

Front Cover



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INTERACTIVE DRIVING SYSTEMS

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Florida Safety



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necessary stopping time and distance. The primary goal of the process was for students to gain experience in understanding the minimum space and time needed to make a controlled stop once a hazard is identified. A secondary outcome was for students to make logical connections concerning following distance. The two students in the driver education course also completed a video and photo gallery of the class and explained the equations used by the officers for collision reports.

Future Growth

While the fall of 2005 was the pilot run for this interdisciplinary lesson, both teachers are currently working to improve the experience and are continuing to promote the idea of using science to explain both driving actions and precautions.

Changes under consideration:

1. Increased student control of the experience to encourage the scientific process and ownership of the data (e.g. direct measurements of the skid marks by the students)
2. Using a variety of vehicles would improve the application of the material to the real world as students drive a wide variety of cars.
3. Reserving enough time to complete multiple runs with a variety of cars and drivers.
4. Using the skid-car to:
 - o evaluate kinetics of skid at low velocity,
 - o proper steering techniques,
 - o use of targeting
 - o reference points and transition pegs
5. Using the impairment vision goggles to relate drowsy drivers or driving under the influence
6. Using frictional coefficients of different road surfaces.
7. The use of kinetics equations and police data from actual crash scenes would make an even stronger connection between the applications of physics and the understanding of why and what causes the loss of vehicle control on our roadways

To receive an electronic copy of the data/lab forms used contact Barbara Brody via e-mail at: xxxx

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publications. These databases are continually increasing access to include the articles in full-text and with images. It is the professional responsibility of scholars to know where their scholarly resources are located either via fee based databases or through professional organizations as part of membership fees.

The fifth consideration in any form of communication is the creator's bias. With the recognition that every format of media will contain some bias, there are certainly a few ways to ascertain it. First, does the creator of the web site clearly identify who it is, what is its mission, and does it provide contact information? Most credible web sites will have an "about us" section on their site that will give the above information. A second way to evaluate for bias is by looking at the language and/or images on the site. Finally, by comparing the web site to other sources, both print and electronic, can a bias be detected?

The final point of consideration is good design and ease of use of the site. Although this would seem fairly apparent and logical, there are sites that have good information but which have been so poorly arranged that it becomes a nightmare to try to locate the information. If one is positive that the information is not contained in any another source, only then will an individual waste their valuable time trying to navigate through a poorly designed site.

As well as the above six points of consideration while searching the Internet, several insights should be noted when working with the Internet tools considered search engines. First, it is important to realize that no search engine contains everything on the Internet. Second, it is important to take some up front time to learn how to use several search engines efficiently and effectively. Learned Internet users will take time to understand the variety of ways to focus their search. To do this, users must look for and go through the section provided by the search engine's creators to inform users of various

search methods. These sections are often labeled "advanced search", "tips" or "help". Taking the time to read this information on how a search engine performs a search and the techniques for searching effectively allows scholars more time to critically evaluate the information that their more refined search produces rather than wading through an enormous amount of worthless sites. Since no search engine is totally complete, it is also worthwhile to choose two or three search engines to thoroughly comprehend their searching methods in order to allow for better results.

As professionals in our discipline, it is obligatory that we realize that it is necessary to use the Internet as part of our professional responsibilities; that we share its value and teach how to use it wisely to both our (perhaps reluctant) colleagues and to our students for whom it will be a requirement in their professional lives.

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The effects of coffee and napping on nighttime highway driving: a randomized trial.

Philip P, Taillard J, Moore N, Delord S, Valtat C, Sagaspe P, Bioulac B. Ann Intern Med 2006; 144(11): 785-91.

Centre Hospitalier Universitaire de Bordeaux and Université Victor Segalen, Bordeaux, France.

pierrephilip@compuserve.com

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BACKGROUND: Sleep-related accidents often involve healthy young persons who are driving at night. Coffee and napping restore alertness, but no study has compared their effects on real nighttime driving performances. **OBJECTIVE:** To test the effects of 125 mL of coffee (half a cup) containing 200 mg of caffeine, placebo (decaffeinated coffee containing 15 mg of caffeine), or a 30-minute nap (at 1:00 a.m.) in a car on nighttime driving performance. **DESIGN:** Double-blind, randomized, crossover study. **SETTING:** Sleep laboratory and open highway. **PARTICIPANTS:** 12 young men (mean age, 21.3 years [SD, 1.8]). **MEASUREMENTS:** Self-rated fatigue and sleepiness, inappropriate line crossings from video recordings during highway driving, and polysomnographic recordings during the nap and subsequent sleep. **INTERVENTION:** Participants drove 200 km (125 miles) between 6:00 p.m. and 7:30 p.m. (daytime reference condition) or between 2:00 a.m. and 3:30 a.m. (coffee, decaffeinated coffee, or nap condition). After intervention, participants returned to the laboratory to sleep. **RESULTS:** Nighttime driving performance was similar to daytime performance (0 to 1 line crossing) for 75% of participants after coffee (0 or 1 line crossing), for 66% after the nap ($P = 0.66$ vs. coffee), and for only 13% after placebo ($P = 0.041$ vs. nap; $P = 0.014$ vs. coffee). The incidence rate ratios for having a line crossing after placebo were 3.7 (95% CI, 1.2 to 11.0; $P = 0.001$) compared with coffee and 2.9 (CI, 1.7 to 5.1; $P = 0.021$) compared with nap. A statistically significant interindividual variability was observed in response to sleep deprivation and countermeasures. Sleep latencies and efficiency during sleep after nighttime driving were similar in the 3 conditions. **LIMITATIONS:** Only 1 dose of coffee and 1 nap duration were tested. Effects may differ in other patient or age groups. **CONCLUSIONS:** Drinking coffee or napping at night statistically significantly reduces driving impairment without altering subsequent sleep.

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Parent involvement in novice teen driving: a review of the literature.

Simons-Morton B, Ouimet MC. *Inj Prev* 2006; 12(Suppl 1): i30-i37.

National Institute of Child Health and Human Development, Bethesda, MD, USA.

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Motor vehicle crashes remain elevated among novice teen drivers for at least several years after licensure. Licensing policies and driver education are the two primary countermeasures employed to decrease young driver crash risks. Graduated driver licensing policies have proved to be effective in reducing crash rates where evaluated. Driver education is an essential part of teaching teens the rules of the road and operating a vehicle, but requires few hours of professional driver training, relying mainly on parents to provide most of the supervised practice driving teens obtain before independent driving licensure. The few studies that have been conducted to increase parent supervised practice driving have not shown positive results. Moreover, it is unclear that increases in practice would improve independent driving safety. Recent research has shown that parent management of the early independent driving experience of novice teens improves safety outcomes, and other research has shown that it is possible to increase parent management practices. This paper provides a review of the literature on parent involvement in supervised practice and independent driving, and efforts to increase parental management.

Can novice drivers be trained to scan for information that will reduce their crash likelihood?

Fisher DL, Pollatsek AP, Pradhan A. *Inj Prev* 2006; 12(Suppl 1): i25-i29.

Department of Mechanical and Industrial Engineering, University of Massachusetts, Amherst, MA, USA.

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Sixteen year old drivers are involved in 10.3 fatal crashes per 100 million vehicle miles, a rate almost double that of 18 year olds and almost eight times that of 45-64 year olds, who are the safest group of drivers. Crash rates are particularly higher during the first month of licensure and decline rapidly for about six months and 1000 miles and then much more slowly for at least two years, consistent with a typical learning curve. Research indicates that drivers who have their learner's permit or are just newly licensed have particular difficulties identifying areas of a scenario from which hidden risks could emerge. Standard driver education programs do not appear to address these difficulties adequately. This suggests that some alternative form of driver training could reduce the crashes, either in the classroom or on the road. A PC based program designed to teach drivers to recognize risks early on is shown to improve their awareness of hazards, both on an advanced driving simulator and on the road.

A conceptual framework for reducing risky teen driving behaviors among minority youth.

Juarez P, Schlundt DG, Goldzweig I, Stinson N. *Inj Prev* 2006; 12(Suppl 1): i49-i55.

National Center for Optimal Health, Meharry Medical College, Nashville, TN, USA.

