An investigation of visual cues to improve driver safety in changing lanes

Introduction

Many young participants drove on a set of four simulated straight sections of rural highway, which were each approximately six miles in length. Participants drove on one side of a four-lane roadway while they passed clusters of vehicles in the right lane. A CAS was included in a heads-up display and was used as an aid in merging maneuvers (Figs. 1 & 2). Participants were asked to select when it was safe to merge in either lane.

Methods

Participants were tested on their ability to select when it was safe to merge in either lane.

Results

There were no significant differences in half of the questions on the questionnaire. Questions specific to timing, cue position, and safety still showed no significant participant preference. The CAS was used as an aid in merging maneuvers (Figs. 1 & 2). Participants were asked to select when it was safe to merge in either lane.

Conclusions

There were only significant differences in half of the questions on the questionnaire. Questions specific to timing, cue position, and safety still showed no significant participant preference. The CAS was used as an aid in merging maneuvers (Figs. 1 & 2). Participants were asked to select when it was safe to merge in either lane.

Figure 1. Cue Type 1 (Squares)

Figure 2. Cue Type 2 (Radar)

Figure 3. Proposed dynamic radar cues mapped to:
- 3 second headway
- 2 second headway
- 1 second headway

Figure 4. Tonomere length vs. age

Figure 5. Tonomere length vs. age

Hypotheses and Predicted Results

1. There is a correlation between cellular senescence and SOP impairment? We expect that these two measures will be related.

2. Evaluate the relationship between age, biological factors (e.g., telomere length), and SOP impairment? We expect that these two measures will be related.

3. Is there a correlation between cellular senescence and SOP impairment? We expect that these two measures will be related.

4. Evaluate the relationship between age, biological factors (e.g., telomere length), and SOP impairment? We expect that these two measures will be related.

5. Evaluate the relationship between age, biological factors (e.g., telomere length), and SOP impairment? We expect that these two measures will be related.

6. Evaluate the relationship between age, biological factors (e.g., telomere length), and SOP impairment? We expect that these two measures will be related.

Design

Conclusions will be presented as used and tested. The study will involve the presentation of a visual graphic mapped into patterns of traffic density and proximity to assist driving merging maneuvers (Fig. 1). Participants will be asked to select when it was safe to merge in either lane.

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