EVALUATION OF EDUCATION AND OUTREACH METHODS AND STRATEGIES: A CASE STUDY OF A WEB-BASED RAIL SAFETY EDUCATION INITIATIVE

2014 Global Level Crossing Safety and Trespass Prevention Symposium

August 6, 2014
Presentation Agenda

- Objective and Background
- ProDriver Challenge
- Research Methods
- Findings
- Conclusions and Recommendations
Objective and Benefit

- **Objective**
  - Evaluate the impact of a specific highway-rail grade crossing safety education or outreach program

- **Benefit**
  - The information and results from the pilot evaluation can be used to improve the program and future programs, develop a methodology for evaluating rail safety education and outreach programs, and, ultimately, determine the overall effectiveness of education and outreach activities as a safety strategy.
Background

- Project sponsored by U.S. Department of Transportation (DOT) Federal Railroad Administration’s (FRA) Office of Research and Development
- Grade crossing safety improvement is often classified by the three Es: Engineering, Enforcement, and Education.
- Education and outreach programs are becoming a more widespread approach to improving safety at highway-rail grade crossings.
- Evaluation of education and outreach programs for highway-rail grade crossings was identified as a high-priority need at the U.S. DOT FRA Research Needs Workshop on Highway-Rail Grade Crossing Safety and Trespass Prevention in 2003 and 2009
- Operation Lifesaver, Inc. is a national non-profit with a mission “to end collisions, deaths and injuries at highway-rail grade crossing and along railroad rights of way”
ProDriver Challenge

- Program Selection Criteria
  - The program is at the beginning or design phase.
  - The program or evaluation has a duration of 1 year to 18 months.
  - The program targets a focused audience.
  - The program is the primary rail safety or highway-rail grade crossing safety message medium to the audience.

- In early 2011, OLI was implementing a new Web-based training module for professional drivers, Railroad Safety for the Professional Drivers e-Learning Challenge (ProDriver Challenge)
ProDriver Challenge

- Created by OLI and Allen Interactions
- Interactive online training module with a video game style interface
- Simulated environment in which the user is behind the virtual dashboard of a large truck
- Target audience is professional truck drivers
- Driver experiences three trips and encounters various scenarios at highway-rail grade crossings which require critical thinking and quick response

http://oli.org/prodriver/
ProDriver Challenge Logic Model

Inputs  
Outputs
Activities  Participation
Outcomes -- Impact
Short  Medium  Long
Research Methodology

- Literature Review
  - Focus on effectiveness of Web-based trainings

- Data Review
  - FRA Railroad/Accident Incident Reporting System (RAIRS)
  - FMCSA Motor Carrier Management Information System (MCMIS)

- Evaluation of ProDriver Challenge
  - Participant demographics
  - Training completion
  - End of training survey results
Findings – Literature Review

- Computer and Web-based training can result in cost savings due to reduced travel, space, instructor and material costs

- Web-based training courses:
  - Provide increased accessibility for students
  - Present a consistent message
  - Give students control of what and how long they need to study the subject matter

- Limitations of a computer or Web-based module:
  - Unreliable technology can lead to frustration or missed opportunities
  - Lacks immediate feedback and interaction with an instructor
Findings – FRA RAIRS Data

Rate per billion miles travelled

- Commercial Vehicle Incident Rate
- Non Commercial Vehicle Incident Rate
- All Motor Vehicle Incident Rate
Findings – FRA RAIRS Data

- Texas (316), Louisiana (134), Georgia (128), Illinois (114), and California (114) had the highest number of grade crossing incidents involving commercial motor vehicles over the 5 years.
Findings – FMCSA MCMIS Data

- Title 49 Code of Federal Regulations (CFR) 392.10 requires the driver of specified commercial motor vehicles to stop at a grade crossing and look in both directions for an approaching train before crossing the railroad tracks
  - 392.10A1 -- Failing to stop at railroad grade (RR) crossing-bus
  - 392.10A2 -- Failing to stop at RR crossing-chlorine
  - 392.10A3 -- Failing to stop at RR crossing-placard
  - 392.10A4 -- Failing to stop at RR crossing-HM cargo
Texas (316), Florida (198), and Washington (190) had the highest number of citations issued for grade crossing violations from 2008-2012.
Findings – ProDriver Evaluation

- OLI provided data on training participants from June 2011 to February 2013, 11,469 participants

- Survey to start training
  - Are you a CDL truck driver?
  - What is your age range?
  - What is your home zip code?
  - How did you find out about the Railroad Safety for Professional Drivers e-Learning tool?

