Preliminary Results
Diagrammatic Sign Study

Pooled Fund Study Annual Meeting
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Briefing Outline

- Study objectives
- Sign development, examples
- Study protocol
- Findings
- Conclusions and recommendations

Objective

- Determine effectiveness of the Advance Guidance Older Driver Diagrammatic Signs (as recommended in the Older Driver Handbook) in relation to current standards and enhanced signs (wider lanes, arrow heads, and bolder lane lines)

Method

- Sign Design
  - Current Standards
  - Enhanced
  - Older Driver Diagrammatic Signs
METHOD (continued)

- Sign Parameters
  - Left and right exits
  - Single and multiple exits
  - Exit and through maneuvers
  - Option and non-option lanes
  - 3- and 4-lane roadways

SIGN EXAMPLES

- Standard
- Enhanced

SIGN EXAMPLES (continued)

- Modified
- Older Driver
PROCESS

- Signs produced in SignCad
- Characteristics:
  - 16 feet wide, 10 feet high, E-series font, 12 inch text
- Imported from SignCad to PhotoShop to create enhancements, make modifications
- Converted to 35mm slides

STUDY DESIGN

- 48 participants
  - 24 male/24 female
    - Half aged 18-74; half 75 and over
    - Mean age of younger = 33.0; older = 79.3
- Slides presented in random order
- “Zoom” speed set to 55mph

STUDY DESIGN (continued)

- Measures of Effectiveness
  - Correct lane choice (all lanes correct)
  - Decision distance
- Monitored participants to ensure they understood directions and how to respond

PROCEDURE

- Participants viewed signs in the Highway Sign Design and Research Facility (HSDRF)
- Each participant viewed all signs
- Indicated which lanes they could be in to get to destination (when they were 100% sure)
- Took about 20-25 minutes to complete
Procedure

FINDINGS
Decision Distance - Overall

FINDINGS
Decision Distance - Responses

FINDINGS
Decision Distance - Sign Type
FINDINGS
Decision Distance – Exit Direction

FINDINGS
Decision Distance – Number of Exit Lanes

FINDINGS
Decision Distance – Option Lanes

FINDINGS
Decision Distance – Maneuver
FINDINGS
Decision Distance - Conclusions

- Distances very stable over sign types, maneuvers, exit direction, etc.
- Significant difference by age group
- Older driver diagrammatic signs show longer distances than other types

FINDINGS
Percent Correct - Overall

FINDINGS
Percent Correct - Sign Type

FINDINGS
Percent Correct - Exit Direction
FINDINGS
Percent Correct – Conclusions

- Significant difference between older and younger drivers
- Modified (“Exit Only”) and Older Driver signs show higher rates of correct responses
- ‘Through’ maneuver and option lanes decrease older drivers’ correct lane decisions

FINDINGS
Percent Correct – Top and Bottom “Performers”

<table>
<thead>
<tr>
<th></th>
<th>INCORRECT</th>
<th>CORRECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>THROUGH MANEUVER</td>
<td>74%</td>
<td>36%</td>
</tr>
<tr>
<td>OPTION LANES</td>
<td>54%</td>
<td>27%</td>
</tr>
<tr>
<td>MULTIPLE EXIT LANES</td>
<td>63%</td>
<td>27%</td>
</tr>
<tr>
<td>OLDER DRIVER DESIGN</td>
<td>11%</td>
<td>64%</td>
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</tbody>
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RECOMMENDATIONS

- Further research needed
  - Determine if font size and type, in conjunction with lane design, could improve percent correct and decision distance