

D. Boyland

CRJS 4312

Professor Penley

November 25, 2008

Research Report: Effects of Driving While on the Cell Phone

Introductory Statement

There has been a lot of discussion about the effects of driving while on the telephone. Does driving while talking on the cell phone effect the response time of the driver? Do we need to enact laws prohibiting drivers from talking on the cellular phone while driving, especially in school zones? Questions like these have raised the researcher's interest on the subject of the effects of driving while using a hand held device. Each day the researcher noticed that traffic would come to a halt due to some driver using a hand held device in rush hour traffic. But what are the real effects, if any.

Statement of the Problem

The problem of this study is to examine the differences in a driver's response time when using a handheld device while driving and not using a handheld device while driving in metropolitan areas.

Purpose of the Study

The purpose of this study is:

1. To determine that a relationship exist between driver's response time when using a handheld device while driving and not using a handheld device.

2. To discover if driving using a handheld device on freeways and highways will cause drivers to drive at least ten miles slower than the posted speed limit on freeways and highways.

3. To determine if driving using a handheld device on local streets will cause drivers to drive at least five miles slower than the posted speed limit in residential areas.

Significance of the Study

This study has significance because it will determine if driving while using a handheld device poses a threat to society. The study of the findings will provide information that will cause drivers to reconsider driving while using a handheld device, because the driver's impaired response time poses a safety hazard to society.

The Hypothesis

The hypothesis of this study is that there are drivers who use a handheld device while driving in metropolitan traffic that will cause them to drive at least ten miles slower than the posted speed limit on freeways and highways and at least five miles slower than the posted speed limit on local streets.

METHOD

Population

The target population considered for this study consists of drivers who drive within Irving, Arlington, and Grand Prairie who drive on freeways/highways and who drive on local streets.

Sampling

The sample will contain a total of thirty-two subjects; sixteen drivers without handheld devices and sixteen with drivers with handheld devices; each group will have eight who drive on

freeways and highways and eight who drive on local streets. The researcher will take the professor's advice and use convenience sampling.

Instrument

The instrument used for this study will be observation with a spreadsheet for recording the data.

Limitations

The limitation of this study is that the researcher may be unaware of other factors affecting a drivers response time besides driving with a handheld device.

Assumptions

The assumptions made in this study are that factors, such as, gender, age, time of observation, and other unknown factors will not effect the analysis of variance in the variables of the study.

Design

The design of this research is correlational research. The researcher is evaluating the relationship between drivers using handheld devices and the effects on their response time to following speed limits while using a handheld device.

Procedure for Collecting Data

The procedure used in collecting data was:

1. Develop a spreadsheet with the heading *Study: Driving with Handheld Devices* to track observations results of the study on two worksheets.

2. In the first worksheet, create six columns on the spreadsheet labels as follows in horizontal order: *Subject number (#), Drivers with Handheld Devices, MPH Freeways and Highways, Posted Speed FW & HW, MPH Local Streets, and Posted Speed LS.*
3. On the second worksheet, create six columns on the spreadsheet labels as follows in horizontal order: *Subject number (#), Drivers without Handheld Devices, MPH Freeways and Highways, Posted Speed FW & HW, MPH Local Streets, and Posted Speed LS.*
4. Clearly mark eight rows on the first worksheet for drivers on Freeways and Highways on the first worksheet and eight rows for drivers on Local Streets.
5. Clearly mark eight rows on second worksheet for drivers on Freeways and Highways on the first worksheet and eight rows for drivers on Local Streets.
6. Print both worksheets out; tape them together so that each can be easily accessed during observation.
7. Begin driving from Irving, Texas to Arlington, Texas during morning rush hour traffic both on local streets and freeways and highways and observe the driving patterns of drivers. Begin driving during lunch rush hour around Arlington, Texas and observe the driving patterns of drivers both on local streets and freeways and highways. During evening rush hour drive from Arlington, Texas to Dallas, Texas both on local streets and freeways and highways and observe the driving patterns of drivers. After evening rush hour traffic, begin driving from Dallas, Texas to Irving, Texas both on local streets and freeways and highways and observe the driving patterns of drivers. *Note: All observations will be conducted through convenience sampling.*
8. While driving behind drivers on local streets and/or freeways and highways note the researcher's speedometer to determine the driving speed of the driver in front of the

