200) = 5\%$	Lowest ROOP
Quintile 2	\$Brand X : Total monthly OOP = 20%-40%	$(\$10/\$30) = 33\%$	Low ROOP
Quintile 3	\$Brand X : Total monthly OOP = 40%-60%	$(\$10/\$20) = 50\%$	Mod ROOP
Quintile 4	\$Brand X : Total monthly OOP = 60%-80%	$(\$10/\$15) = 67\%$	High ROOP
Quintile 5	\$Brand X : Total monthly OOP = 80%-100%	$(\$10/\$10) = 100\%$	Highest ROOP

# The highest ROOP group had significantly lower adherence



Even with cost being equal across groups,  
Hi ROOP compromised adherence



# The Theory of Relativity Applied

## - Co-pays Should Present one '*Relatively*' Attractive Option -

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- \* **Co-pay incentives should be structured around 3 options where consumers get to choose**
- \* **Options should include 2 easily comparable options for assessment of value**
- \* **e.g. Majority would choose option (iii) below**
  - (i) Brand X 20% refund with mail-in rebate (alternative)
  - (ii) Brand X at “Buy 2 get 1 free” (decoy)
  - (iii) Brand X “Buy 2 get 1 free” plus coupon for \$5 off at local pharmacy (any Branded Rx)

2 encourages  
loyalty

Coupon establishes option as  
the best offer available

# **Freedom to Choose and the Impact on Purchase Decision**

# Freedom to choose?

## - Experiment 2 -

### *Creating the Perception of Value through 'Free!'*

Option (benefit)	T1 Cost	% choosing at T1	T2 Cost	% choosing T2
Lindt truffle (50 😊 )	15¢	73%	14¢	31%
Hershey's Kiss (10 😊)	1¢	27%	FREE!	69%

35-9=26 RBtC

36-10=26 RBtC

Traditional economic theory suggests no change as relative benefit to cost remains unchanged between the two options

The concept of 'Free!' creates a strong bias to choose since no negative aspects are considered (e.g. I could have spent that money wisely/elsewhere/saved) - no buyer's remorse



Dan Ariely (2008) *"Predictably Irrational: The Hidden Forces that Shape our Decisions"*

# *Freedom to choose Applied*

## - Persuading Consumer Choice -

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### \*'FREE' is a motivator beyond it's true worth

- \$10 giftcard for free

Vs

- \$20 giftcard to buy for \$7

Majority will choose free \$10 card  
(net -\$3)

### \*"Buy 2 get 1 free" has more appeal than "33% off"

**Myth:** The best predictor of future behavior is past behavior

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**BUSTED!**

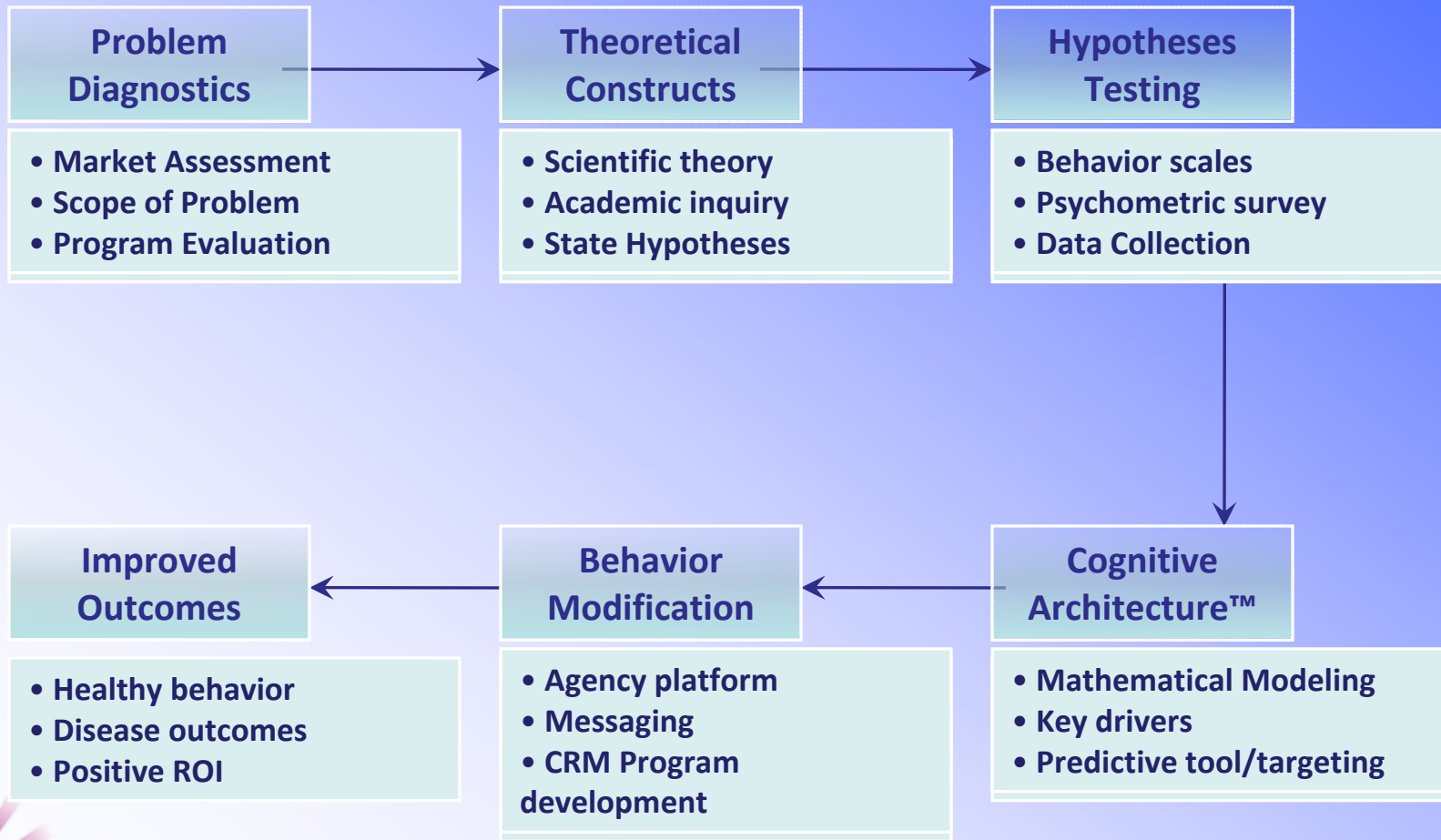
- \* **Understand the complexity of your customer**
- \* **Appreciate the limitations of meta-cognition and creatively work around them**
- \* **Use peer-reviewed explanations of behavior as a basis to develop your learnings**
- \* **Test qualitative findings quantitatively**
  - Aim to falsify i.e. crash test before program launch, not after!

