Does time of day of a CLT influence US consumer acceptability of hot and spicy-pepper flavored snacks?

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Introduction

US sales of hot and spicy-pepper flavored snacks are increasing tremendously. Consumer Central Location Tests (CLT) to identify potential products to launch are typically conducted during daytime hours but influence of time of CLT on acceptability of hot and spicy-pepper snacks has not been reported.

This study investigated if time of day at which hot and spicy-pepper snacks were evaluated would influence their acceptability.

Sensory Methodology

Products

- Three market products with different spicy-pepper flavors:
  - P1 – sweet BBQ seasoning & paprika
  - P2 – mustard & paprika
  - P3 – Jalapeño seasoning, ranch flavor, & red bell pepper

Descriptive Profiling

- 12 external trained panelists
- Givaudan Sense It® Language & 100-pt intensity scales
- Quantitative Flavor Profiling (QFP) method

Consumer Evaluation

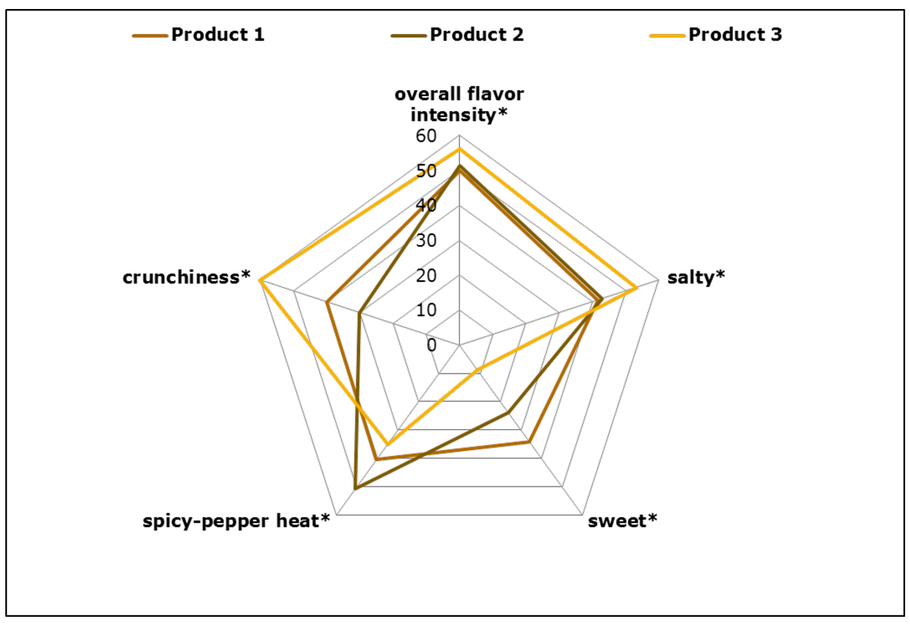
- 60 consumers of spicy-pepper snacks; 55% female and 45% male; ~25% spread over four age groups
- 9-pt Hedonic scales, 5-pt Just-about-Right scales

Experimental Design and Data Analysis

- Randomized complete block design of products and consumers over 3 CLT sessions: 9:30-11:00am, 1:00-2:30pm, 3:00-4:30pm
- Data collection: Compusense Cloud
- Data analysis: ANOVA – XLSTAT; Thurstonian probabilistic models of product Just-about-Right (JARS) distributions compared with the Ideal distribution - IFPrograms™
- All data were analyzed at 95% confidence level

Results & Insights

Fig 1. Basic tastes, spicy-pepper heat, and crunchiness descriptive profiles of products



* Denotes significant difference at 95% confidence level

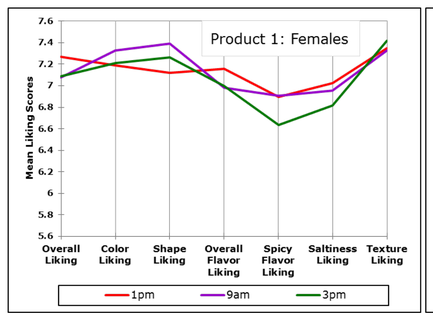
Pertinent descriptive characteristics of the products:

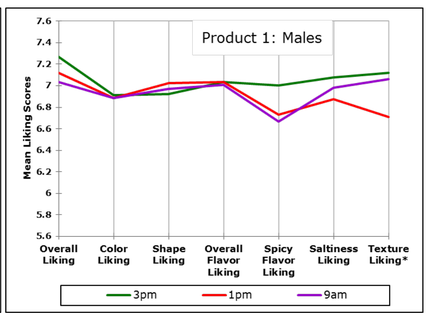
- **Product 1** (potato base): sweet and salty, mesquite BBQ and tomato, moderate spicy-pepper heat, moderate crunchiness
- **Product 2** (corn base): salty, mild sweet, high spicy-pepper heat, low to moderate crunchiness
- **Product 3** (potato base): salty, sour cream and onion, mild spicy-pepper heat, moderate to high crunchiness

Results & Insights (cont'd)

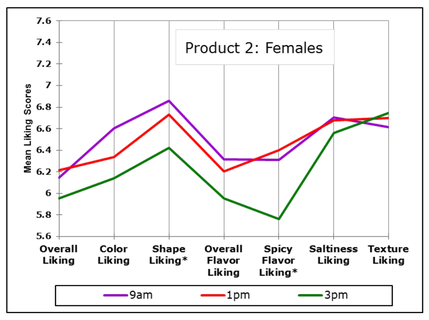
Fig 2. Attribute Liking of Products at 3 CLT Times by Female and Male Panelists

