Delivering Great Cocktails Through Full Serve Testing

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Background

- Sip testing is a good screening tool, but does not always reflect liquid performance on full serve.

- Attributes may build as the drink warms up, or palate gets more saturated during consumption.

- Attributes may fade as ice melts, but then may build again as liquid warms.

- Testing on full serve must respect daily and weekly alcohol guidelines - Responsible Research agenda.

- Using technical judgement to balance pace with data and knowledge.

- Least Amount of the Most Powerful Research.
Some Applications

> Focus on cocktails over ice, but many applications.

> Beer – build up in bitterness, loss of carbonation, flavor build as beer moves from chilled to warmer.

> Flavored Malted Beverages (FMBs) – e.g., sweetness build and loss of carbonation.
About the Studies

> Applied tool that enables changes in sensory profile over consumption to capture key liquid performance indicators.

> Adaptation of Product Boredom methodology.

> Cocktails with ice where delivery of overall flavor impact, alcohol taste and basic tastes are all key.

> Liquids developed after initial sip test screening, either internally or with consumers.

> Provide confidence to submit final liquid for confirmation testing directly or with final tweaks.
> **Initial Sip** – measure intensity.

<table>
<thead>
<tr>
<th>Sweetness</th>
<th>Very Sweet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all sweet</td>
<td></td>
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<td><img src="image" alt="Box Shadow Down" /> <img src="image" alt="Box Shadow Down" /> <img src="image" alt="Box Shadow Down" /> <img src="image" alt="Box Shadow Down" /> <img src="image" alt="Box Shadow Down" /> <img src="image" alt="Box Shadow Down" /> <img src="image" alt="Box Shadow Down" /> <img src="image" alt="Box Shadow Down" /> <img src="image" alt="Box Shadow Down" /></td>
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<td>1</td>
<td>2</td>
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> **Half Serve**– measure intensity relative to initial sip.

<table>
<thead>
<tr>
<th>Sweetness</th>
<th>More Intense</th>
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<tr>
<td>Less Intense</td>
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<td>-4</td>
<td>-3</td>
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</tbody>
</table>

> **Full Serve** – measure intensity relative to half serve.

<table>
<thead>
<tr>
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Study 1
Vodka Based Cocktail
Study Design - Caipiroksa

> 3 formulations (current liquid and 2 modifications)

> Modified liquids slightly lower ABV than Current product to address consumer feedback on sensory delivery.

> US based Employee Panel – sensory booths test (n=56)

> Strength of Flavour, Spirit Taste, Lime, Soursness, Sweetness, Bitterness

> Serving size = 84ml with measured quantity of ice.
Alcohol Taste – Study 1

Tukey 90% = 0.6

Range

Current  S2  S3

Sip  Half  Full

5.0  5.5  6.0  6.5  7.0  7.5  8.0

0.1  0.3  0.4
Strength of Taste – Study 1

Tukey 90% = 0.7

Current  S2  S3

Range

0.3  0.6  0.6
Lime Taste – Study 1

Tukey 90% = 0.8

Range

<table>
<thead>
<tr>
<th></th>
<th>Sip</th>
<th>Half</th>
<th>Full</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>6.0</td>
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<td>4.0</td>
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</tbody>
</table>

Current - Red
S2 - Blue
S3 - Green
Sour Taste – Study 1

Tukey 90% = 0.8

Range

Current  S2  S3

Sip  Half  Full
Summary of First Cocktail Study

Alcohol Taste:
- Current*Sip
- Current*Half
- Current*Full

Strength Taste:
- Sour
- Bitter

S2*Sip
- S2*Half
- S2*Full

S3*Sip
- S3*Half
- S3*Full

Dimension 1 (43%)

Dimension 2 (37%)
Key Points – Study 1

- Reduction in alcohol led to choice of a liquid with better flavour balance as no longer dominated by alcohol taste through the consumption experience.

- Biplot summary helped illustrate that S2 cocktail showed less change in its sensory profile through consumption and ice melt.

- Project team accepted sensory recommendation and progressed with S2.
Study 2
Whisky Based Cocktail
Study Design – Whisky Cocktail

> 2 formulations (selected by the project team based on credible taste delivery)

> Objective was to deliver a credible whisky based cocktail with strong consumer appeal.

> European based Employee Panel – CLT type (n=41)

> Strength of Flavour, Spirit Taste, Sourness, Sweetness, Bitterness

> Serving size = 150ml with measured quantity of ice.
Summary of Second Cocktail Study

- **Flavour**
  - Sweet
  - Sour
  - Bitter

- **Spirit Taste**
  - S1*Sip
  - S1*Third
  - S1*2Thirds
  - S1*Full
  - S2*Sip
  - S2*Third
  - S2*2Thirds
  - S2*Full

- **Dimension 1 (63%)**
- **Dimension 2 (32%)**

**Notes:**
- Dimension 1 (63%)
- Dimension 2 (32%)
Sweet Taste – Study 2

Tukey 90% = 1.3

Range
0.7

0.3

Sip Third 2Thirds Full

5.0 5.5 6.0 6.5 7.0 7.5 8.0
Sour Taste – Study 2

Tukey 90% = 0.9

Range 0.1

Range 0.9
Bitter Taste – Study 2

Tukey 90% = 1.1
Key Points – Study 2

> More notable changes over the consumption experience compared to Study 1.

> S2 was more constant in sensory profile over consumption.

> Profile of S1 was considered less challenging.

> Final decision was based on combining judgment and the attribute build data in the context of the agreed liquid brief and market knowledge.
Overall Conclusions

> Key and consistent changes in sensory delivery indicated best liquids based on internal knowledge of the key liquid performance indicators.

> Biplots can help obtain an overall perspective on changes in each sample over the consumption experience – compliments the simpler line charts.

> Employee panels using product users can provide essential guidance backed by judgement prior to launch or final confirmation testing.

> Leverage team experience to put context on the data – SCG role to ensure objective focus.
Next Steps and Questions

> Build knowledge on how basic tastes and flavour interactions change with ice melt or warming when just chilled.

> Challenge that parity liking on sip testing eliminates non-starters, but does not always provide confidence for the real consumer consumption experience.

> Consumers drink at different rates so how can we better factor this in.

> Could we use JAR shifts as an alternative data collection method?

> How does the approach compare to Dominance of Temporal Sensations with trained panels?