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## How do we Manage Behavior?

Changing behavior is dependent on  
*Understanding the Decision/Cognition*  
that is driving the behavior

# Cognitive Architecture™ Model for Long-Term Behavior Change

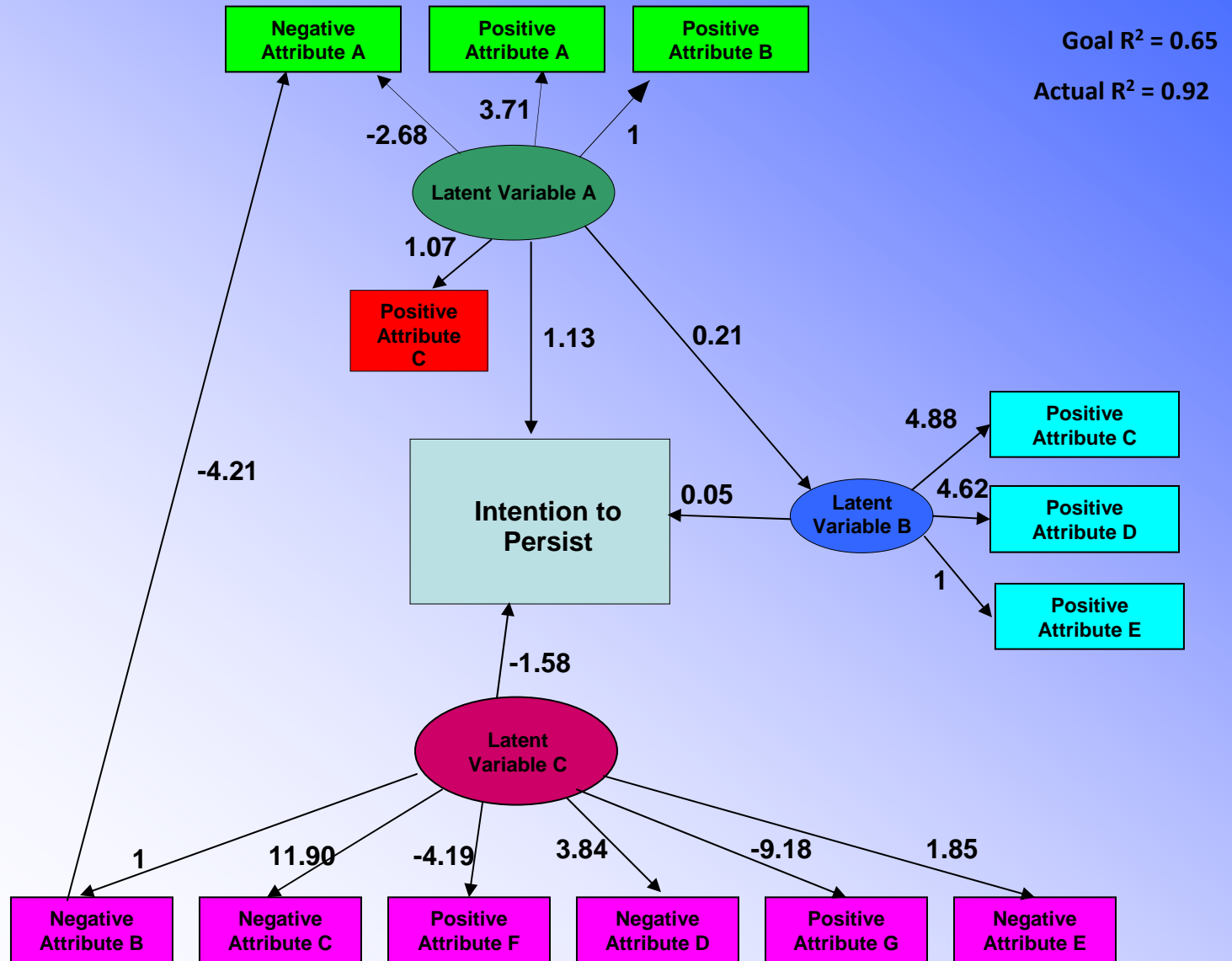


## Case Study in Breast Cancer Adherence

## Developmental History of Breast Cancer Model

<b>Research Objective</b>	<b>Result</b>
<b>Theoretical Review</b>	<b>Psychological theories of health-related behavior</b>
<b>Qualitative Validation of Theories</b>	<b>Tested theory with HT Persisters and Non-persisters</b>
<b>Psychometric survey development</b>	<b>185-item survey aligned to psychological theories</b>
<b>Data collection</b>	<b>Surveyed 513 BC patients</b>
<b>Predictive Mathematical Modelling</b>	<b>Determined significant predictors of intention to persist</b>
<b>Item reduction analysis</b>	<b>Reduced 185Q to 6Q diagnostic tool</b>
<b>HT-Naïve sample confirmation</b>	<b>Validated score distribution with HT-naïve sample</b>
<b>Assess r with Rx activity</b>	<b>Significant r observed (<math>p &lt; .05</math>; <math>n = 358</math>)</b>

# Predictive Model of Adherence to Breast Cancer Treatment



# Larger Models can be Reduced to Diagnostic Tools

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## Item reduction analysis

- Reduce psychometric battery to manageable number of items (6-10Q)
- Criteria for reduction
  - Correlation with Rx activity?
  - Synergies with current strategic focus? (may accommodate subjectivity)

# Applying the Cognitive Solution across Brand Functions

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## \* As a model:

- To inform design of programs by leveraging the key drivers of adherence

## \* As a screening tool:

- To inform patient/resource allocation to Heavy vs. Lite programs based on risk segment/profile
- To assist HCPs in identifying patients at-risk for non-adherence
- To refine measurement of program effectiveness by assessing impact within High vs. Low risk segments