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Teenage drivers, especially males, have higher rates of motor vehicle crashes and engage in riskier driving behavior than adults. Motor vehicle deaths disproportionately impact youth from poor and minority communities and in many communities there are higher rates of risky behaviors among minority youth. In this paper, the authors review the data on teens, risky driving behaviors, and morbidity and mortality. They identify areas in which known disparities exist, and examine strategies for changing teen driving behavior, identifying what has worked for improving the use of seat belts and for reducing other risky behaviors. A multifaceted, multilevel model based on ecological theory is proposed for understanding how teens make choices about driving behaviors, and to understand the array of factors that can influence these choices. The model is used to create recommendations for comprehensive intervention strategies that can be used in minority communities to reduce disparities in risk behaviors, injury, disability, and death.

Influences on youthful driving behavior and their potential for guiding interventions to reduce crashes.

Shope JT. *Inj Prev* 2006; 12(Suppl 1): i9-i14.

University of Michigan, Transportation Research Institute and School of Public Health,
Ann Arbor, Michigan, USA. (jshope@umich.edu) (Copyright © 2006, BMJ Publishing Group)

This paper presents an organized, comprehensive view of the factors known to influence young drivers' behavior and how those factors might inform interventions to reduce crashes. This effort was done from the perspective of a public health professional, with a background in health behavior and health education, interested in preventing injury and death among young people from motor vehicle crashes. The author's own studies, selected relevant literature, observation, and experience were considered and organized. A framework of six categories of influences on youthful driving behavior was developed, including the following elements: driving ability, developmental factors, personality factors, demographics, the perceived environment, and the driving environment. It is apparent that a complex set of many different factors influences young drivers' behavior. To reduce crashes, comprehensive, multilevel interventions are needed that target those factors in the framework that are amenable to change.



The safety implications of vehicle seat adjustments.

Hill JD, Boyle LN. J Saf Res 2006 [ePub (volume, issue, and page range not yet available)]

Department of Mechanical and Industrial Engineering, and Public Policy Center, The University of Iowa

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INTRODUCTION: The goal of this study was to gather information on the preferred front seat position of vehicle occupants and to determine the impact of variation in seat position on safety during crashes. **METHOD:** The study evaluated the relationship between seat position and occupant size using the chi-square test and compared the risk of severe injury for small females and large males with regard to forward and rearward seat position using logistic regression. **RESULTS:** While smaller drivers sat closer to the steering wheel than larger drivers, front passengers of all sizes used similar seat positions. Additionally, the risk of injury was higher for small, unbelted females in rearward seat positions and large males (belted and unbelted) in forward seat positions. **CONCLUSIONS:** Occupants who adjust their seats to positions that are not consistent with required federal tests are at a greater risk for severe injury in a crash.

Cannabis and road crashes: a survey of recent French studies.

Mura P, Brunet B, Favreau F, Hauet T. Ann Pharm Fr 2006; 64(3): 192-6.

(Copyright © 2006, Masson)

The clarification of the mechanisms of action of cannabis and its effects on motor and cognitive functions, the results of previous studies performed on driving simulators and closed or open-road driving trials, are important criteria for highlighting the increased risk of road crashes for drivers after a recent use of cannabis. In addition epidemiological studies allow to measure the magnitude of the problem. A survey of French epidemiological studies performed from 1999 to 2004, as well as the data of THC distribution in tissues studies performed on man and animal allowed us to draw a number of conclusions. The risk of road crash after a recent use of cannabis is increased by more than 2.4 in all studies. The prevalence of cannabis use in drivers involved in a road crash has dramatically increased during the last years. For methodological reasons (a too high threshold for THC positivity, a too long time delay between accident and blood sampling), the annual number of fatal cases induced by a cannabis use was likely underestimated. This assessment is consistent with recent data which indicate that THC could be still present in brain while absent in blood. A positivity threshold for THC in blood of 0.5 ng/mL would be more appropriated. So, all recent French studies highlighted that a recent use of cannabis impairs driving ability and that it would be advisable to intensify roadside testing for drugs of abuse.

Impaired Driving in Adults With Attention-Deficit/Hyperactivity Disorder: A Controlled Study.

Fried R, Petty CR, Surman CB, Reimer B, Aleardi M, Martin JM, Coughlin JF, Biederman J. J Clin Psychiatry 2006; 67(4): 567-574.

OBJECTIVE: We sought to confirm previously documented findings that individuals with attention-deficit/hyperactivity disorder (ADHD) demonstrate impaired driving behavior when compared with controls. **METHOD:** Subjects were adults with (N = 26) and without (N = 23) DSM-IV ADHD ascertained through clinical referrals to an adult ADHD program and through advertisements in the local media. Driving behavior was assessed using the Manchester Driving Behavior Questionnaire (DBQ) and 10 questions from a driving history questionnaire. Neuropsychological testing and structured interviews were also administered to all subjects. **RESULTS:** Substantially more ADHD subjects had been in an accident on the highway (35% vs. 9%, $p = .03$) or had been rear-ended (50% vs. 17%, $p = .02$) compared with controls. Analysis of the DBQ findings showed that ADHD subjects had significantly higher mean \pm SD scores than control subjects on the total DBQ (34.1 \pm 15.2 vs. 18.0 \pm 8.6, $p < .001$) and in all 3 subscales of the DBQ: errors (9.3 \pm 5.4 vs. 4.6 \pm 3.5, $p < .001$), lapses (12.4 \pm 6.2 vs. 6.1 \pm 3.5, $p < .001$), and violations (12.4 \pm 5.2 vs. 7.4 \pm 4.1, $p < .001$). Using the score that separated ADHD from control drivers on the DBQ as a cutoff, ADHD drivers at high risk for poor driving outcomes had more severe rates of comorbidity and exhibited more impaired scores on neuropsychological testing. **CONCLUSIONS:** Our results confirm and extend previous work documenting impaired driving behavior in subjects with ADHD. Results also suggest that ADHD individuals at high risk for poor driving behavior might be distinguishable from other ADHD individuals on DBQ scores.

Youthfulness, inexperience, & sleep loss: problems young drivers face & those they pose

Groeger JA. Inj Prev 2006; 12(Suppl 1): i19-i24.

Department of Psychology & Surrey Sleep Research Centre, University of Surrey, Guildford, UK;
j.groeger@surrey.ac.uk (Copyright © 2006, BMJ Publishing Group)

Young inexperienced drivers are more likely to be involved in road traffic crashes than drivers who are older and more experienced. This paper argues that neither age nor inexperience are, in and of themselves, sufficient explanations of the association between age, experience, and casualty rates. The aim here is to consider what it is about inexperienced young drivers in particular that may increase crash risk. Evidence is reviewed showing differential sleep loss among different teenage groups, which may relate to recently presented evidence that young teenagers are more crash involved than drivers in their early twenties. Potential acute and chronic effects of sleep loss among teenagers and young adults are described.



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driver inattention are distracting activities, such as cell phone use, and drowsiness.”⁸ The report was groundbreaking because it followed 241 drivers of 100 vehicles equipped with video and eye sensor equipment for a year. This study encompassed over 2 million actual vehicle miles and over 42 thousand hours of data. Furthermore, drivers who practice distracting activities are more likely to be involved in accidents related to inattention.

Finally, teens are less likely to wear seat belts when driving with other teens.⁹ Combining inattention, distraction, and lack of safety belts increase the risk of crashes and the seriousness of crashes when they occur.

When do teens become safer driving with passengers?

According to Ulmer et al 1997, 16 year old drivers are the most likely teen drivers to have a fatal crash with only teenage passengers (54%). Teens aged 17, 18, and 19 had a diminishing level of teen passenger only fatalities with 44%, 36%, and 25% respectively.⁷ However, they were less likely to be traveling alone in a fatal crash than were 17-19 year old drivers. Both of these statistical patterns were true for nonfatal crashes as well. As inexperienced drivers age, the dangers of increased crash risk due to passengers are diminished. In older drivers, there is either no increase in crash risk or possibly even a beneficial factor to lowering crash risk due to passengers.⁵

I speculate that one of the reason teens are so dangerous with passengers is because they are the most likely group to car pool to parties or to get together with large groups of people with few vehicles to transport. This could also be tied into Erickson's stages of psychosocial development where teens are experiencing role identity verses role confusion. Part of this discovering of themselves and how they fit into the world is exploring peer groups and their relationship within those groups. Driving and riding with each other may be another way of solidifying status in the group. Adults tend to have both the means and necessity to purchase cars for work and so they may choose to drive themselves

instead of car pool to a gathering. I would be interested to know if distracted driving crashes increase due to young children distracting the parent from maintaining focus on the driving task.

