Perception and Processing of Safe Driving Messages: A Multi-Method Approach

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General Approach

- Health beliefs
- Message processing
  - Dual process approach
- Social context
  - Social norms, social influence
- Outcomes
  - Change in attitudes, norms or behavioral intent
- Multiple methodologies
Drinking and Driving Consequences

- Approximately 16,000 deaths per year
- 40 percent of all traffic-related fatalities are alcohol related
- Approximately one death due to an alcohol-related car crash every half-hour
- Drinking and driving crash risk peaks for drivers age 19-22 (Alabama data)

Source: NHTSA, 2005; Alabama CARE data, 2007
Effectiveness of Campaigns

- Elder and colleagues (2004)
- Meta-analysis of 8 studies showing 13% reduction in crashes
- Limitations
  - Correlational nature of the studies
  - Publication bias
  - DV was crash rate
What’s missing

● Need for understanding of effect of messages on:
  – Message processing
  – Reactance
  – Perceived norms
Types of Messages

- Slater (1999)
  - Content analysis of anti drinking and driving ads
- Fear appeals
- Informational/testimonial
- Social modeling
- Empathy
Research Questions

● How are different message types processed by college student recipients?
● Do recipients perceive different message types to be more persuasive?
● Are social norms messages processed emotionally or rationally?
The Present Research

- Informational ads
  - Legal consequences
  - Statistical
- Emotional ads
  - Fear appeal
  - Empathy
- Positive social norm
- Control: Sunscreen
Theoretical Perspectives

- Dual process
- Reactance theory
- Social norms
Dual Processes in Persuasion

- **Central route process**
  - Message scrutiny if recipient is motivated and able

- **Peripheral route process**
  - Cues to message validity are processed quickly and easily if recipient is not motivated and able

(Petty & Cacioppo, 1986; Eagly & Chaiken, 1993; Hale, 2002)
Dual Process Predictions

- Informational messages should generate central thoughts
- Processing of emotional messages is unclear
  - Emotion as goad to process?
  - Emotion as peripheral cue? (Kopfman & Smith, 1998)
- Processing of normative messages is unclear
  - Positive norm portrayals = emotion? (Slater, 1999)
  - Statistics = informative appeal?
Reactance Theory

- Threats to freedom should result in perceptions that the message is biased
  - Law enforcement message
  - Fear appeal
- Message may boomerang
  - (Burgoon and colleagues; Rhodes & Roskos-Ewoldsen, in press)
Social Norms

- Exaggerated social norms for drinking & driving
  - Positive social norms messages should reduce norms (e.g., Rimal & Real, 2005)

- Unintended effects of statistical messages
  - Prevalence messages should exaggerate norms (Cialdini et al., 1991)
Method

- N=286
- 6 messages
- Between subjects design
- Written scripts presented on computer
- Pre and post exposure questionnaires
- Thought listing
Measures

- Thought listing – central, peripheral, emotional
- Perceived bias
- Estimated norms
  - # of times typical student drove after drinking in past month
- Behavioral intention
Findings
Message Processing: Central Thoughts

- Legal: 76%
- Statistics: 78%
- Social Norm: 81%
- Fear: 52%
- Empathy: 49%
- Control: 74%

\[ F(5,262)=9.64, \ p>.001 \]
Message Processing: Emotional Thoughts

- Legal: 1%
- Statistics: 5%
- Social Norm: 0%
- Fear: 15%
- Empathy: 32%
- Control: 0%

$F(5,262)=27.75, \ p>.001$
Perceived Message Bias

Rated on a 7 point scale: -3 = not at all biased to 3 = very biased

$F(5,262)=2.37, \ p>.05$
**Estimated Drinking and Driving Norms**

- **Legal**
  - Before: 8.38
  - After: 14.54

- **Statistics**
  - Before: 8.44
  - After: 7.73

- **Social Norm**
  - Before: 8.52
  - After: 8.23

- **Fear**
  - Before: 12.95
  - After: 12.86

- **Empathy**
  - Before: 9.93
  - After: 11.02

- **Control**
  - Before: 7.52
  - After: 8.09

*Estimated times typical student drove after drinking (past month)*

\[ F(5, 259) = 2.78, \ p > .05 \]
Behavioral Intention: Make Plan in Future to Avoid Driving after Drinking

Rated on a 7 point scale: 1 = not at all likely to 3 = very likely

- Legal: 4
- Statistics: 5.07
- Social Norm: 5.24
- Fear: 4.26
- Empathy: 4.98
- Control: 4.32

\( F(5,262)=2.24, p>.05 \)
Findings: Theoretical Overview

- **Dual Process:**
  - Informative ads centrally processed
  - Norm ad centrally processed
  - Emotional ads not centrally processed
    - Suggests norms as information, emotion as heuristic cue

- **Reactance Theory:**
  - Fear ad seen as biased, empathy ad not biased
  - Informational ads moderately biased

- **Social Norms:**
  - No effect of norms ad on perceived norms
  - Legal ad exaggerated drinking and driving norms
What Messages to Use?

