When can you trust the implicit nature of CATA?



2019 Pangborn Sensory Symposium Presentation by

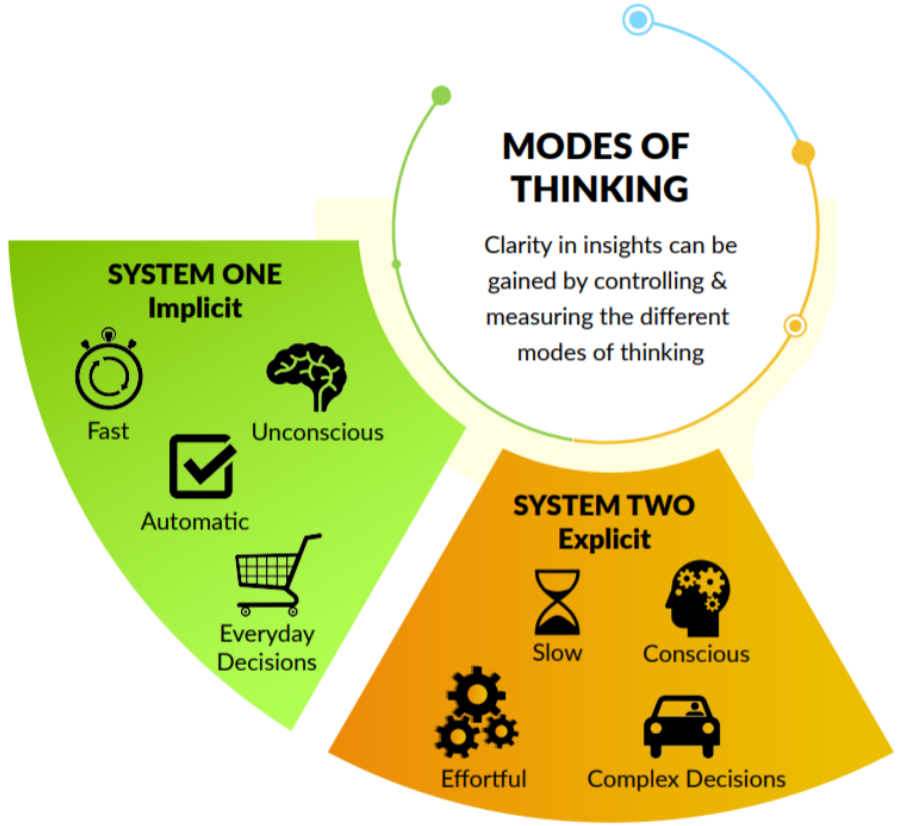
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InsightsNow

Situation

- In Check-All-That-Apply (CATA), we aim to understand what percent of the population has a belief or perception. We expect participants to quickly answer CATA questions and respond using System 1 fast thinking.
- However, there is no measure of response time, and we do not know if CATA is capturing implicit behavior.
- Implicit behavior is important to understand so we can impact decisions and behaviors.



IMPLICIT
- Fast & OK = Will **NUDGE** their current behavior
- Fast & Avoid = Will not impact their behavior

EXPLICIT
- Slow & OK = Will **DISRUPT** their current behavior
- Slow & Avoid = Will not disrupt their behavior

Objective & Approach

In this study, we compare CATA to timed yes/no responses to understand implicit nature

How we did it

- 2 separate surveys of Clean Label Enthusiasts™
- A total of 51 flavor and sweetener ingredients tested
- Subset of 13 Sweeteners and 6 Flavors evaluated for bakery items for breakfast included here with n=73 for CATA and n=192 for Implicit/Explicit

CLEAN LABEL ENTHUSIASTS™
An InsightsNow Community

CLE™ are a behavioral segment differentiated by their buying and avoidance behaviors

CLE™ members were invited to complete ingredient surveys on moments and ingredients.

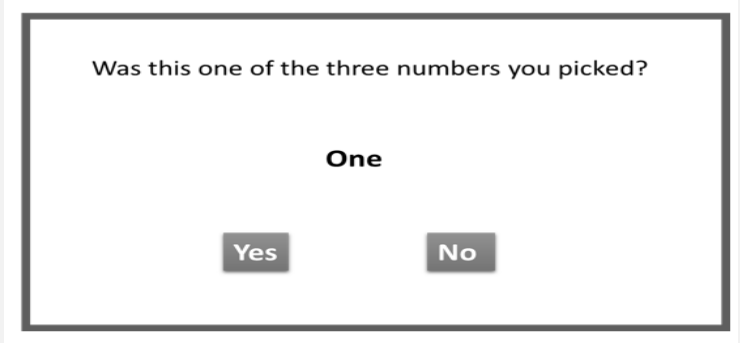
Participants were screened based on purchase history of products from each moment.