- CDL Truck Drivers
  - 41% of respondents identified themselves as CDL truck drivers
Findings – ProDriver Evaluation

- **Participant Age**
  - The age range from 41 to 50 years old had the most overall participants at 26.7 percent (3,063), as well as the most commercial driver participants at 29.5 percent (1,388)

- **Participant Locale**
  - Florida (749), California (732), Texas (685), Pennsylvania (561), and Minnesota (486) had the highest number of trainees

- **ProDriver Publicity**
  - Selected from a dropdown list that included Operation Lifesaver Website or Contact, Work or Company Suggested, Friend or Word of Mouth, Web Advertisement, Print Advertisement, Other or Blank
  - Most participants indicated that they found out about the training through Other
Findings – ProDriver Evaluation

The chart illustrates the number of e-learning participants over time, categorized by CDL, Non-CDL, and Total, with specific markers indicating significant events such as the USA Today Article, Davey Gold Award, and Brandon Hall Award.

- **CDL**
- **Non-CDL**
- **Total**
- **USA Today Article**
- **Davey Gold Award**
- **Brandon Hall Award**
Findings – ProDriver Evaluation

- Participants who identified themselves as a CDL driver were more likely to complete the training than non-CDL drivers.
- Significantly more younger CDL drivers (18-40 years old) completed the training than older CDL drivers (over 60 years old).
Findings – ProDriver Evaluation

- Post Training Survey (respond Strongly Agree, Agree or Strongly Disagree)
  - After completing this program, I now have a better understanding of safe operation at highway-rail grade crossings.
  - The words used to describe the e-learning trips were ones familiar to professional truck drivers.
  - Overall, I am very satisfied with the Operation Lifesaver e-learning program and would recommend it to other professional truck drivers.

- Out of a possible 11,469 trainees that accessed the ProDriver Challenge, only 394, or 3.4 percent, participated in the post training survey

- Of the 394 trainees that participated in the survey, 57.9 percent of the trainees identified themselves as CDL drivers
Findings – ProDriver Evaluation

- Focused only on CDL truck driver responses
- Better understanding of safe operation at highway-rail grade crossings
  - 61.8 percent strongly agreed, 36.0 percent agreed, and 2.2 percent strongly disagreed with the statement
- Words used in training were familiar
  - 60.5 percent strongly agreed, 37.7 percent agreed, and 1.8 percent strongly disagreed with the statement
- Satisfied with ProDriver Challenge
  - 67.5 percent of CDL drivers strongly agreed, 30.3 percent agreed, and 2.2 percent strongly disagreed with the statement
Conclusions

- Commercial truck drivers is a fitting population to target for enhancing safety
- ProDriver Challenge is an opportunity to reach drivers that might not otherwise have access to OLI training
- Low-cost and consistent method of supplementing the rail safety education program for professional drivers
- ProDriver Challenge is reaching its intended audience:
  - Three of the top five home states of training participants were also the states that had the most CDL related collisions or violations at highway-rail grade crossings
  - Almost half of all training participants identified themselves as CDL drivers
  - CDL drivers were more likely to complete one or more of the trips within the training
  - Younger CDL drivers more often completed the entire training module, suggesting that this program may be more suited to those familiar with technology and video games
- Over 95% of users who took the post-training survey indicated that they had a better understanding of crossing safety, understood the message, and were satisfied with the training
Recommendations

- Incorporating a text field if the user selects Other will to capture what means of communication led them to the training; OLI can take advantage of opportunities to spread the word
- An investigation into why users are not completing the full training may result in program improvement and a better user experience
- A formal study with a fixed population should be conducted to determine program effectiveness
Thank you!

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