- Legal ad
  - Centrally processed, exaggerated norm, moderately biased, low behavioral intention
- Social norm & statistics
  - Centrally processed, strong behavior intention
  - Social norm ad unbiased
- Fear & Empathy
  - Emotionally processed
  - Fear: highly biased, low behavioral intention
  - Empathy: unbiased, strong behavior intention
- The Winners: Empathy and Social norm
- The Losers: Legal and Fear
Legal Consequences: Further Understanding

- Experiment results:
  - Counter-argued
  - Exaggerated norms
  - Biased
  - Unrelated to behavior intent
- Focus group study – qualitative method
- Examine lived experience of young drivers
  - Experience validity (Petronio, 2007)
Focus Group Method

- 4 groups
  - 2 each established drivers (18-20) and newer drivers (16-17)
- Trained moderator, structured discussion guide
- Thematic analysis of transcripts
- Drinking and driving theme emerged for older but not younger groups
Everybody in this room can name ten people who drink and drive… I definitely had friends that all the time would go out and stay at a bar until three in the morning and then drive back home. Or drive to [neighboring university] for a day and get wasted and drive back.

Male, 18 to 20 year-old group
Three-fourths of the people who have wrecks because they’re driving; they don’t get a DUI or it doesn’t go in as they’re drinking. Most people get away with a wreck or a ticket after they’ve been drinking, even though that’s the cause of it.

*Male, 18 to 20 year-old group*
Disconnect between message and experience

- Alabama: Limited law enforcement resources
- Legal consequences campaign
- Inconsistency => lack of credibility
- Thus, lived experience of target audience is at odds with message claims
  - Perceived as biased and not effective
Empathy Message: Further Understanding

- Processed emotionally
- Unbiased
- Strong behavioral intention
The Role of Affect in Driving

- Focus groups
  - Driving is fun
  - Social support of risky stories through laughter
- Theoretical explanation: Affect heuristic
  - Slovic – link between liking and risk perception
Phone Survey

- Driving behavior questions
  - Acceleration/Braking
  - Speeding
  - Aggressive driving (switching lanes; tailgating)
  - Racing

- Ratings of
  - Frequency
  - Liking
  - Risk
## Sample Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Teen (n=409)</th>
<th>Adult (n=504)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age</td>
<td>17.4</td>
<td>36.5</td>
</tr>
<tr>
<td>% Female</td>
<td>54</td>
<td>65</td>
</tr>
<tr>
<td>% Caucasian</td>
<td>86</td>
<td>79</td>
</tr>
<tr>
<td>% African-American</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>Wrecks in last 3 years</td>
<td>.52</td>
<td>.25</td>
</tr>
</tbody>
</table>
Young vs. Older Drivers

- Young drivers engage in more risky behaviors
- Young drivers perceive behaviors as less risky than older drivers
- Young drivers like risky behaviors more
The Affect Heuristic

- As liking goes up
- Risk perception goes down
- Prediction: negative correlation
### Correlations between ratings of risk and ratings of liking

<table>
<thead>
<tr>
<th>Activity</th>
<th>Teen</th>
<th>Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driving faster than speed limit when it feels safe</td>
<td>-.405</td>
<td>-.286</td>
</tr>
<tr>
<td>Driving while sleepy</td>
<td>-.502</td>
<td>-.253</td>
</tr>
<tr>
<td>Racing with other cars</td>
<td>-.343</td>
<td>-.267</td>
</tr>
<tr>
<td>Driving through a red light</td>
<td>-.326</td>
<td>-.191</td>
</tr>
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Affect Heuristic Implications

- Gives insight into message effects
  - Empathy ads counter positive affect
- New area of inquiry in message effects
Conclusions

- 3 studies, 3 methods with complementary findings
  - Experimental method details process and perception
  - Focus group method enriches understanding of lived experience
  - Survey method for testing generality of findings and establishing correlation among constructs

- Important to examine message processing
- Affect with personal connection – empathy – is promising
Future Directions

- Role of affect in message processing
  - Work with Monahan on anti-smoking messages
  - Extend to driving
- Role of norms in perpetuating risky behavior and how to counter it
  - Foster a “culture of safety” rather than a “culture of speed”? 
  - Change culture around drinking?
- Can legal consequences messages be less reactive?
  - Source?
  - Arguments?
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