The Pre-Test determines the cut-off time for a fast response from each person.

Today we will be using a question style which monitors how fast you answer. The next set of questions will help us personalize the questions for you.

Please pick three numbers and remember which three you picked.

- ☐ One
- ☐ Two
- ☐ Three
- ☐ Four
- ☐ Five
- ☐ Six
- ☐ Seven
- ☐ Eight
- ☐ Nine
- ☐ Ten



CATA for Ingredients

When you are eating breakfast biscuits as part of a healthy breakfast, which of the following ingredients are you OK having in your breakfast biscuit? *Please select all you are OK with.*

- ❑ Agave
- ❑ Beet Sugar
- ❑ Brown Sugar
- ❑ Cane Sugar
- ❑ Corn Syrup
- ❑ Golden Brown Cane Sugar
- ❑ Granulated Sugar
- ❑ High Fructose Corn Syrup
- ❑ Honey
- ❑ Invert Sugar
- ❑ Molasses
- ❑ Sorbitol
- ❑ Stevia

% OK for each ingredient

Implicit/Explicit for Ingredients

When you are eating breakfast biscuits as part of a healthy breakfast, how do you feel about the following ingredient? **STEVIA**

OK AVOID

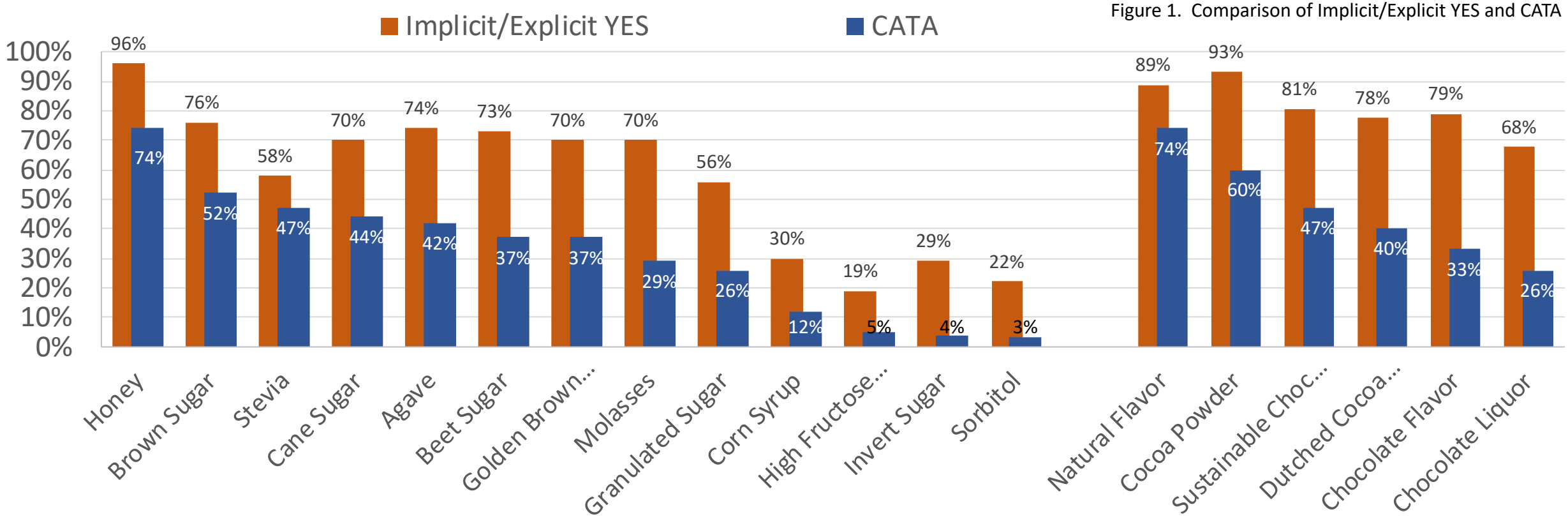
Implicit/Explicit Behavioral Measures %OK and Time to Respond

Results

Percent responses from CLE's about ingredients which are OK for bakery items for healthy breakfast showed:

1) Higher number of Yes responses in the Implicit/Explicit Survey versus CATA.

