Comparing Visual Food Images vs. Actual Food When Measuring Emotional Response of Children Using Emojis

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Emotion Research

- Recent interest in understanding consumer responses and going beyond liking to measuring emotional responses.
- Currently, most of our tools have been developed for and used by adult consumers
- There remains a need for emotion research with children
  - Important and unique consumer group
  - Different needs, wants, and emotional constructs than adults



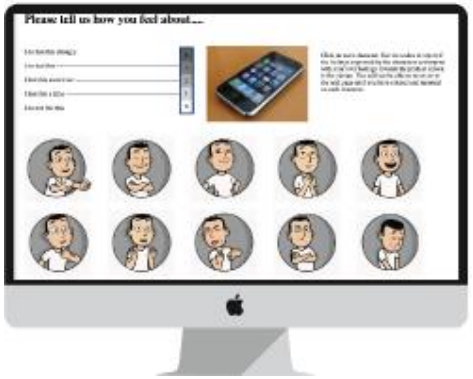
Emotion Assessment: Text or Visual?

EsSense Profile®

Please select the words which describe how you **FEEL RIGHT NOW**. *Select all that apply.*

☐ Active	☐ Glad	☐ Pleasant
☐ Adventurous	☐ Good	☐ Polite
☐ Affectionate	☐ Good-natured	☐ Quiet
☐ Aggressive	☐ Guilty	☐ Satisfied
☐ Bored	☐ Happy	☐ Secure
☐ Calm	☐ Interested	☐ Steady
☐ Daring	☐ Joyful	☐ Tame
☐ Disgusted	☐ Loving	☐ Tender
☐ Eager	☐ Merry	☐ Understanding
☐ Energetic	☐ Mild	☐ Warm
☐ Enthusiastic	☐ Nostalgic	☐ Whole
☐ Free	☐ Peaceful	☐ Wild
☐ Friendly	☐ Pleased	☐ Worried

PrEmo®





Emojis

- Emojis are an important part of online and mobile communication
  - 2015 Oxford Dictionary Word of the Year – an emoji:

     Face with Tears of Joy
- Children are increasingly connected through cell phones and social media[1]
  - 64% of kids get on the internet using their own laptop or tablet
  - 50% of children have a social media account by age 12
  - Average age at time of first cell phone ownership: 10.3 years
- 38% of US children use a tablet before they can speak a sentence.
- Average age of first touchscreen use in UK is 1 and most toddlers can swipe, unlock, and search by age 2.

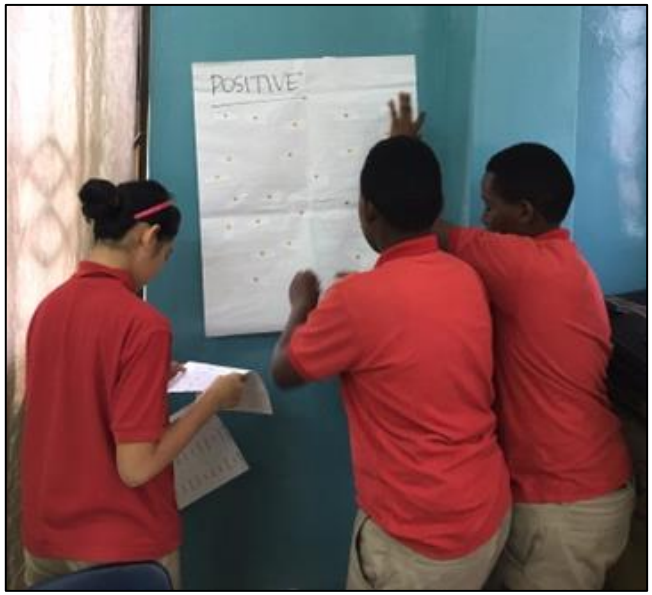


[1]Influence Central, 2016

Initial Research

- Focus groups were conducted to identify appropriate emojis and emotion words for food research with children
- Children in both U.S. and Ghana were comfortable using words and emojis
  - Recalled food experiences
  - Food interventions





Considering Context

- Resource limitations can influence study design decisions
  - Time
  - Money
  - Participant availability
  - Sample availability
  - Facility resources
- It is important to consider how these choices impact research outcomes

How does assessment type (image, visual sample, or tasted sample) impact liking and emotion responses from children?