- To improve clinical trial completion time through focused management of 'attrition-risk' patients

# Implementation Benefits

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- \* **Profiling the market allows for strategic resource allocation to responders**
  - Current marketing spend to 100% of audience
  - Solution: Target 25% of market who profile as needing support (and likely to respond) i.e. 75% reduction in spend
- \* **Needy segment currently baselines at 43% adherence (pills dispensed)**
  - After targeted intervention towards **key motivational drivers\***, could reasonably anticipate close to 80% (definition of 'adherence') in targeted segment



\* Behavior change depends upon moderating identifiable key drivers. Mind Field Solutions identifies these key drivers and guides the creative process to ensure these drivers are being moderated by the targeted program

# ROI for improving Adherence to LIPITOR from 40% to 80%

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- \* **Incidence of Disease:** CHD 16,000,000
- \* **Share initiated on Product Class: (% treated w/statin) 20% [3,200,000]**
  - LIPITOR 40% statin class [1,280,000]
- \* **% Poor-adherers: 25% [320,000]**
- \* **Potential Gain: Baseline performance to Goal adherence level**
  - 45% pills consumed (i.e.162 Days of therapy) to 80% pills consumed (i.e.288 DOT) = 126 additional DOT
- \* **WAC \$ (assuming \$100/month or \$3.33 for one DOT)**
  - \$420 per person (in first year)
  - \$134 million represents recaptured lost revenue of poor-adherence

# Extending the Product Line

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## \* A successful screening tool can be quickly tested in other disease categories . . .

- Administer screening tool on new sample
- Correlation with Rx activity
- Derive new cut-off score to maximize power of tool in new category

## \* . . . or in clinical trials

- Administer to sample of participants and correlate to doses consumed
- Derive new cut-off to maximize differentiation between 'compliers' vs 'non-compliers'
- Any consequences on efficacy or disease outcomes???