Figure 1. Comparison of Implicit/Explicit YES and CATA



Results (cont.)

2) At the high end of the scale, CATA and Implicit Yes showed similar results.

For the top scoring ingredients – the two approaches give the same info – like Honey.

Golden Brown Cane Sugar gets lower CATA scores, but doesn't really have any strong negatives, which means this ingredient is unlikely to cause waves. Meaning it won't help or hinder you. CATA data is only one-dimensional therefore not able to give you that insight.

Ingredients which skew negative may also have a specific segment or targetable group who are open to them. They might not be good for all applications, but implicit can help identify if and where there could be hope for something which scores low.

Table 1. Sweeteners in Healthy Breakfast Moment	CATA	Implicit YES	Implicit NO	Explicit YES
Honey	74% A	78% A	4% H	18% ABC
Brown Sugar	52% B	65% B	15% G	11% DEF
Stevia	47% BC	47% DEF	30% D	11% DEF
Cane Sugar	44% BCD	55% CD	23% DEF	15% BCDE
Agave	42% BCDE	56% BCD	21% EFG	18% BCD
Beet Sugar	**37%** BCDE	**54%** CDE	20% EFG	19% AB
Golden Brown Cane Sugar	37% CDE	43% F	17% FG	27% A
Molasses	**29%** DE	**60%** BC	24% DEF	10% EFG
Granulated Sugar	**26%** E	**45%** E	28% DE	11% CDEF
Corn Syrup	12% F	22% GH	54% BC	8% FGH
High Fructose Corn Syrup	5% F	14% I	66% A	5% GH
Invert Sugar	**4%** F	**25%** G	47% C	4% H
Sorbitol	**3%** F	**16%** HI	58% AB	6% FGH

Results (cont.)

3) In the middle range of the scale, Implicit Yes and NO and Explicit Yes responses provide more information about an ingredient.

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Agave	42% BCDE	56% BCD	21% EFG	18% BCD
Beet Sugar	**37%** BCDE	**54%** CDE	20% EFG	19% AB
Golden Brown Cane Sugar	37% CDE	43% F	17% FG	27% A
Molasses	**29%** DE	**60%** BC	24% DEF	10% EFG
Granulated Sugar	**26%** E	**45%** E	28% DE	11% CDEF
Corn Syrup	12% F	22% GH	54% BC	8% FGH
High Fructose Corn Syrup	5% F	14% I	66% A	5% GH
Invert Sugar	**4%** F	**25%** G	47% C	4% H
Sorbitol	**3%** F	**16%** HI	58% AB	6% FGH

It is in the middle ranges where implicit information really helps you make smarter decisions about an ingredient.

When comparing Stevia to Cane Sugar and Agave, they have similar CATA scores, but the implicit NO reactions to Stevia are higher. This visceral negative reaction might impact your decision against pursuing Stevia and lead you to choose Cane Sugar or Agave.

BOLD indicates a difference between CATA and Implicit Yes alpha = 0.05 based on a Chi-Squared test of independence for that ingredient.

Letters indicate significance within CATA or Implicit YES and ingredients with shared letters are not significantly different within the column at alpha = 0.05 using pairwise McNemar's Tests to account for responses to the ingredient were made by the same participant.

Results (cont.)

Table 2. Flavors in Healthy Breakfast Moment	CATA	Implicit YES	Implicit NO	Explicit YES
Natural Flavor	74% A	73% AB	8% BC	16% B
Cocoa Powder	**60%** AB	**77%** A	6% C	16% B
Sustainable Choc Powder	47% BC	43% D	11% B	38% A
Dutched Cocoa Powder	**40%** C	**61%** C	14% AB	17% B
Chocolate Flavor	**33%** CD	**67%** BC	13% AB	12% B
Chocolate Liquor	**26%** D	**51%** D	18% A	17% B



For Flavors, we see more differences, specifically with greater implicit yes scores for named flavor ingredients versus CATA scores.

Conclusion

This research forms a foundation to assess CATA more behaviorally and identifies the advantages of a timed survey for implicit/explicit reactions when making business decisions including the opportunity to nudge and disrupt consumers.