What steps can parents, educators, and lawmakers take to make driving safer for inexperienced drivers?

Citing an aforementioned statistic of an average of 71% of teen passenger deaths age 15-17 occurred while riding with a teen driver; it would be prudent for parents to carefully consider the age, gender, and tendencies of drivers their children would be riding with before letting them carpool. Wisconsin put a graduated driver licensing program into effect in September 2000. The program made changes by requiring more supervised time behind the wheel, limited them to one teen passenger maximum, and placed a night driving curfew on teens from midnight to 5 a.m. Two years later the Associated Press studied the results and found that on average 33% fewer passengers were involved in crashes with 16-year-old drivers compared to the average of the last five years.¹⁰ The numbers continued to be hopeful with 31% fewer passengers severely hurt with the same comparisons. Minnesota should look into modifying its GDL system to restrict the number of students during the provisional stage of licensing. Educators need to strongly emphasize safe driving with passengers and make meaningful activities for students to explore the dangers of driving with passengers. We should also educate teen passengers as to how to make the situation safer for teen drivers. Passengers should not expect eye contact during conversations, should not share photographs, or discuss heated topics with an inexperienced driver to name a few. These suggestions will actually help the safety of any driver and passenger situation.

Summary, Conclusions, and Recommendations

Teenage drivers with passengers are more likely to be involved in both crashes and fatal crashes than are teen drivers without passengers. This risk of driving with passengers of comparable age decreases as drivers age and may eventually even have a beneficial effect

on risk with time. Regardless of gender, driving with a male passenger is more of a risk than driving with a female passenger. While more research needs to be completed on why teens are more dangerous when riding together, some of the current thoughts are increased distraction, passengers inducing the driver into taking more risks, and lack of safety belts when riding together. Parents, educators, and lawmakers need to work together to encourage or mandate fewer teen passengers with teen drivers especially in the earliest stages of GDL.

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Teens Driving with Teen Passengers

Ryan Uttech, Driver Education Teacher Licensure Candidate
St. Cloud State University

Introduction

This article provides an overview of research and available knowledge concerning teen driving with passengers. Motor vehicle crashes are the leading cause of death for people aged 15-20 and teen passengers are included in that statistic.¹ The specific focus of the review is on how driving with passengers impacts teen crash statistics. Specifically which types of passengers increase the risk of crashes for teen drivers, what makes driving with passengers dangerous to teens, when do teens become less likely to be involved in crashes with passengers, and what steps can parents and educators take to make driving safer for inexperienced drivers.

Teen driving with passengers crash statistics

Driving with passengers is dangerous for both teen drivers and teen passengers. Teen drivers killed in motor vehicle crashes had a young passenger onboard 45% of the time² and 65% of all teen passenger deaths occurred when another teen was driving.³ The more teen passengers a teen driver is carrying, the greater the risk of being in an crash. In 2000, *The Insurance Educator* referred to a Li-Hui Chen study saying “the relative risk of driver death per 10 million trips [compared to drivers of the same age with no passengers] was 39% higher for 16 year-old-drivers with one passenger, 86% higher for those with two passengers, and 282% higher for those with three or more passengers.”⁴ Seventy-three percent of teen passengers aged 16, 72% of passengers aged 15, and 68% of passengers aged 17 were killed when traveling with a teen driver.⁵

Characteristics that separate teen fatal crash statistics with fatal crash statistics in other age brackets are the likelihood of the fatal crash involving a single vehicle, driver error, and speeding. Table 1 shows how the already high percentage of teen crashes with these characteristics is

increased by the presence of passengers.

Table 1
Percent of Fatal Crashes of 16-17 Year Old Drivers with Certain Characteristics by Number of Passengers, United States 2000⁵

Characteristics	0	1	2	3
Single Vehicle	34	39	40	57
Driver error	76	79	79	88
Speeding	24	33	38	48
Driver + BAC	12	13	14	15

These large increases are alarming. Fatal crashes involving speeding double from 24% to 48% when three or more teenage passengers are present. Single vehicle crashes rise from 34% to 57% for the same comparison group. Single vehicle crashes by definition mean no other vehicle was involved. The vehicles must have left the roadway and either struck an object or rolled to become fatal.

Which passengers increase or decrease the risk of crashes for teens?

In a study published in 2005, Dr. Simons-Morton and his colleagues at the Westat research firm concluded driving with a male passenger increased the likelihood of speeding and tailgating by both male and female drivers. One fourth of those speeding drove faster than 15 miles per hour over the speed limit. The study took place outside a high school which translates into driving speeds in excess of 45 mph in a 30 mph zone. Interestingly, a female passenger in the front passenger seat correlated into less risky driving behaviors such as excessive speeding and tailgating. The researches had hoped to discover what causes teens to make riskier driving decisions when driving with teen passengers, but could not determine them based on the current study. They conclude “Teen passengers may distract the driver or change the driver’s attitude or emotion in ways that are not yet clear.”⁶

The findings of Simons-Morton did not contradict an earlier study of Chen

et al (2000) – the riskiest kind of passenger is a young male. Having one male passenger almost doubled the risk of a fatal crash per 1,000 crashes than having no passengers.⁵ This was consistent looking at data from both male and female drivers. Having two or more male passengers more than doubled the risk. In the same study there was no greater risk for female drivers with one female passenger, but the risk of fatal crashes increased with two or more female passengers.

What makes driving with passengers dangerous for teens?

Dr. Simons-Morton (2005) explained in their study that they could not identify why teens were more likely to engage in more risky driving behavior in the presence of teen passengers. Teens may distract the driver and influence the drivers risk taking propensities in ways research has been unable to explain. To unlock the puzzle, he and his colleagues are currently designing a study that will involve placing electronic monitoring equipment in vehicles with teen drivers. After learning the reasons for the increase in risky behavior, researchers can then work to develop ways to prevent it.

Other researchers have offered more definite suggestions as to what causes teen passengers to make teen drivers more dangerous on the road. Ulmer et al (1997) referred to a study by Mayhew & Simpson (1995) suggesting teen passengers can increase crash risk by distracting the driver and inducing risk taking. Other general reasons for teen crashes are due to a more aggressive driving style along with inexperience in recognizing and responding to hazards.⁷

On April 20, 2006, the National Highway Traffic Safety Association reported driver inattention is the leading cause of crashes and near crashes. The report went on to say “Nearly 80 percent of crashes and 65 percent of near-crashes involved some form of driver inattention within three seconds before the event.† Primary causes of

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participation of the membership is extremely important and valuable in this process. If you receive a survey or questionnaire, please return it. You are the most important part of ADTSEA.

The Executive Committee hopes that your year has been a professionally successful one. Past President and Program Chair, Beth Weaver-Shepard and Division Chairs: John Papa, Scott Calahan, Bill Van Tassel, David Kinnunen, and Michael Manser have planned a wonderful program for us for our 50th conference. Come celebrate all that is ADTSEA!



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The investigator acknowledges limitations in this study. One was the assumption that verbalizing an explanation equates to understanding the meaning of a sentence. Although the investigator scored each sentence explanation based on his professional competence in driver education, it is possible that he misinterpreted the participant's attempted explanation. After all, the investigator was also trying to record the narrative data using a "speed writing" technique. Another limitation was the limited data gathering time. Perhaps future investigators will be able to arrange more in-depth interviews and possible focus groups. One last limitation was the generalizability of the findings. Although DMV customers were randomly selected by the investigator, a more valid approach would be randomly selected queue tickets after the customer has left the CSC Information counter. At best, this study's results are applicable to the 50 customers who decided to participate.

In conclusion, the DMV reading materials (Driver's Manual and sample knowledge tests) are professionally prepared and generally readable and meaningful to customers. A procedure for measuring safety literacy at the DMV has been developed and, in this initial effort, it has rendered suggestions for improving the reading materials.

