

JOINT TRANSPORTATION RESEARCH PROGRAM

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Design of Educational Material and Public Awareness Campaigns for Improving Work Zone Driver Safety

Introduction

Four out of five fatalities in work zone crashes across the nation involve drivers and passenger instead of highway workers. The most common type of work zone crash, fatal or not, is a rear-end crash in the work zone's advance warning area. This project aims to help improve work zone driver safety in Indiana through driver education and public awareness campaigns. The project focused on the following two specific objectives.

1. Design a public awareness campaign to increase drivers' knowledge and influence positive attitudes about work zone driver safety practices.
2. Prepare educational materials to incorporate into drivers' education or training curriculum prior to taking driving test and getting a driver's license issued.

The campaign was informed by formative research and conducted using a survey to assess public knowledge and attitudes. Based on these results, campaign messages were designed. The effectiveness of the campaign messages was tested through an online survey. The team also designed an education curriculum, which consists of three modules and fourteen knowledge questions.

Findings

- There is a consensus in the literature that rear-end crashes are the most frequent collisions in work zones. The main contributing factors related to work zone crashes are careless driving and

speeding. Heavy vehicles are found to be associated with higher work zone crash risk.

- Drivers manuals follow various organization styles, tones, and persuasive tactics in the wcontext of how they present work zone-related information. While Indiana's manual includes work zone-related information, the team recommends adding more work zone-related material. Both commercial drivers and motorcycle operator's manuals lack important information regarding work zones. More driver tactics and guidelines need to be incorporated into these manuals.
- Insights from crash data uncovered important trends. Most drivers that are involved in work zone-related crashes are males. The majority of work zone crashes happen on interstates and urban locales. Collisions involving commercial vehicles are found to be more fatal than those involving private vehicles. Lane change and work on shoulders are the most safety-concerning construction types.
- The survey results indicate that participants from both the Indiana residents and college student samples perceived all the 15 campaign messages to be effective in encouraging safe driving behaviors in Indiana work zones. Specifically, five of the campaign messages (i.e., TFA1, DSC1, SSN3, DFA1, and SSN2) received the highest favorable mean scores from both samples.
- Participants stated that the recommended safe driving behaviors would be effective in preventing crashes.

- Participants from both samples would prefer to receive and read work zone safety campaign messages on billboards, portable changeable message signs, Instagram, Facebook, INDOT's website, and at rest areas.
- Participants suggested that more images should be incorporated into the education curriculum for better content engagement, more content clarity, and easier content recall and understanding.
- Participants suggested that shorter sentences should be used in the education curriculum for easier information retention and recall.
- Participants suggested that key points in the education curriculum should be highlighted for greater emphasis and easier information recall.

Implementation

There are several factors to be considered before implementing a public awareness campaign. First, we recommended that INDOT identify the locations of projects scheduled between August 2022 and July 2023 and identify roadways in Indiana with a history of work zone crashes. Next, we recommended that the media consumption habits of drivers on these roadways and the cost and budget for all campaign activities be considered. It is advisable that INDOT identify other organizations and agencies who may have roles to play in the campaign implementation and coordinate with them. We also suggest that INDOT consider who will produce the campaign messages and the amount of time they may need to complete message production. Finally, it is recommended that the campaign be implemented in two phases. Phase 1 (pilot) should be run at one of the identified locations (work zone crash high risk locations) to test effectiveness. Phase 2 (targeting all

the locations) should be implemented. It is recommended that process and outcome evaluations be carried out to determine how the campaign is to specifically be implemented and whether the campaign has achieved its particular objectives.

The team recommends that INDOT also work with driving schools and instructors to incorporate new material related to work zone safety in drivers' educational curricula. The team recommends that more images should be used in both driver's manual and education curriculum to explain some safety signs and how to merge in work zones. This would help drivers to better visualize and understand merging in work zones. The team also recommends that the driver's manual and this education curriculum contain short sentences to encourage easier information retention and recall. The team recommends that key points in both the driver's manual and education curricula should be highlighted for greater emphasis and easier information recall.

Recommended Citation for Report

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