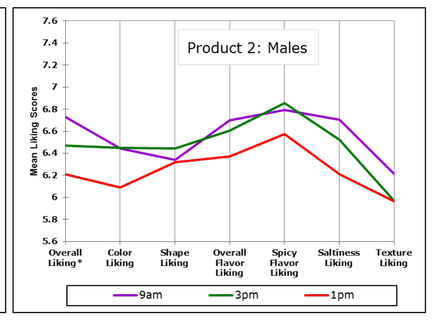
Product 1:
- Females liked the spicy flavor least at 3pm
- Males liked the spicy flavor best at 3pm; and liked the texture much more at 3pm than at 1pm



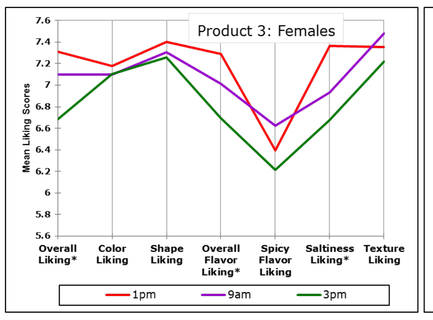


Product 2:
- Females liked many of the attributes least at 3pm
- Males liked majority of the attributes significantly more at 9am versus 1pm





Product 3:
- Females liked many of the attributes more at 1pm but scored spicy flavor highest at 9am
- Males liked overall flavor and spicy flavor least at 1pm



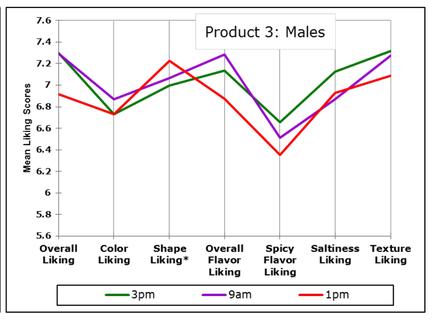
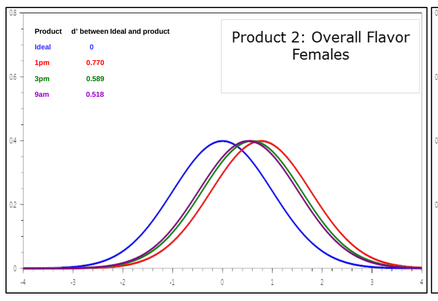
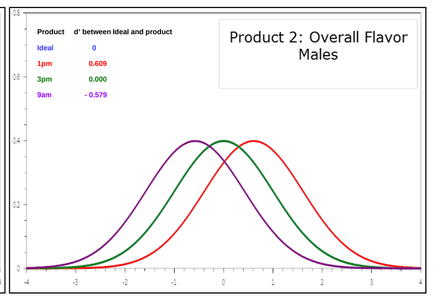


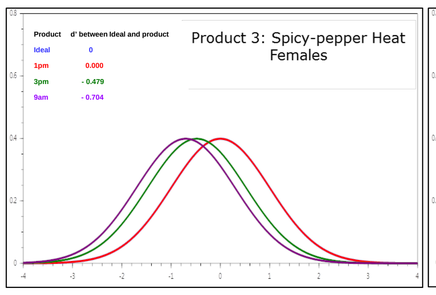
Fig 3. Influence of CLT Time on Attribute Intensity Perception

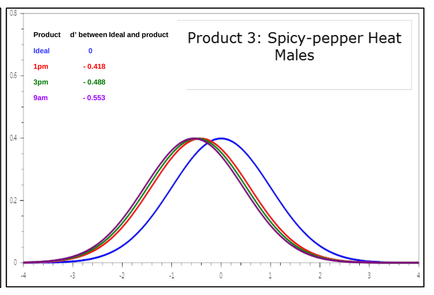
Overall Flavor Intensity: Product 2
- Was more intense than Ideal at all times for Females
- Was too low at 9am, JAR at 3pm, too high at 1pm for Males



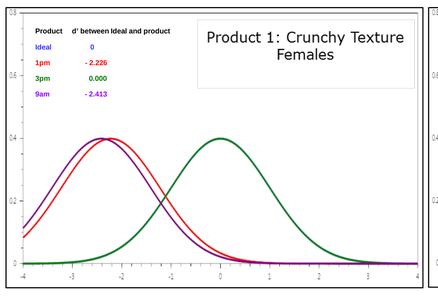


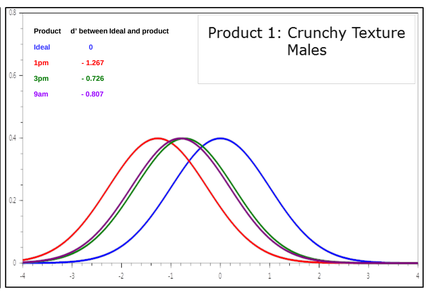
Spicy-pepper Heat Intensity: Product 3
- Was JAR at 1pm, but too low at 9am and 3pm for Females
- Was lower than Ideal at all times for Males





Crunchy Texture Intensity: Product 1
- Was JAR at 3pm, but too low at 9am and 1pm for Females
- Was significantly less than Ideal at 1pm, and too low at 9am and 3pm for Males





9am 1pm 3pm Ideal (Thurstonian Reference)

Conclusion

- Acceptability and intensity perception of product attributes at different CLT times were influenced heavily by gender.
- Males preferred more intense overall flavor and spicy-pepper heat at 9am but higher salt and crunch at 3pm.
- Overall, females wanted less intense spicy-pepper heat than males. They preferred sweet low-moderate spicy-pepper at 1pm; savory low-moderate spicy-pepper at 9am; higher crunch but least salt at 3pm.
- Results indicated the valuable potential of considering gender when marketing spicy-pepper snacks in the US.