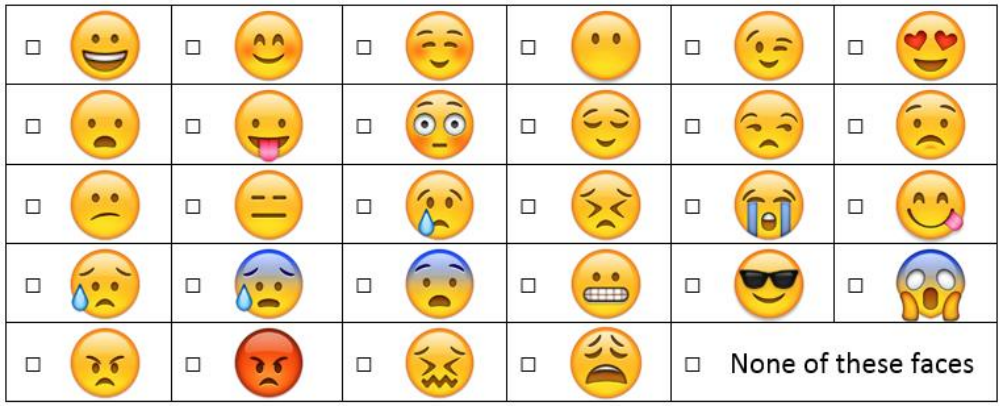
Research Plan

- Two studies
  - **Study 1:** food image assessment (n=100)
  - **Study 2:** food appearance and taste assessment (n=111)

- Participants
  - Parents and legal guardians in the Center for Sensory Analysis and Consumer Behavior database contacted for screening
  - Children (7 to 11 years) from the Kansas City metro area
  - Distribution of gender
  - Children only allowed to participate in one study
  - Study 2: no food allergies, minimum "willing to eat" all study foods
- Timing
  - Daytime and afternoon sessions based on local school calendars
- Location
  - Both studies fielded at Kansas State University – Olathe Campus

Questionnaire

- Warm-up emotion questions (favorite, disliked foods)
- Baseline emotion: How do you feel right now?
- **Sample Questions**
  - Have you ever tried _____ before?
    - Yes, No, I'm not sure
  - Sample liking
    - 9-point Peryam & Kroll Children's scale (super good – super bad)
  - Emotions
    - Emoji and Word CATA (Check All That Apply)



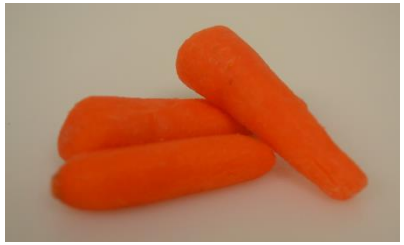
Samples

Eight products from multiple food groups were selected to elicit a range of emotions

