Understanding Recycling while Tailgating: Applying an Information-Motives-Behavior Skills Approach

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1. Please contact sfz30@psu.edu with questions.

Rationale

Problem Statement: Most academic studies that examine recycling behavior to date focus on household or curbside behavior. However, the environmental impacts of sporting events require attention due to their unique venue and the particularly large scale of their impact. For example, at Penn State, game and tailgating events produce 50-100 tons of waste each game1, but in 2008 football season, PSU recycled 112 tons of waste2.

Qualitative data3 suggests tailgaters face unique barriers to recycling:
- High positive attitudes
- High misinformation about venue’s infrastructure
- Low access to recycling facilities

Theoretical Background: We selected the IMB model because of its ability to identify possible avenues for behavior change3 and because it has been found to predict recycling behavior4. According to IMB4, behavior patterns are a function of:
- Information
- Motivation
- Behavioral Skills

Research Purpose:
- Identify who among tailgaters is using the provided recycling infrastructure and how much
- Identify psychological factors that predict recycling at tailgates
- Identify possible avenues for future intervention

Method

Participants: 415 tailgates (97%) agreed to be observed and have one member complete our survey, for a total of 2,741 tailgaters observed.

Procedure: Researcher pairs observed behavior (group level) and surveys (individual level). One survey per group recorded.

Observed Measures:
- Use of venue waste infrastructure (visible used and unused venue trash, venue recycling, and waste bags brought from home)
- Estimated group demographics (i.e. no. men, no. women, age, amount team apparel/ décor)

Survey Measures:
- Venue Infrastructure Information (5 items; e.g. “I know where to leave my recycling when I’m done tailgating at Penn State.”), alpha = .76
- Motivation to recycle (3 items; e.g. “Recycling at Penn State tailgates is important to me”), alpha = .68

-Outcomes: “I am currently or plan to recycle at today’s tailgate.”
- Demographics (i.e. PSU alum, frequency of tailgating, home recycling behavior)

References:

Who is most likely to recycle while tailgating?

Analysis (Survey): Regression analyses revealed information, motivation, and behavior skills to be significant predictors of reported recycling behavior at tailgates when controlling for home recycling behavior.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Beta</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>.94</td>
<td>.25</td>
<td>.69</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Motivation</td>
<td>.84</td>
<td>.18</td>
<td>.40</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Beh. Skills</td>
<td>.10</td>
<td>.04</td>
<td>.27</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Follow-up analyses: Because the IMB model was supported in our tailgating sample, we wanted to know who among tailgaters was most likely to report high information, motivation, and behavior skills.

- 3 independent-samples t-tests revealed that alumni were more likely to have higher information and behavior skills, but not motivation to recycle while tailgating.

Conclusions

- Groups of 8+ are more likely to use the venue waste infrastructure than smaller groups, and they use more of it.
- Tailgaters’ information, motivation, and behavioral skills predicted tailgater recycling.
- Future interventions may want to relate tailgate recycling to home recycling.
- Interventions need to be target specific to attend to different audiences’ strengths and use patterns of the venue’s infrastructure (e.g. alumni status, home recycling).
- Future studies should investigate the contribution to venue impact of bringing personal waste bags to tailgate.

Who is using the venue’s infrastructure?

Analysis (Observed): (3 group size: small, med, large) X 2 (psu gear: apparel only, more than apparel) X 3 (bag type: recycling, trash, personal) mixed-model ANOVA with repeated measures on the third variable

- Fewer personal bags observed than PSU recycling or trash bags, F(2, 720) = 11.56, p < .001
- Sites with more gear present were observed using more bags, F(1, 360) = 23.16, p < .001
- A marginally significant interaction between group size and bag type was found, F(4, 720) = 2.15, p = .07.

How much are tailgaters using the venue’s infrastructure?

<table>
<thead>
<tr>
<th>Observed Frequencies:</th>
<th>N</th>
<th>%</th>
<th>Bags Used</th>
<th>Meaning for Env. Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSU trash only</td>
<td>99</td>
<td>23.9</td>
<td>Personal only</td>
<td>Unknown</td>
</tr>
<tr>
<td>PSU recycling only</td>
<td>32</td>
<td>7.7</td>
<td>PSU trash only</td>
<td>Increases venue impact</td>
</tr>
<tr>
<td>No visible bags</td>
<td>69</td>
<td>16.6</td>
<td>No visible bags</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

Analysis (Observed): Correlations of bag-use variables and group demographics

- Pearson’s r correlations of bag-use variables and group demographics
- Multiple regression analyses revealed information, motivation, and behavior skills predicted tailgater recycling, F(5, 68) = 5.198, p < .001

Table 4

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Beta</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
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<td>PSU Gear</td>
<td>.10</td>
<td>.04</td>
<td>.27</td>
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<td>.69</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Regression analyses revealed a similar pattern for tailgating frequency.

Home recycling behavior was a significant predictor of all three constructs

Table 4

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Frequency</th>
<th>Standardized Beta</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>Tg Frq.</td>
<td>.351</td>
<td>.67</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Home Rec</td>
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<td>.45</td>
<td>.69</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Motivation</td>
<td>Tg Frq.</td>
<td>.206</td>
<td>.35</td>
<td>.57</td>
</tr>
<tr>
<td>Beh. Skills</td>
<td>Tg Frq.</td>
<td>.143</td>
<td>.27</td>
<td>.69</td>
</tr>
</tbody>
</table>

Future studies should investigate the contribution to venue impact of bringing personal waste bags to tailgates.