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A detailed report, Safety Literacy at the DMV, is available from the author (emiller@gmu.edu)

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leaders. Geijsel, Slegers, Leithwood, and Jantzi (2003) have pointed out that education has been slower than other disciplines of the marketplace to conduct research about the effectiveness of transformational leadership theory in educational settings. Leithwood, Jantzi, and Steinbach (1999) summarized a number of studies that began in the late 1980s and early 1990s regarding transformational school leadership. Furthermore, these authors have reported evidence regarding the effects of transformational leadership on school organizations, teachers, and most recently on students (Leithwood & Jantzi, 1999, 2000). Clearly, there is enough evidence of the success of the effectiveness of transformational leadership theory to warrant consideration of its applicability to the field of driver and traffic safety education.

Conclusions

This review of literature supports the theory that transformational leaders motivate followers to perform at higher levels, to exert greater effort, and to show more commitment than other types of leaders. In the case of driver and traffic safety education, for example, the youth would be empowered by a transformational leader to become engaged in a lifestyle of safety and health because they have themselves become convinced of this vision.

It is important for future studies to be conducted on the effectiveness of transformational leadership theory in the area of driver and traffic safety education for two main reasons. First, teacher preparation can greatly benefit from leadership training especially in terms of transformational leadership theory. Second and most importantly, much more research needs to be

conducted to increase the effectiveness of programs aimed at highway safety for young drivers. As Robinson (2002) concludes,

Improving driver education should be the goal of all who truly have an interest in highway safety. Driver educators alone cannot improve driver education programs. The general public and highway safety professionals view driving as a simple task and have been bombarded by the publicity that driver education does not work. However, all must discontinue under appreciating the driving task and the benefits of driver education if we are going to make any effective changes. There must be a strong coalition of advocates behind changes to driver education. (p. ii7)

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Using the Internet Wisely

Susan Motin, M.L.S., Associate Professor, Learning Resources & Technology Services,
St. Cloud State University

It is almost impossible for anyone to do research today without having some sort of contact with the Internet, either by searching the Internet for information or by reviewing a student's or colleague's research. No longer can scholars decry or avoid using the Internet by condemning it due to the lack of scholarship. Everyday new peer-reviewed e-journals or existing scholarly journals are added to the plethora of information on the Internet. Therefore, every individual must be knowledgeable about what is out there in the world of cyberspace as it relates to their discipline. As scholars in our discipline, we have the fortunate advantage of having in-depth knowledge of our subject area. By using this knowledge and following six points of consideration when evaluating information on the Internet, scholars can be confident in their use of information extracted from the Internet.

The first point of consideration should be: "Who has created the content?" A good place to start is to look at the URL to determine under which domain it resides. Is it U.S. or foreign? If it is a foreign site, you will see a two letter country code. For example "uk" indicates the United Kingdom. Does it end in .edu, .gov, or .mil? These domain names indicate educational institution, government entity or military web sites respectively. Other domain names need to be carefully evaluated as in .org for organization or .com for a commercial site. It should be noted that an .org domain name is used for non-profit organizations and, therefore can sometimes contain valuable information. Is the creator an individual or an organization? If the creator is an individual, is this individual considered a scholar in your field or in a related one? If an organization was the creator, is the organization considered a credible professional or non-profit organization? If you do not know the individual or organization, it will necessitate checking other reliable print or online sources to ascertain the credibility of the organization or individual.

A second point of consideration that is quickly identifiable is the date that the web site was created. Has it been continually updated on a fairly regular basis as new information is added to the discipline's area? Also, are the hotlinks used in the web site still active, which indicates someone is still monitoring and updating the site as necessary? If a site is old, it still may have some historical value in your discipline, but it should be looked at cautiously and be compared with other sources.

With the ability for any individual or organization to publish on the Internet, the third consideration of determining whether the information is correct and factual has been the most troublesome to professionals and scholars. It is extremely prudent and necessary when using information gleaned from the Internet to cross-check the credibility, reliability and scholarship of the information using a variety of print and electronic resources that are known to you and other scholars as being credible and reliable.— Unfortunately, there are numerous sites on the Internet that contain lies, incorrect information and are blatantly bogus. One of my favorite intentionally bogus sites is <http://city-mankato.us>. This web site purports that the city of Mankato, located in Minnesota, is always a balmy 70 degrees and is a mecca for vacationers due to its climate and beautiful sandy beaches. While this site is intentionally and easily discovered as bogus by doing some quick checking of a reliable source, other sites can be deceptive and intentionally misleading and factually incorrect. This is the case in the web sites that try to swindle individuals by asking for money supposedly to help victims' families of 9/11 or other disasters. Also, included in this group would be web sites sponsored by hate groups. Some of these sites are extremely deceptive, as in the case of the Institute for Historical Review (<http://www.ih.org>). This organization attempts to make itself appear scholarly but it is, in reality, an organization that purports to deny the Holocaust. By just giving a cursory glance at their web site,

one could easily believe that this could be a scholarly organization. Only by investigating the web site carefully and comparing credible Holocaust research with the false claims on this site, does one recognize this site for what it is - a site that denies the Holocaust. This organization has become extremely sophisticated in conveying its message of hate by using only parts of historical fact, obfuscating information and protesting too much that the site is not denying the Holocaust but only questioning it.

It is imperative that we make our colleagues and students aware of these types of bogus web sites, not only in our disciplines but by making others aware of sites like the ones mentioned above to show how some use the Internet for their own evil intentions. To find a number of lists of other bogus sites, one can search "bogus sites" using Google.

Statistics that are used on any web site are also a concern when evaluating the web site. Sources for statistics used should be cited, and just as is done in traditional research, sources for statistics should be tracked down to the original source(s). Sometimes this will mean that one needs to obtain a copy of the original study or, if it is somehow related to government information, using the following web portal (<http://firstgov.gov>). This is the U.S. government's portal which is keyword searchable and also searchable by branch, department, etc. Since the U.S. government is the largest publisher in the United States and collects a wealth of statistics, this web portal is an excellent place to validate the statistics that are reported on a web site.

As in other types of information, ascertaining whether it is scholarly or popular is the fourth point of consideration. Today, a number of scholars have chosen for a variety of reasons to publish valuable information on the Internet. Some of this is freely accessible but most is only available through fee based databases which provide a wealth of scholarly

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Driver Education and Physics: An Interdisciplinary Unit Study

Barbara E. Brody, M.Ed. and Stewart A. Williamson, M.Ed.

Peoples Academy, Morrisville, VT

Introduction

One of the important concepts students need to learn is how one subject can be linked or transferred to another subject. What we learn in Math, Science, English, History, Health and the Arts are all interconnected. Driver Education can play an active role and an important link to help students understand this concept. Most students will take Driver Education. Only some students opt to take such subjects as Physics, Languages, High Level Math, or AP classes. A secondary goal of this unit is to have all students realize that they are capable of understanding the basic applications of physics and would consider adding physics to their course study during their Junior/Senior Year. It will also enable the Physics students to review some basic driving concepts.

Most states require a student to take Driver Education before they can receive their license. We know that students are very motivated to work hard in Driver Education and therefore they will work hard to complete all necessary requirements. One of the benefits of having Driver Education during the school day is that this can provide the teacher and the curriculum the opportunity to link other academic subjects together. This link may encourage students to explore those other classes that they may not have thought they were capable of taking.

The following is an example of ways a Driver Education course and a Physics course can interrelate and provide learning experiences to the students in both areas of study at the exact same time. The unit we chose was National Laws and Driving. We looked at the laws of motion as it relates to acceleration, deceleration, stopping time, and reaction time. We also considered the different type of braking and driving systems.

Participants

In early November of 2005 high school students from the Physics and Driver Education classes at Peoples Academy in Morrisville Vermont took part in a collaborated assignment to understand how Newton's laws of

motion effects a drivers ability to maintain vehicle control. Students in the Physics class produced, collected and analyzed data on the forces of the kinetics of driving a vehicle. Driver Education students drove the vehicle at different speeds to study rates change in velocity, stopping distance and reaction time. Officers Ryan Burkee and Mike Reeve of the Morrisville Police Department, assisted in securing a safe road environment, data collection, analysis, and group discussion.

Methods/ Measurements

Roadway: A 0.25 mile straight stretch of paved roadway was inspected and a closed off by the police officers. A wheel-tape and chalk were used to mark off ten-foot increments along the roadway.

