Through a Shopper's Eyes: Understanding and Impacting Consumer Retail Food Safety Perceptions

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Setting the Stage

• Part 1: What do food safety experts see?
  – Photos from grocery stores taken by food safety experts
  – A Shopper’s Eye View of Food Safety at Retail Stores: Lessons from Photographs Taken while Grocery Shopping (FPT; Luchansky et al., 2017)

• Part 2: What do consumers see?
  – Consumer shown expert photos, surveyed
  – Consumer Perceptions of the Safety of Ready-to-Eat Foods in Retail Store Settings (JFP; Levine et al., 2017)

• Part 3: What do consumers show us, and do they change their behavior with more information?
  – Consumers take photos and identify risks through mobile survey, compared to expert assessment
  – Manuscript in draft
Research Questions

- Do consumers see food safety contributing factors when shopping at grocery stores?
- Are the situations seen by participants while shopping the same compared with an expert?
- Will a series of short videos will impact consumers’ abilities to identify food safety contributing factors when shopping at grocery stores?
Design and Methodology

• Recruitment
  – 69 participants recruited using Facebook ads, Craigslist
  – Incentives offered totaling $200 in gift cards

• Data collection
  – 3 grocery stores in Wake County, NC
  – Each participant shopped twice (baseline and post) between Oct-Nov 2017
  – 9 data collection blocks each for baseline and post
  – Participants use iPod Touch with iSurvey app
  – Experimental and control groups
  – Expert standard
Survey

1A. Back Pick 1 Next
In the PRODUCE section, do you see anything that concerns you in terms of food safety?
- Yes
- No

2. Back Photo Next
For each thing or situation that concerns you in the PRODUCE section, please take and describe at least one photo to help us understand what you see (as best you can).
Click the "+" to add and describe a photo. When you are finished adding photos and descriptions, click the ">" to continue.

3. Back Take a Photo Next
Take your photo now by clicking the camera button in the bottom right corner of the screen. To take a photo using the full screen camera, click the expand button in the button left corner of the screen.

4. Back Enter Text Next
For the photo you just took, please describe what concerns you and why.

5. Back Photo Next
For each thing or situation that concerns you in the PRODUCE section, please take and describe at least one photo to help us understand what you see (as best you can).
Click the "+" to add and describe a photo. When you are finished adding photos and descriptions, click the ">" to continue.

6. Back Enter Text Next
Please share any other comments you have about your experiences in the PRODUCE section.

From Consumers to Chefs
FOOD SAFETY EDUCATION MATTERS

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## Videos

<table>
<thead>
<tr>
<th>Department</th>
<th>Length (m:s)</th>
<th>Key Risks Addressed</th>
<th>Messages</th>
</tr>
</thead>
</table>
| Produce          | 1:55         | • Storage area sanitation  
                    • Storage temps*                                                 | • Clean storage areas  
                    • Safe storage temps – cold at \( \leq 41 \text{F} \) |
| Deli             | 2:06         | • Bare hand contact of RTE foods  
                    • Cross contamination- from surfaces, equipment  
                    • Storage temps*                                      | • Employee handwashing  
                    • Use of gloves/utensils  
                    • Food prep on clean surfaces with clean equipment  
                    • Safe storage temps – cold at \( \leq 41 \text{F} \) |
| Meat/poultry     | 2:14         | • Cross contamination- between species  
                    • Personal hygiene  
                    • Package integrity  
                    • Storage temps*                                       | • Employee handwashing  
                    • Employee handwashing/glove change between species  
                    • Safe storage temps – cold at \( \leq 41 \text{F} \) |
| Seafood          | 2:11         | • Bare hand contact of RTE foods  
                    • Separation of raw/RTE  
                    • Overfilled containers  
                    • Storage temps*                                          | • Use of gloves/utensils  
                    • Raw separated from RTE  
                    • Food containers not overfilled or opened  
                    • Safe storage temps – cold at \( \leq 41 \text{F} \) |
| Checkout         | 2:11         | • Bare hand contact of RTE foods  
                    • Separation of raw/RTE  
                    • Cross contamination- raw to RTE                           | • RTE foods in separate bags or containers  
                    • Raw foods in separate bags  
                    • Raw separated from RTE when bagging                      |

*specified for cut leafy greens, cut tomatoes, cut melons, and sprouts in produce video; refrigerated and prepared deli foods in deli video; raw meat and poultry in meat/poultry video; and seafood in seafood video
# Results

Food Safety Contributing Factor Situations Identified Post-Intervention (n=62)

<table>
<thead>
<tr>
<th>Dept.</th>
<th>Expert (n=1)</th>
<th>Experimental (n=28)</th>
<th>Control (n=34)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual (%)</td>
<td>102 (100)</td>
<td>35 (65)</td>
<td>10 (37)</td>
</tr>
<tr>
<td>Perceived (%)</td>
<td>0 (0)</td>
<td>19 (35)</td>
<td>17 (63)</td>
</tr>
<tr>
<td>Total</td>
<td>102</td>
<td>54</td>
<td>27</td>
</tr>
</tbody>
</table>

- Expert identified significantly more actual factors than participants (expert: 11.3 +/- 3.7; experimental: 3.9 +/- 2.8; control: 1.1 +/- 1.3; p<0.01)
- Intervention participants identified significantly more actual factors than control participants post-intervention (experimental: n=35, 65%, 3.9 +/- 2.8; control: n=10, 37%, 1.1 +/- 1.3; p=0.01)
Results

- Significantly more agreement with expert at post-intervention (n=7, 78%) vs. baseline (n=2, 22%) among both groups.

- Intervention participants agreed with expert 12% of the time (n=4) at post-intervention, vs. 13% of control (n=3)

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“I'm sure that I **didn't look to see if raw and cooked seafood was next to each other**. I just kind of walked by and if it all looked clean and didn't smell bad and looked kind of organized, **it never would occur to me that that was a safety hazard**. And I definitely didn't look for temperature things at all. So probably **all my life, I've been shopping and have never looked for temperature gauges**.”

“... now, since watching those videos, **it made me more aware of what I should be doing**”

“I didn’t know what some of the **really scary stuff** was until I watched the video”

“I've already thought about temperature but the way that I thought that I was assessing it the first time there was by **touching things to see if they were cold**. That is obviously not reliable measurement”
Conclusions

• Experts identify more and different food safety risks than consumers
• Videos show promise for improving food safety risk identification in grocery stores
• Mobile devices paired with survey apps can be utilized for citizen science-style data collection in real time
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Questions?

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