Chocolate Graham Snacks



Baby Carrots



Lychee Gummy Candy



Cheddar Cheese Cubes



Orange Juice



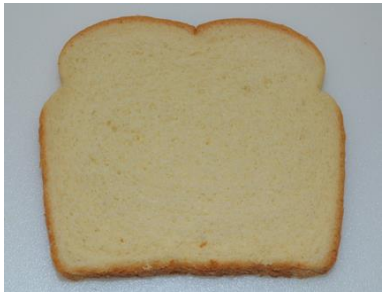
White Grapes



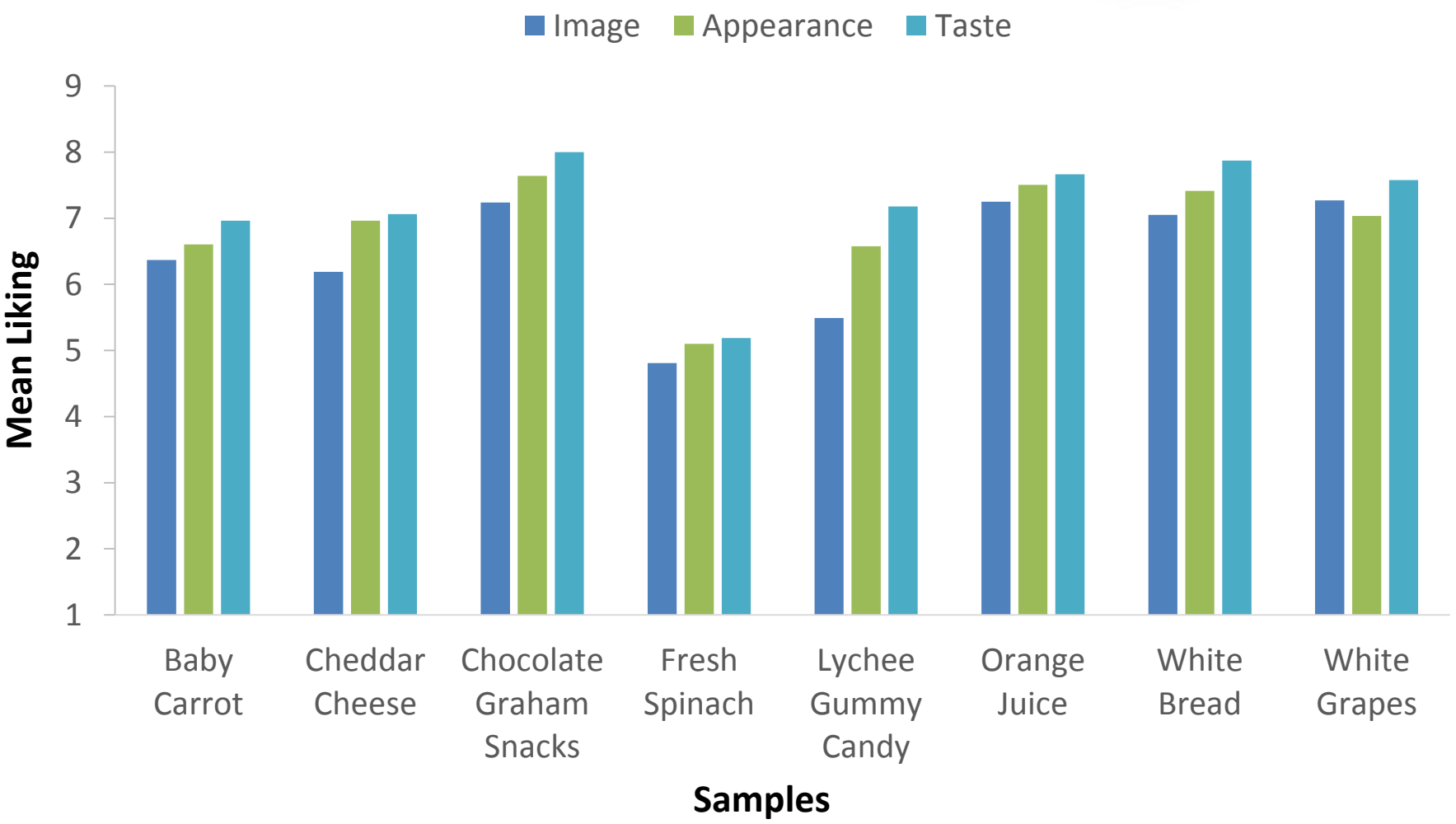
Fresh Spinach



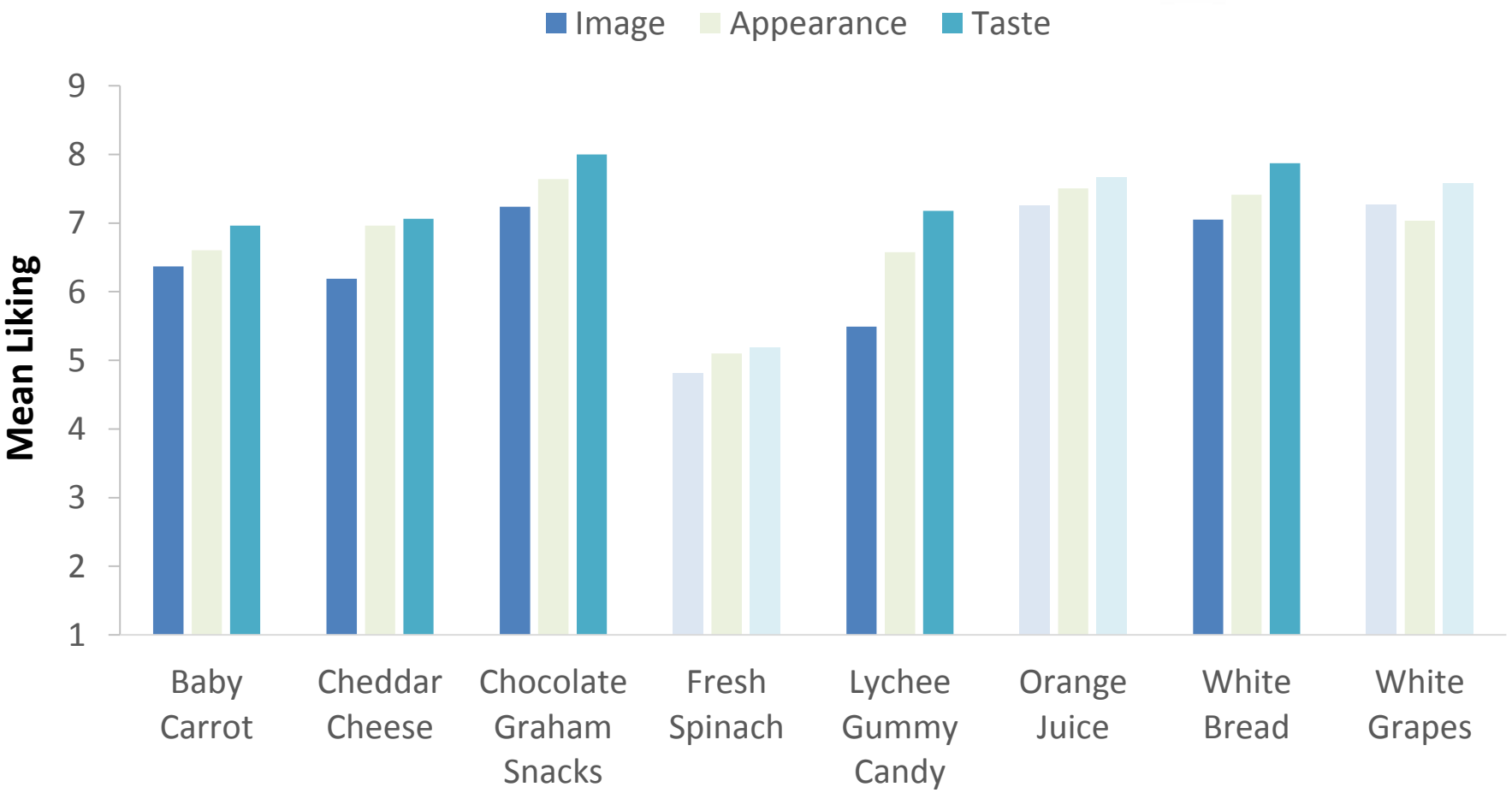
White Bread



Results - Liking