researcher's vehicle and record the data. **Be sure to note if the driver is driving with or without a handheld device by recording the data in the appropriated worksheet** (*first worksheet for with a handheld device or second worksheet for without a handheld device*), **on the pre-selected row for drivers on local streets or drivers on freeways and highways.**

9. Once the researcher has collected a total of sixty observation results as outlined in the sampling section of this report, the researcher should review the data prior to analysis. In reviewing the data, the researcher should average the MPH Freeways and Highways speeds and the MPH Local Streets speeds for both subject groups.

10. Analyze the observation data and submit a research report.

Analysis

The data collected was analyzed by taking the average speed of drivers with handheld devices on freeways and highways; drivers with handheld devices on local streets; drivers without handheld devices on freeways and highways; and drivers without handheld devices on local streets. The averages for each variable was then compared to the average posted speed of drivers with handheld devices on freeways and highways; drivers with handheld devices on local streets; drivers without handheld devices on freeways and highways; and drivers with handheld devices on local streets.

The data collected was used to test the hypothesis. The null hypothesis of this study is that there are drivers who use a handheld device while driving in metropolitan traffic that will not cause them to drive at least ten miles slower than the posted speed limit on freeways and highways and at least five miles slower than the posted speed limit on local streets. Due to time constraints the researcher did have to reduce her sample from a total of sixty subjects to a total

of thirty-two subjects; from thirty drivers without handheld devices to sixteen drivers without handheld devices and from thirty with drivers with handheld devices to sixteen drivers with handheld devices; each group's data analysis will include a total of sixteen drivers who drive on freeways and highways and a total of sixteen drivers who drive on local streets. The researcher also had to modify the research report to include an assumption section and a limitation section that allows for the unforeseen assumptions and one limitation that exist with the study.

By analyzing the data with the criteria mentioned above, it was revealed that the average speed for drivers who drive with handheld devices on freeways and highways was at least ten miles slower than the posted speed limit. It was also revealed that drivers who drive without handheld devices on local streets also had an average speed of at least six miles per hour slower than the posted speed limit. The average posted speed limit for drivers who drove with handheld devices on freeways and highways was 50 mph and the average posted speed limit was 60 mph. The average posted speed limit for drivers who drove with handheld devices on local streets was 28 mph (rounded up to the nearest ones position) and the average posted speed limit was 34 mph (rounded up to the nearest ones position). Based on the information received, the researcher must reject the null hypothesis and conclude that drivers who drive with handheld devices on freeways and highways will cause them to drive at least ten miles slower than the posted speed limit on freeways and highways and at least five miles slower than the posted speed limit on local streets.

Upon further analysis of the data, it was observed that drivers who did not use a handheld device while driving drove an average 67 mph on freeways and highways with an average posted speed limit of 60 mph and an average speed of 37 mph on local streets with an average

posted speed limit of 34 mph. Based on this observation it would appear that the impact to driving with a handheld devices has a much greater impact than the research first thought.

Other things to consider included that the researcher observed how factors not previously considered in the research proposal, such as, gender, age, and time of observation affected the analysis of variance in the variables of the study. Without regards to the variable “of a handheld device while driving” men on average drove faster than women while younger drivers regardless of gender drove almost twice as fast as their elder counterparts. The researcher also observed that the greater variance in the variables of the study occurred during morning or evening rush hour when drivers would be driving to and from work, home, or school as a whole. More research is needed to encompass the other factors that may affect a driver regardless of having a handheld device. This will allow for more of a scientific measurement of the affects of driving with a handheld device and the real impairment it places on society as a whole.

© EYHCS 2014

Appendix

[Study-Completed.xls](#)

©EYHCS 2014