Vehicles: The vehicles were provided by sales manager, Scott Kirkpatrick of McMahan Chevrolet. Vehicle One was the school's driver education car, a Chevrolet Malibu, with front wheel drive and anti-lock brakes. Vehicle two, a Chevrolet Cavalier had front wheel drive but no anti-lock brakes. The cars' masses were not measured, but approximated to be fairly similar. Third optional vehicle was a Dodge Dakota 4 by 4 pickup (rear wheel drive and xxx).

In Car Participants: Students in the driver education course drove the car for all but three of the trials. In the interest of safety and driver confidence the Driver Education teacher drove the trails above 40 mph. Students in the driver education vehicle drove, video taped and collected data on speed and time. The driver education teacher was in the front passenger seat for all of the trials, except for the high speed trials that she drove.

Out of Car Participants: Three groups of students were organized along the roadway with stopwatches, digital cameras and digital video recorders. The first group was organized along the starting line. The second group was spread along the side of the roadway. The final group was gathered near the anticipated distance of full stop to monitor the motion of the

car and passengers while rapid deceleration occurred. Communication between the drivers, the teachers, the police officers, the data collectors and the photographers was carried out with walkie-talkies... and some verbal communication.

Stopping Time and Stopping Distance of a Moving Car:

Each student driver accelerated from rest to a specified speed (20 or 30 mph) and maintained that speed until they reached a mark on the road surface at which time they initiated an Emergency Braking procedures. Stopping times and distances were recorded along with any potential errors.

The police officers placed chalk marks on the road for full-stop location. The students then measured the distance once the car had driven off. Each trial was completed three times with the student driving all but the three trials at 40-50 mph.

Reaction Time in a Moving Car:

While it was the intention of the class to gather data on reaction time, this was not completed due to time constraints. A visual signal (shinning a halogen flashlight from 300 meters) was to indicate the time to start rapid deceleration by the driver. Video would be taken from behind and inside the vehicle for later determination of reaction time with digital video processing equipment.

Acceleration of a car from rest:

Two student drivers accelerated to 25 miles per hour as fast as possible for three trials each in both cars. They applied the brakes to indicate to the out of car data collectors that the desired speed had been reached. The brake lights indicated the end of the trial. *The data inside the car for these runs was far more accurate than those outside.

Analysis

The police officers returned to class to discuss crash scene analysis techniques and the various formulas and equations used to evaluate causes of collisions. Each student also completed a lab report with data analysis and conclusions about the

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addition to being widely studied and gaining important support in the literature in the past decade, transformational leadership theory has done much to revitalize leadership research (Bryman, 1992; Judge & Piccolo, 2004; Lowe, Kroeck, & Sivasubramaniam, 1996). The research has found that transformational leaders motivate followers to perform at higher levels, to exert greater effort, and to show more commitment than other types of leaders (Bass & Avolio, 1990; Sosik, Avolio, & Kahai, 1997; Yammarino & Bass, 1990). In fact, Avolio (1999) makes it clear that "transformational leadership involves motivating others" (p. 41).

Through their extensive research on transformational leadership, Bass and Avolio (1999) argue that through the *Full Range Leadership Development Workshop*, leaders can be trained in transformational leadership qualities. The authors note that the process by which leaders develop transformational leadership attributes "initially depends upon their own unique characteristics, qualities, abilities, and desires" (Bass & Avolio, 1999, p. 18).

Attributes of Transformational Leadership

The most current version of transformational leadership theory presents four distinct factors that characterize the attributes of transformational leadership: (1) idealized influence; (2) inspirational motivation; (3) individualized consideration; (4) intellectual stimulation. First, *idealized influence* refers to leader's behavior and the follower's attributions about the leader (Popper, Mayseless, & Castelnovo, 2000). An idealized leader thinks about the needs of the followers before his/her own needs, demonstrates high ethical standards, sets challenging goals, and avoids the use of power for personal gain (Bass & Steidlmeier, 1999). Thus, the transformational leader becomes a role model or a mentor for the followers (Sosik, Godshalk, & Yammarino, 2004).

Second, *inspirational motivation* is defined as the way in which a transformational leader inspires and motivates followers by challenging them

and presenting a vision that provides meaning in their lives. Sosik, Godshalk, and Yammarino (2004) comment that inspirational motivation "entails communicating high performance expectations that activate self-fulfilling prophecies for individuals" (p. 245). Transformational leaders inspire and motivate by their optimism, enthusiasm, and by offering an attractive future. Furthermore, these leaders demonstrate a commitment to shared goals with their followers.

Third, *individualized consideration* refers to the leader's consistent effort to treat followers as unique and special individuals and to act as a mentor who is concerned to develop his/her follower's greatest potential. Antonakis, Avolio, & Sivasubramaniam (2003) argue that leaders display individualized qualities by "advising, supporting, and paying attention to the individual needs of followers, and thus allowing them to develop and self-actualize" (p. 265).

Finally, the attribute of *intellectual stimulation* involves the leader's efforts to stimulate the followers to be creative and innovative, as well as the effort on the part of the leader to encourage followers to reframe problems and approach them in new ways, and to question assumptions (Popper, Mayseless, & Castelnovo, 2000). When displaying this attribute, leaders will "appeal to followers' sense of logic and analysis by challenging followers to think creatively and find solutions to difficult problems" (Antonakis et al., 2003, p. 265).

Outcome Variables for Transformational Leadership

Much has been written in the literature on leadership research concerning the various outcome variables of transformational and transactional leadership (Judge & Piccolo, 2004; Lowe, Kroeck, & Sivasubramaniam, 1996). Bass and Avolio's Multifactor Leadership Questionnaire (MLQ) remains the most widely used instrument to assess the nine factors in the "full-range leadership theory" in studying these variables (Avolio, Bass, & Jung, 1995). Some of these outcome variables for transformational and transactional leadership include the leader's perceived effectiveness, the follower's

sense of self-efficacy, and the follower's satisfaction with the leader. In each case, the research found these variables were higher among subjects whose leaders were transformational leaders (Bycio, Hackett, & Allen, 1995; Popper, Mayseless, & Castelnovo, 2000; Yammarino & Bass, 1990). The findings were similar in studies regarding measures of behavior and performance (Bass & Avolio, 1993; Dvir, Eden, Avolio, & Shamir, 2002; Howell & Avolio, 1993). Furthermore, the literature reveals the impact that transformational leaders have on their followers' attitudes, values, and self-concept (Avolio, Gardner, Walumbwa, Luthans, & May, 2004; Ehrhart & Klein, 2001; Howell & Shamir, 2005; Shamir, House, & Arthur, 1993).

Bass, Avolio, Jung, and Berson (2003) studied the extent to which ratings of transformational and transactional leadership were mediated by levels of unit cohesion and potency in predicting platoon performance in combat simulation exercises. Results showed that transformational leadership predicted unit performance in infantry teams. Finally, Popper and Mayseless (2003) have attempted to broaden the discussion of the various leadership outcome variables by relating transformational leadership theory to the literature on parenting:

Leader-led relationships are analogous to parent-children dynamics in many respects. Leaders, like parents, are figures whose role includes guiding, directing, taking charge, and taking care of others less powerful than they and whose fate is highly dependent on them. The extent of the dependence of children on parents, or followers on leaders, renders the influence of the latter highly important. . . . We assume that leaders with whom followers form emotional relationships function in many respects like parents. Just as parents protect, guide, and teach children, helping them to grow into functioning and autonomous adults, so do transformational leaders in their relationships with their followers. (p. 42)

The authors recommend a number of possible research avenues derived from studying the analogy between good parents and transformational

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A Case for Applying the Contributions of Transformational Leadership Theory to Driver and Traffic Safety Education

Philip Pidgeon, Ed.D., Automotive Safety Research Institute, Clemson University
Kim E. Alexander, M.Ed., Automotive Safety Research Institute, Clemson University
Clinton Isbell, Ed.D., Leadership, Counselor Education & HRD, Clemson University

Introduction

As long as motor-vehicle crashes continue to be the leading cause of death overall and the most common cause of death among children and young adults in the United States (CDC, 2004), there remains much work to be done in educational leadership and youth traffic safety education. This review of literature is intended to add to the existing, although limited, body of knowledge concerning the effect of transformational leadership on youth traffic safety education. Transformational leadership is a form of leadership that occurs when leaders elevate and broaden the interests of their followers by instilling a vision which calls them to look beyond their own self-interest for the good of the group (Bass, 1990). Transformational leaders tend to have a clear vision and most importantly they manage to communicate it effectively to their followers. Renewed interest in educational leadership has recently led to the systematic empirical inquiry of transformational leadership theory in schools (Leithwood & Riehl, 2003). The question is, can driver and traffic safety education benefit from the contributions of transformational leadership theory?

Current Trends in Driver and Traffic Safety Education

In discussing the need for improvements in driver and traffic safety education, it is important to note recent attempts to redefine driver education. Currently there is a national debate between traffic safety educators and researchers concerning the nature of driver education and the need to improve and revise the methods used to train instructors (Lonerio, 2001). Robinson (2001) discusses the merits of "advanced driver education" and suggests that we should focus attention on the students' motivation to drive safely while providing realistic experiences that will teach safe driving practices. Mayhew and Simpson (2002) note that the "task of shaping

or modifying risky driving behaviors that reflect adolescent lifestyle is a daunting one and will require a better understanding of the developmental and psychosocial context in which such behavior takes place" (p. ii5). Clearly, these authors point out the need to address the role of leadership in driver and traffic safety education.

While many studies have suggested the ineffectiveness of driver education in accounting for crash reduction (Lund & Williams, 1985; Lund, Williams, & Zador, 1986; Stock et al., 1983; Waller, 1975; Weaver, 1987), recent research has provided a more hopeful outlook for such programs. Mayhew and Simpson (2002), point out that youth traffic safety programs "might prove to be effective in reducing collisions if they are more empirically based, addressing critical age and experience related factors" (p. ii3). The authors conclude that there is a need to incorporate instructional methods to address lifestyle and psychosocial factors in driver and traffic safety education programs. And, as Robinson (2002) aptly notes, "a concentrated effort needs to be devoted to broadening our view on the role of driver education, improving driver education, and changing the ways we evaluate driver education" (p. ii8).

Educational Leadership Theory

Research indicates that effective leadership can have a major impact on student learning. According to Leithwood, Louis, Anderson, and Wahlstrom (2004), "the total (direct or indirect) effects of leadership on student learning account for about a quarter of total school effects" (p. 3). It would follow that for driver and traffic safety education programs to be effective, it is important to consider the role of leadership in such programs.

Increasingly, educational leaders are examining the influence of leadership on schools. Recent studies in educational leadership have

provided robust understandings of the ways in which cultural norms can facilitate student learning and school improvement efforts (Leithwood et al., 2004). In fact, scholars in educational leadership have argued that leadership practices such as "articulating a vision, fostering the acceptance of group goals and creating high performance expectations" contribute to a school culture that supports improvement in student learning (Leithwood et al., 2004, p. 6; Leithwood & Jantzi, 1997, 2000; Leithwood, Jantzi, & Steinbach, 1999). Thus, culture management is emerging as a critical function of successful leadership in the school setting. In the effort to promote successful schools, one of the recent approaches to culture management in education is the study to transformational leadership theory.

Transformational Leadership Theory

A substantial body of research on leadership in the last 20 years has focused on two major types of leaders: transactional and transformational (Bass, 1985, 1999). A transactional leader is described as one who responds to her or his followers by establishing a close link between the follower's effort and the rewards. However, this view of leadership has been criticized in that leadership is expected to do more than maintain a give-and-take relationship in terms of performance and reward (Hollander, 1978). Conger (1999) notes that "the 'transactional' term has at times been applied in a somewhat derogatory way to the activity of managing" (p. 149). Consequently, to be a purely transactional leader one is thought to be the "calculating manager" (Conger, 1999, p. 149). In contrast, transformational leadership motivates followers to achieve performance beyond expectations by transforming the attitudes, beliefs, and values of followers as opposed to merely gaining their compliance (Bass, 1985; Burns, 1978; Yukl, 1999a; Yukl, 1999b).

A transformational leader can be described as having a vision and inspiring respect and trust in his/her followers. In

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- o Avoiding word series (e.g., "... look, listen, slow down, and be prepared to stop"). To correct this perhaps the sentence could be rewritten as two sentences.
- o Avoiding idiomatic wording (e.g., "reduce your speed by one-half"). This would be clarified through parenthetical phasing.
- o If legalese wording is necessary

- perhaps a trailing qualifying sentence could be included (e.g., retaining the expression "liability insurance" but following it with a concise definition sentence).
- o Using graphics to exhibit "a bed of a pick-up truck" or "a camper shell."
- o Whenever possible, using active rather than passive voice (e.g., "Bicycles are vehicles . . ." instead of

"Bicycles are considered vehicles...")
 Some figurative speech that challenged the participants was retained since it was consistent with state-approved driver education curriculum (e.g., "space cushion"). Other terminology was unchanged because it was meant to mirror statutory code. Still, other sentences were not revised because they were extracted directly from text. Hence, participants did not have the luxury of viewing the sentence in the context of its larger paragraph within the DMV Driver's Manual.

Background Information

The primary reasoning for participants' coming to the DMV was licensing. English was the language read by all but one of the respondents. Participants reportedly did not visit the DMV website regularly (perhaps once or twice yearly). Of the 23 participants suggesting improvements to DMV printed materials, "more pictures" was most commonly expressed. At least 16 participants revealed some college education. While describing race, ethnicity and/or cultural heritage: 11 White, 10 Black/African American, 9 Latino/Hispanic, 3 Asian, 3 Other (multiracial), and 14 did not specify. A majority of respondents considered themselves good drivers and justified this by being attentive, and following the rules and not committing traffic violations (tickets). Only 19 participants offered constructive responses for bettering DMV operations and most comments were positive in nature.

Conclusion, Discussion and Recommendations

A majority of participants in this study were able to read sentences selected from the DMV Driver's Manual and sample knowledge tests. This was despite some of the sentences having low reading ease and high grade level ratings. Accordingly, a majority of the participants verbalized adequate explanations of the sentences' meaning. Still, there were some readable sentences that challenged participants' ability to explain their meaning. Relying on numeric and narrative data provided by the participants, the investigator suggested revisions to many of the selected sentences to improve their readability.

(more on page 10)

Figure 1: Selected sentences: original and suggested revision

1. When approaching railroad tracks you should look, listen, slow down, and be prepared to stop.
 When you come to railroad tracks go slow. Look and listen for a train because you might have to stop.
2. When driving on packed snow, reduce your speed by one-half.
 When driving on packed snow, reduce your speed by one-half (if 40 mph go back to 20).
3. If you drive in Virginia without liability insurance coverage on your vehicle, you face a \$500 fine.
 If you drive in Virginia without liability insurance coverage on your vehicle, you face a \$500 fine. Liability insurance coverage helps pay costs if you cause a crash.
4. Legally, you are considered to be driving under the influence if your blood alcohol content (BAC) is .08% or higher.
5. The speed limit in business zones is 25 mph.
 The speed limit in business zones (near office buildings) is 25 mph.
6. If you were convicted of two or more moving violations (one or more if under age 21) since your license was last issued, you must reapply for your license.
7. For your own protection, do not use a suspended or revoked driver's license, lend anyone your driver's license, or allow an unlicensed driver to operate your vehicle.
 For your own protection, do not use a suspended or revoked driver's license. Do not lend anyone your driver's license or allow an unlicensed driver to operate your vehicle.
8. It is illegal to use a radar detector in Virginia.
9. U-turns are allowed in business districts, cities, and towns only at intersections.
 You can U-turn only at intersections if you are driving in towns and cities.
10. It is illegal to transport children under age 16 in the bed of a pick-up truck if it is equipped with a camper shell. <no revision but needed illustration>
11. The most common mistake that drivers make when backing is failing to look both ways behind them.
 The most common mistake that drivers make when backing is not looking to the left or right sides behind them.
12. Double solid yellow lines painted down the middle of the road mean passing is not permitted in either direction. <no revision but needed illustration>
13. Passing is prohibited at intersections, on hills and curves, and at railroad crossings.
14. If you are traveling slower than the traffic around you on a multi-lane roadway, you must drive in the right-hand lane. <no revision but needed illustration>
15. Alcohol causes slower reactions, poor judgment and loss of concentration.
 Alcohol causes slower reactions, poor judgment and loss of clear thinking.
16. The shape of a traffic sign communicates important information about the sign's message.
 The shape of a traffic sign tells important information about the sign's message.
17. It is unlawful to avoid a traffic signal, sign or control device by driving off the roadway and onto or across public or private property. <no revision but needed illustration>
18. Use the three-second rule to determine if you are far enough behind the vehicle ahead of you.
19. Avoid driving in someone else's blind spot.
20. Bicycles are considered vehicles and have the same rights-of-way as motor vehicles. Bicycles are vehicles and have the same right-of-way (rules of the road) as motor vehicles.
21. Create a space cushion around your vehicle by staying in the middle of your lane.
22. Motorists are conditioned to look for four-wheeled vehicles; but they don't expect to see two-wheeled vehicles.
 Motorists are used to look for four-wheeled vehicles; but they don't expect to see two-wheeled vehicles.
23. As you scan the road, avoid a fixed stare.
24. Place your hands on the steering wheel at the 8 o'clock and the 4 o'clock positions.
25. Securing a child in a correctly installed child safety seat can significantly reduce the possibility of death or injury.
 Securing a child in a properly installed child safety seat can significantly reduce the possibility of death or injury to the child.



(from page 3)

explanation, etc.)
 Once the participant completed this section, he/she responded in writing to eight background information items on the questionnaire. At this point of the interview, if a participant asked for assistance while responding to background questions, the investigator provided clarifying information as required by informed consent protocol. It is noteworthy that 14 of the 50 participants stopped the interview to retrieve their processed license and all but two of these 14 participants returned to finish the interview.

Results

For this study, safety literacy is the ability of a person to read safety information and provide a verbal explanation of its meaning. The investigator measured safety literacy by scoring participants' ability to read aloud selected sentences as well as verbally explain the sentences' meaning. Both numeric and narrative data were collected and analyzed. Afterward, the investigator revised selected sentences to improve their readability scores (see Table 1)

Safety Literacy - Reading

Mean safety literacy reading scores ranged from 2.0 to 3.0 with all selected sentences having a score of 2.0 or higher. The total mean score for all 25 selected sentences was 2.4. The investigator also calculated Flesch Reading Ease as well as Flesch-Kincaid grade level ratings (built-in spelling tools in Microsoft® Word) for each selected sentence. Sentence reading ease ratings ranged from 25.3 to 100 with sentence grade levels ranging from 1.0 to 12. The mean reading ease rating for sentences was 55.9 whereas the mean sentence reading level was 9.0. Ten of the 24 selected sentences met the minimum desired reading ease rating of 60 where as 9 of the 25 sentences had a reading level not exceeding the 7th grade level. From these numeric data, the investigator deduced:

- o Generally, the 50 randomly selected participants demonstrated the first part of the safety literacy definition: being able to read aloud with minimal hesitation, stopping or asking for

Table 1 Literacy and Reading Scores				
	Literacy		Reading	
	reading (1-3)	explaining (1-3)	ease (1-100)	level (1-12)
1.	2.5	2.4	78.8	5.9
1r.	--	--	99.0	1.8
2.	2.0	2.3	78.2	4.8
2r.	--	--	75.7	7.1
3.	2.4	1.7	25.3	12.0
3r.	--	--	35.5	11.7
4.	2.0	2.0	51.1	11.0
5.	2.0	2.1	75.5	4.9
5r.	--	--	67.7	6.7
6.	2.6	1.4	57.7	12.0
7.	2.1	1.6	38.4	12.0
7r.	--	--	55.0	9.1
8.	2.8	2.7	44.4	9.5
9.	2.4	1.7	39.5	10.7
9r.	--	--	60.0	8.4
10.	2.3	2.0	66.1	9.9
11.	2.3	2.0	75.1	7.0
11r.	--	--	75.1	7.0
12.	2.4	2.4	53.9	10.4
13.	2.5	2.5	50.4	9.4
14.	2.4	2.0	64.6	9.4
15.	2.3	2.1	35.9	10.7
15r.	--	--	57.2	8.0
16.	2.2	1.9	37.4	11.2
16r.	--	--	57.0	8.5
17.	2.3	1.7	46.1	12.0
18.	2.1	1.9	60.1	9.0
19.	2.4	2.2	54.7	7.3
20.	2.7	2.2	32.5	11.7
20r.	--	--	56.2	9.1
21.	3.0	2.6	67.5	7.5
22.	2.3	2.2	55.9	7.4
22r.	--	--	66.5	5.9
23.	2.9	2.0	100	1.0
24.	2.9	2.0	79.5	6.1
25.	3.0	2.4	27.8	12.0
25r.	--	--	30.6	12.0
Mean	2.4	2.1		

See Figure 1 on page 5 for text of questions and revisions

assistance. This ability was demonstrated consistently across the four or five sentences selected for them despite some of the sentences having less than desired reading ease and grade level ratings.

- o The previous deduction has some qualifications, though. It was interesting how some sentences had higher safety literacy reading scores (2.6 or greater), but correspondingly, their reading ease and grade level ratings would qualify them as being challenging to read [e.g., "6. If you

were convicted of two or more moving violations (one or more if under age 21) since your license was last issued, you must reapply for your license."]

o Contrarily, there were sentences with lower safety literacy reading scores (2.3 or lesser) yet they were rated as having high reading ease and desirable grade levels (e.g., "1. When approaching railroad tracks you should look, listen, slow down, and be prepared to stop.").

o These inconsistencies necessitated looking closer at the second part of the safety literacy definition--being able to explain the sentences' meaning--both in terms of numeric scoring and narrative data.

Safety Literacy - Explaining

Mean safety literacy explaining scores ranged from 1.4 to 2.7 with 15 of the 25 selected sentences having a score of 2.0 or higher. The total mean score for all 25 selected sentences was 2.1. From these numeric data, the investigator deduced:

o Generally, the 50 randomly selected participants demonstrated the second part of the safety literacy definition: being able to verbally explain a sentence's meaning as an indication of understanding the sentence. However, there were a number of sentences that challenged them in terms of providing a verbal meaning (mean score of less than 2.0). For example, "3. If you drive in Virginia without liability insurance coverage on your vehicle, you face a \$500 fine."

o To determine why these sentences were challenging, the investigator examined the participants' verbalized explanations. The narrative data were scrutinized. From this effort, the investigator concluded some sentences needed modification to improve their readability.

Suggested Sentence Revisions

The investigator made suggested revisions to selected sentences (see Table 1). Sentences were restructured. Where appropriate, actual participant expressions were substituted. Although the intent was to reduce word count and syllabication, it was necessary at times to add qualifying terms and phrasing. Other suggested revisions:

(more on page 5)



Safety Literacy at the DMV

Richard E. Miller, Ed.D.
Health, Fitness and Recreation Resources
George Mason University

Introduction

Although materials prepared by the Department of Motor Vehicles (DMV) are professionally prepared and well-designed, more assurance of adequate safety literacy is needed. Considering nearly half of all American adults—90 million people—have difficulty understanding and acting upon health information (IOM, 2004), by logical extension, a comparable number of individuals are challenged in processing and applying traffic and highway safety information. Using health literacy as a template (Ratzan and Parker, 2000), the safety counterpart would be the degree to which individuals have the capacity to obtain, process, and understand basic information and services needed to make appropriate safety decisions.

There are various kinds of literacy such as oral, print, text and numeracy. "Basic print literacy is the ability to read, write and understand written language that is familiar and for which one has the requisite amount of background knowledge" (IOM, 2004, p. 37). This kind of literacy is demonstrated when someone can decode letters, sound-out words, and understand the meaning of printed text. However, basic print literacy has familiarity and background knowledge requirements. The material should also be culturally relevant (USDHHS, 2000). For this study, safety literacy is a form of basic print literacy and operationalized as: the ability of a person to read safety information and provide a verbal explanation of its meaning.

An opportunity arose to contribute to the body of knowledge on safety literacy during a Virginia Department of Motor Vehicles communications audit of printed material. The investigator developed a procedure for measuring safety literacy at DMV customer service centers (CSCs) and applying the results to improving customer communications.