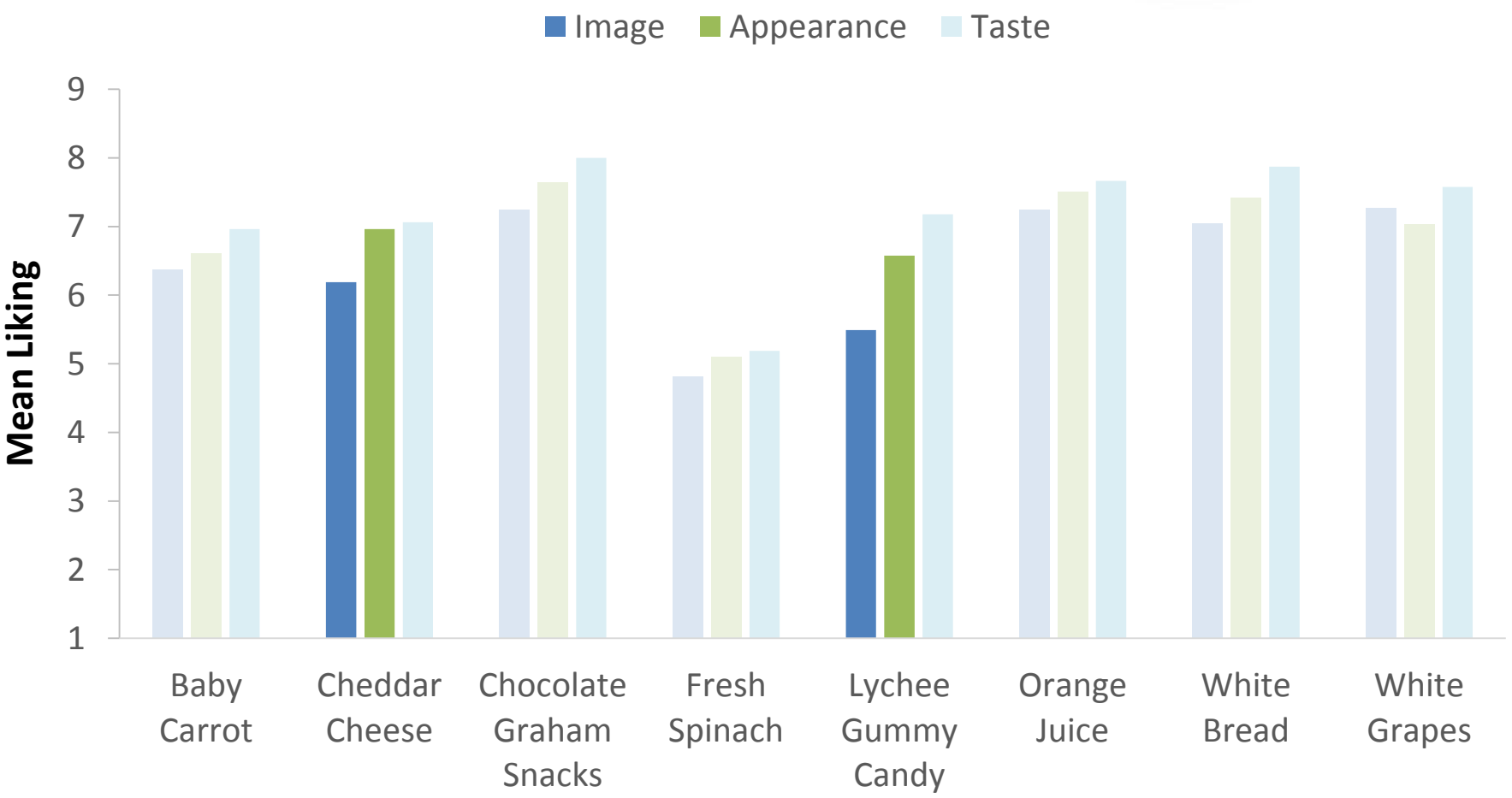


Results - Liking



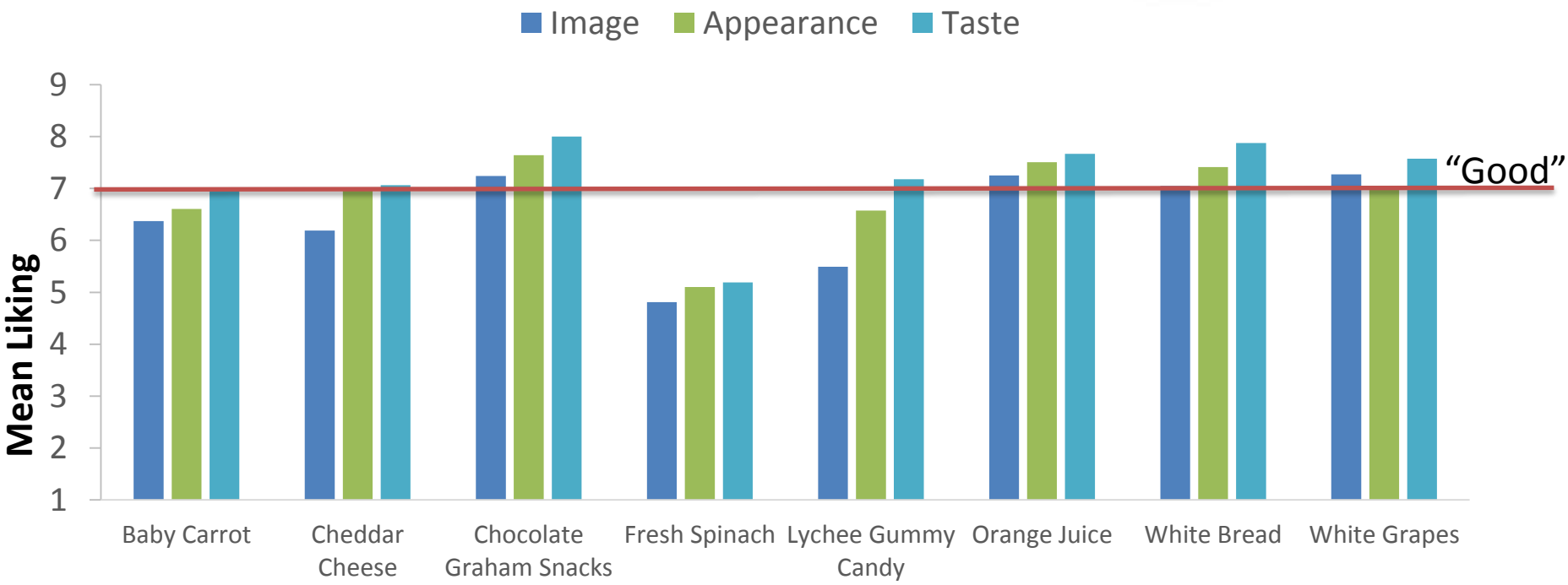
Taste *liking scores significantly higher than* ***image*** *liking