The Distractibility of Digital Billboards: A Driving Simulator Study

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Acknowledgments

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Use of the Driving Simulator provided by the Roybal Center for Translational Research on Aging and Mobility
Overview

1. Introduction
2. Driving Simulator
3. Billboard Development
4. Measurements
5. Current Status & Expected Contributions
6. Questions?
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Introduction

Digital Advertising Billboards and Driver Distraction

Task 1: Literature Review [UAB]
Task 2: Project Advisory Committee [FIU/UAB]
Task 3: Billboard Location and Crash Data Data Analysis [UAB/FIU]
Task 4: Driver Questionnaire Survey [FIU/UAB]
Task 5: Design of Driving Simulator Experiment [UAB]
Task 6: Driving Simulator Data Collection, Management and Analysis [UAB]
Task 7: Technology Transfer [UAB/FIU]
Task 8: Final Report [UAB/FIU]
Introduction

Digital Advertising Billboards and Driver Distraction

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Are digital billboards distracting?
Static vs. Digital Billboards

- Static Billboards
  - Traditional
  - Fixed Messages

- Digital Billboards
  - Vibrant Color
  - Bright against background
  - LED-screen platform
  - Messages changing suddenly*
Research Question

1. Do digital billboards distract drivers more than static billboards?

2. How does drivers’ age play into the distractibility of digital and static billboards?
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Driving Simulator: STISIM-M500W
Driving Scenario Development

• Simulated Highway Driving Distance: 16-mile
• Billboards interspersed throughout drive
  • Mixture of digital and static billboards
  • Mixture of transition times for digital billboards
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• Alabama Outdoor Advertising Code states:
  • Max size: 48 ft X 14 ft
  • At least 500 ft between billboard structures
  • At least 8 seconds between transition
  • No flashing or moving lights
Billboard Development: External Validity

• Real World Billboards
  • 4 Main Components
    • Large Image
    • Title of Business
    • Slogan/Statement
    • Exit Number
Billboard Development: Internal Validity

- White Background
- Font Size & Style
- Word Limit (7 words)
- 4 advertisement categories:
  1. Food
  2. Services
  3. Products
  4. Destinations

4 advertisement categories:

- Sweet Scoop: A Hill City Tradition!
  Exit 191
- Iowa Realty: Find A Home Today!
  Exit 121
- Sal’s Sofas: A Century Of Quality!
  Exit 106
- Smith’s Caverns: A Journey Through Time!
  Exit 339
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Measurements

- **Independent Variables**
  - Age
    - 20 young drivers (aged 16-19)
    - 20 adults (aged 35-54)
    - 20 older adults (aged 65+)
  - Transition Time
    - 500 ft
    - 200 ft

- **Dependent Variables**
  - Length of Eye Gaze
  - Memory Recall and Recognition of Billboards
  - Driving Performance
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Current Status & Expected Contribution

Current Status:
• Waiting on IRB approval

Expected Contribution:
• Improve Safety
  • Formulate conclusions and recommendations to guide decision making for billboard design
Thank You
Questions?