Procedure Pilot

The investigator field-tested a procedure for randomly approaching DMV customers and interviewing them with a safety literacy questionnaire. Customers were more approachable

outside the knowledge automated testing system (KATS) area compared to the general seating and exiting areas of the customer service center (CSC). Since customers were involved in a transaction, the KATS area allowed about 10 minutes of interviewing. To pilot the interview, the investigator greeted (with name tag visible), explained briefly the purpose of the study, and asked if the customer would like to participate. Upon agreeing, the interview proceeded if the participant responded affirmatively to two verbally-posed screening questions: "Are you 18 years of age or older?" and "Do you read English while at the DMV?" Then, the investigator sat next to him/her, secured informed consent, and proceeded with the interview.

The original safety literacy questionnaire was composed of a rapid estimate of adult literacy in safety, an assessment of the subject's ability to understand traffic safety-phrases spoken to him/her, and a solicitation of customer background information. After field-testing, the rapid estimate section was removed because all of the customers were familiar with the terminology regardless of its syllabication. The revised questionnaire retained customer background information items preceded by a section containing 25 sentences selected from the DMV Driver's Manual (VA DMV, 2004) and online knowledge tests (VA DMV, 2005).

During the interview, the investigator perfected a "speed-writing" technique to adequately record the participant's narrative responses to each question. Since the interview was limited to 10 minutes, the investigator was restricted to randomly selecting four or five sentences from the pool of 25 for each participant to respond. Participants read aloud and then explained the meaning of the selected sentence "as if you were talking to a friend."

The Study

Once piloted, the procedure was implemented at three CSCs. Customers were randomly selected as they sat outside the KATS testing area. Most

participants had been photographed and awaited their call back to the customer service representative. Fifty of 64 customers agreed to participate (response rate .78). The investigator approached, greeted, screened, sat next to the participant, secured agreement/informed consent, and then proceeded with the interview.

During the interview, data were collected as participants read aloud and explained the meaning of four or five randomly selected sentences from the pool of 25 items on the questionnaire. Each selected sentence was pointed out to the participant as he/she held a copy of the questionnaire. While reading aloud, the participant's safety literacy was scored by the investigator:

3 - Participant appears to have no difficulty reading aloud (each word in) the sentence

2 - Participant appears to have some difficulty in reading aloud (each word in) the sentence (e.g., hesitating, stopping, asking for help, requesting confirmation, etc.)

1 - Participant has difficulty reading the sentence aloud to the point inability to finish the sentence

After reading of a sentence aloud, the participant was asked to explain its meaning before proceeding to the next selected sentence. The investigator, a certified driver education instructor, recorded participants' explanations as narrative data using the "speed-writing" technique. Each sentence explanation received a score by the investigator:

3 - Participant's verbal explanation indicates a sufficient understanding of the sentence's meaning

2 - Participant's verbal explanation indicates a lack of some understanding of the sentence's meaning ("parrots" the sentence by reading directly from the instrument, omits explaining parts of the sentence, etc.)

1 - Participant's verbal explanation indicates lack of understanding of the sentence's meaning (admits not understanding, provides incorrect explanation, declines to offer

(continued on page 4)



Exciting Times

Dr. Allen Robinson, CEO

Spring and summer are exciting times for ADTSEA. We have completed our planning for the NSSP conference in Edmund, Oklahoma, and are putting the finishing touches on the ADTSEA Conference in Kalamazoo Michigan.

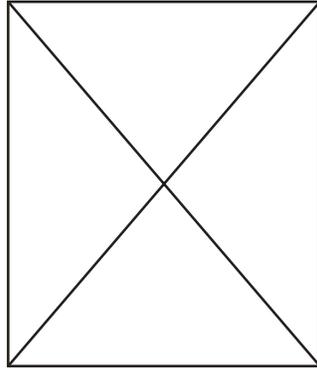
Plans are just beginning for the NSSP conference to be held at Peace College in Raleigh, North Carolina July 5-9, 2007. The ADTSEA Conference will be in Burlington, Vermont July 29 – August 1, 2007 at the Wyndham Hotel. Mark your calendars for these upcoming conferences.

I know that state agencies continue to struggle with driver education. Funding has been limited and staffs continue to be burdened with additional tasks. I wish there were a simple answer to this problem. While there is not, we do see an improved environment within the research community.

There is a general consensus that driver education has been held to a higher standard of effectiveness when compared to other highway safety countermeasures. Two specific problems with the past research design has been the lack of exposure control and an expectations that driver education should have a lasting effect beyond six months. Driver education does have a positive effect for 6 months as do other countermeasures. None of the countermeasures, including GDL, have had a positive impact beyond six months.

It is difficult to determine how this will affect driver education in the future. There should be a positive effect and greater support for driver education. We all need to remain optimistic.

As you can see in this edition of The Chronicle, the News and Views section has returned. Thanks to all of you who responded to the recent survey and expressed your views.

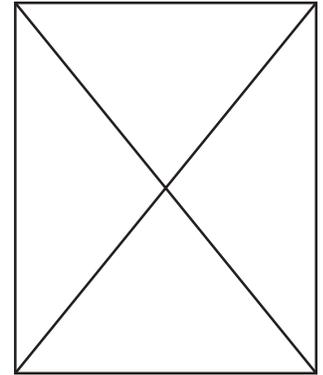


Allen Robinson

What is ADTSEA?

Carol Hardin, President Elect

President Jim Gibb has asked me to share with you some of the plans for the upcoming year in ADTSEA. Last year at the ADTSEA Conference in Honolulu, HI, the Region Reports reflected a need to look at ADTSEA. What were the plans when ADTSEA began? Where is it now? Where are we going? On the ADTSEA web site it asks, "What is ADTSEA?" The response tells us that ADTSEA is a national advocate for quality traffic safety education and that ADTSEA creates and publishes policies and guidelines



Carol Hardin

for the discipline as well as develops educational materials, conducts conferences, workshops and seminars and provides consultative services.

The ADTSEA Constitution states that the purpose of the organization (Article II: Section 1 and 2):

... Shall be to promote traffic safety and its concomitant benefits by improving and extending driver education/training activities in schools, colleges, universities, the private sector, industry and other institutions.

... Shall work toward accomplishing its purpose through conferences, development and dissemination of materials, consulting, technical assistance and through other activities appropriate to carry out Section 1.

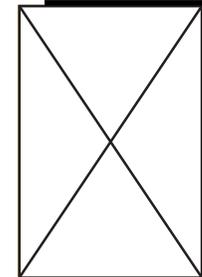
Through these efforts, it is the intent of the Association to improve the quality of teaching and training in schools, colleges, universities, the private sector, and industry.

ADTSEA members still have the opportunity to talk with several of the "founding fathers" of the organization, to extend their plan, and to bring ADTSEA's vision, mission, and goals into the 21st century. During the next year, a committee will begin the process of examining where the organization is and where ADTSEA wants to go. There will be an auxiliary group, representing the regional structure of ADTSEA, which will serve to provide input as the committee works toward its recommendations to the Executive Committee and the membership. The

(Carol continued on page 11)

Editor's Notes

A common thread connecting articles appearing in the combined publications this summer is consideration of new approaches to delivery of driver education. The approaches range from using leadership theory to online instruction with interdisciplinary teaching and how to use the Internet wisely in between.



John W. Palmer

As you read each of the articles remember that every tool, technology, and approach can build or tear

down. As the user of tools (ect.) we need to learn how to maximize the building up potential of the tool and minimizing the destructive potential of the approach or tool. As people who teach other people to use one of the most life enhancing and life destroying tools, motor vehicles, we know that the first step leading to maximizing the building potential is to learn the limitations of the tool, the environment, and the user. With a solid knowledge of the limitations of each element users then learn habits that will maximize the positive and minimize the negative. I hope the summer edition of our two publications serve to help in the process of building not the process of destroying.



The Chronicle of the American Driver and Traffic Safety Education Association

Allen Robinson, Ph.D.
Chief Executive, ADTSEA
IUP Highway Safety Center
Indiana, PA 15705-1092
(724) 357-4051 (Office)
(724) 357-7595 (Fax)
arrobin@iup.edu (new)
http://adtsea.iup.edu

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Editor John Palmer, Ph.D.
Send article submissions to:

John Palmer, Ph.D
832 Halliday Road
St. Cloud, MN 56301
palmertss@cloudnet.com

Advertising Information

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Allen Robinson, Ph.D.
Executive Director, ADTSEA
IUP Highway Safety Center
Indiana, PA 15705-1092
724-357-4051

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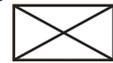
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