scores for baby carrots, cheddar cheese, chocolate graham snacks, lychee gummy candy, and white bread.*

Results - Liking



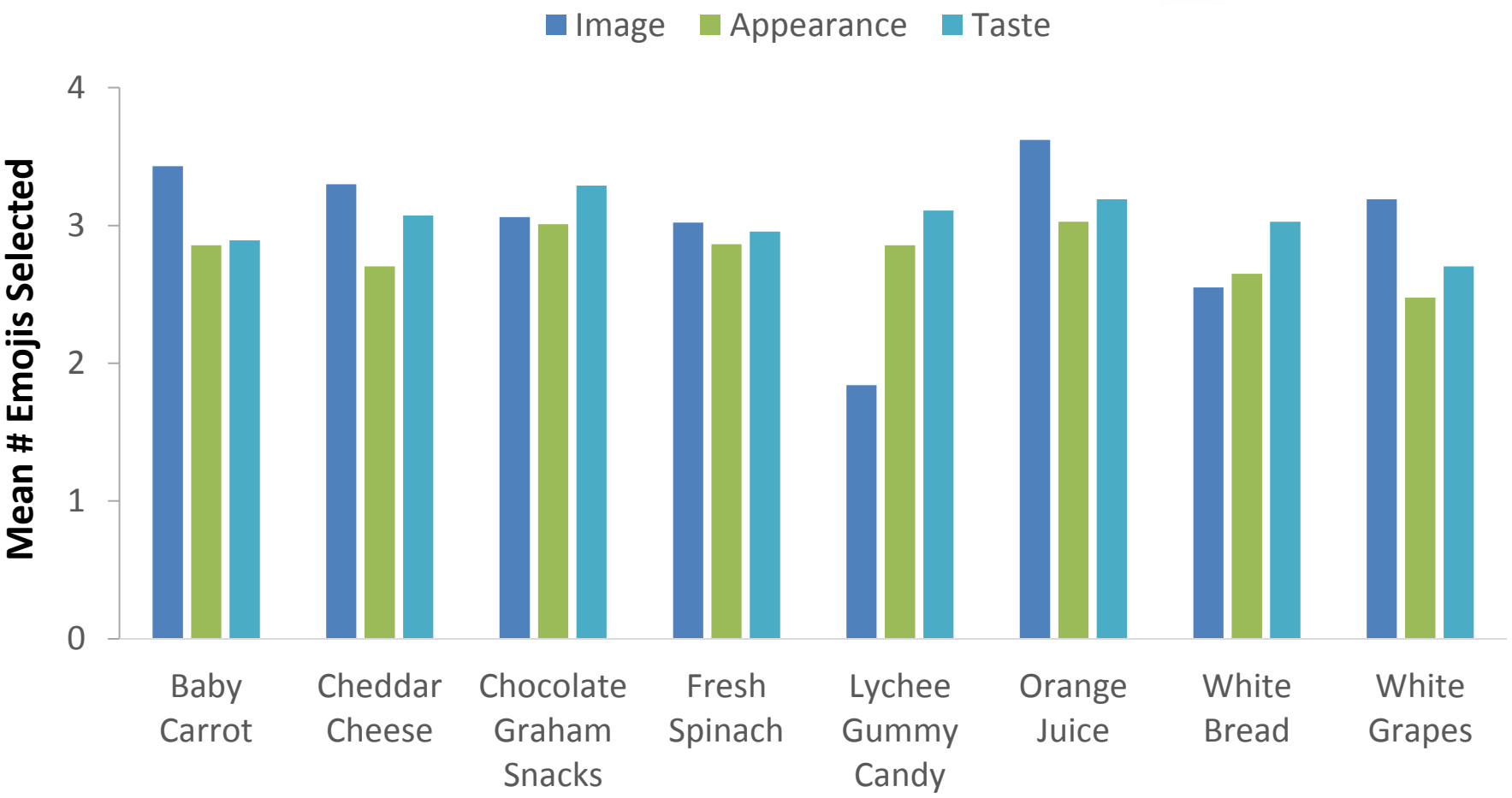
Appearance *liking scores significantly higher than* ***image*** *liking scores for cheddar cheese and lychee gummy candy.*

Results - Liking



Samples with Mean Liking ≥ 7.0		
Image	**Appearance**	**Taste**
Chocolate Graham Snacks	Chocolate Graham Snacks	Chocolate Graham Snacks
Orange Juice	Orange Juice	Orange Juice
White Bread	White Bread	White Bread
White Grapes	White Grapes	White Grapes
	Cheddar Cheese	Cheddar Cheese
		Baby Carrot
		Lychee Gummy

Results – Emoji Use



For white grapes, significantly more emojis selected for image vs. appearance.
For lychee gummy candy, significantly more emojis selected for appearance, taste vs. image.

Results – Sample Discrimination

Fewer emojis showed significant differences in the image condition.

Number of emojis with significant differences ($p<0.05$) in selection across samples	Image	Appearance	Taste
CATA Frequencies (%)	15	22	22
Change from Baseline	4	18	14

Significantly different ($p<0.05$) for all three assessment types:

CATA: 

Change from baseline: 

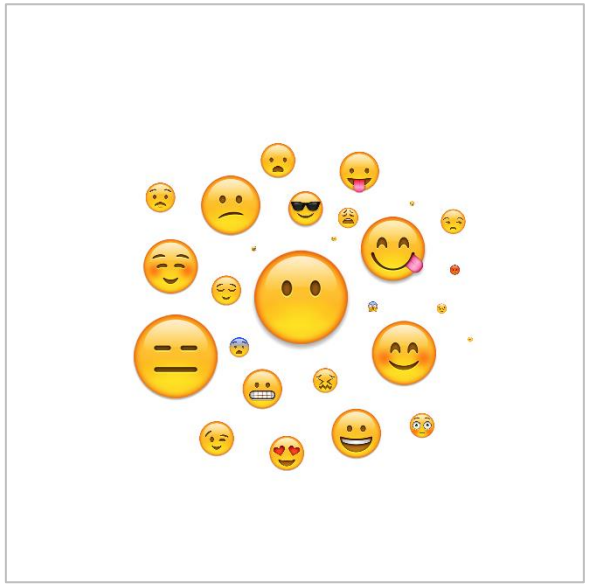
Results – Emoji Use by Assessment



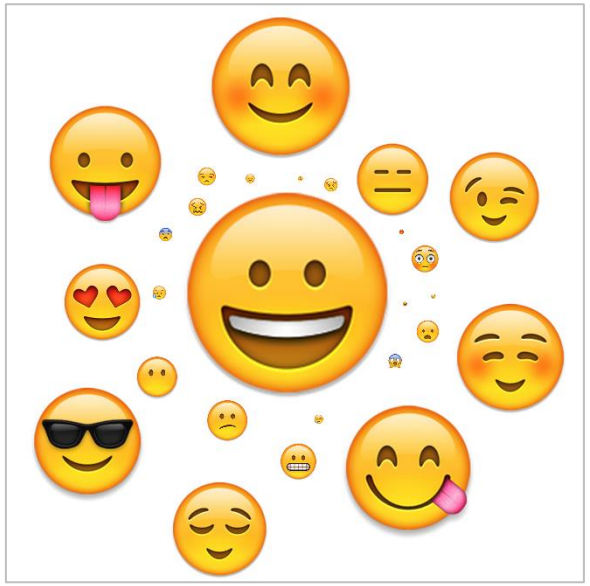
Lychee Gummy Candy

Unfamiliar product: % tried before
Study 1: 6%
Study 2: 12%
Liking: Range: 5.2 Image - 7.1 Tasting

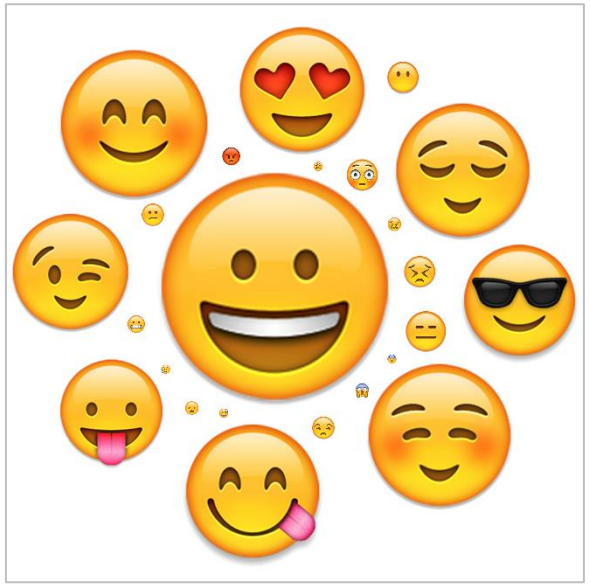
Image



Appearance



Taste



Emoji size based on frequency (%) of selection. Larger emojis were selected more frequently.

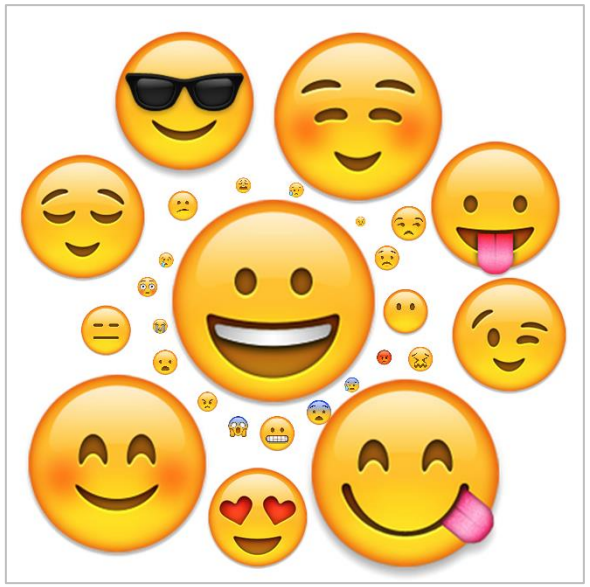
Results – Emoji Use by Assessment



Orange Juice

Familiar Product: % Tried before
Study 1: 100%
Study 2: 98%
Liking: Range: 7.2-7.8

Image



Appearance



Taste



Emoji size based on frequency (%) of selection. Larger emojis were selected more frequently.

Conclusions

- Image, appearance, and taste assessments are not interchangeable
  - Liking scores were lower in the image test
  - Emoji discrimination was better in the appearance and taste conditions
- Results more stable for familiar product vs. unfamiliar products
- Change in assessment type may require change in success criteria

- Further research opportunities:
  - Assessment of products within a category
  - Participants beyond 7-11 years old

Acknowledgements

- Research Advisors:
  - Dr. Delores Chambers
  - Dr. Marianne Swaney-Stueve
- Funding Support:

