National Transportation Safety Board Public Forum on Driver Education and Training October 28-29, 2003

Report of Proceedings

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National Transportation Safety Board
490 L'Enfant Plaza, S.W.
Washington, D.C. 20594

National Transportation Safety Board. 2005. ***National Transportation Safety Board Public Forum on Driver Education and Training, October 28–29, 2003.*** **Report of Proceedings NTSB/RP-05/01. Washington, DC.**

Abstract: The National Transportation Safety Board convened a 2-day public forum in October 2003 to survey the current state of novice driver education and training, including the extent to which it is used, its effectiveness and shortcomings, and what can be done to improve it. While driver education has been available since the 1930s and, intuitively, should improve driving safety, in fact little consensus exists on the benefits of driver education and training, what it should entail, and how it should be delivered. The 29 forum participants included the National Highway Traffic Safety Administration, State government representatives, safety and consumer associations, groups offering driver education, and teachers, students, and researchers. This document provides a report of proceedings of this public forum and includes the transcript of the public forum within Part 5.

As a result of this report of proceedings, the Safety Board makes safety recommendations to the U.S. Department of Education and the National Highway Traffic Safety Administration.

Contents

Part 1

Introduction

The National Transportation Safety Board convened a 2-day public forum in October 2003 to survey the current state of novice driver education and training, including the extent to which it is used, its effectiveness and shortcomings, and what can be done to improve it. (See pages 3 and 4 of the proceedings for the complete public forum agenda.) While driver education has been available since the 1930s and, intuitively, should improve driving safety, in fact little consensus exists on the benefits of driver education and training, what it should entail, and how it should be delivered. The 29 forum participants included the National Highway Traffic Safety Administration (NHTSA), State government representatives, safety and consumer associations, groups offering driver education, and teachers, students, and researchers.

The forum highlighted several critical points:

- Automobile crashes are the leading cause of death among teenagers.
- What works and what does not work in developing safe drivers is not known. Measuring the effectiveness of driver education programs is difficult because of the myriad factors that contribute to teenage driver crashes.
- Little conclusive research on what constitutes an effective driver education program is available. Many research projects are under way, nationally and internationally, that show varying degrees of success for individual components of driver education, but no program exists that integrates the best practices in driver education and training.
- Although skill development alone does not necessarily equate to safe driving, most driver education programs do not take into account at all how teenagers in today's environment learn and assimilate knowledge that leads to skill development.
- State requirements for driver education vary greatly; for instance, no consensus exists on whether or how driver education should complement graduated driver licensing (GDL),[1] which all States are already implementing to some extent.
- Driver education programs have not been designed to integrate skill development, teenagers' learning styles, and task sequencing, which would help ensure that young drivers have the knowledge and skills to drive safely when they receive a license with full driving privileges.

[1] GDL is a 3-stage licensing system that provides novice drivers with driving experience under more controlled circumstances through restrictions such as curfews, supervised driving, violation-free driving, and passenger limits.

- The 30 hours of classroom and 6 hours of behind-the-wheel training that most students receive may not be adequate to teach teenagers how to be safe drivers and is not based on a thorough analysis of how teenagers learn or on a progression of task complexity.

While the Safety Board has issued recommendations on GDL for teenage drivers as recently as 2002 (see part 3), this report of proceedings is the first Safety Board document on driver education since 1971. The Safety Board considers the recommendations issued as a result of these proceedings a critical step in determining how driver education and behind-the-wheel training can complement each other to reduce novice driver crashes, injuries, and fatalities. Without action on these recommendations, the Nation will not know which driver training strategies work and, therefore, may continue to spend scarce funds on programs that produce few or no measurable gains.

Part 2

Driver Education Forum Summary, Conclusions, and Recommendations

Scope of the Problem

According to NHTSA, drivers between the ages of 15 and 20 represent 6.4 percent of licensed drivers in the United States, yet were involved in 13.6 percent of fatal crashes and 18 percent of all police-reported crashes in 2003.[2] In that same year, 15- to 20-year-old drivers involved in fatal crashes numbered 7,884.[3] Motor vehicle crashes are the leading cause of death for 15- to 20-year-olds, accounting for two out of every five teenage deaths.[4] In 2002, the estimated economic cost of crashes involving 15- to 20-year-old drivers was $40.8 billion.[5] Further, a study of crashes in four States revealed that 16-year-olds account for the highest percentage of single-vehicle crashes and crashes involving speeding and driver error.[6] Because fatalities in car crashes are the leading cause of death among teenagers and teenage drivers are disproportionately involved in crashes, additional action needs to be taken to identify and implement solutions to reduce these fatalities.

Curriculum

Responding to repeated requests from both advocates and opponents of driver education, as well as from the Congress, the National Highway Safety Bureau (now NHTSA) initiated the first comprehensive study of driver education in 1968; the goal was to develop and evaluate a state-of-the-art driver education program. This effort ultimately led to a demonstration project that took place from 1978 to 1981 (commonly referred to as the DeKalb study, named after DeKalb County, Georgia, where it was conducted) and compared the effects of three programs: a comprehensive Safe Performance Curriculum (SPC), a shorter Pre-Driver Licensing (PDL) curriculum, and no driver education. Many safety advocates expected this effort to conclusively show the crash-reduction potential of a model classroom and behind-the-wheel curriculum, that is, the SPC.

[2] U.S. Department of Transportation, NHTSA, *Traffic Safety Facts 2003 Data: Young Drivers*, DOT HS 809 774 (Washington, DC: NHTSA, 2005).

[3] DOT HS 809 774.

[4] <http://www.cdc.gov/ncipc/duip/spotlite/teendrivers.htm>.

[5] U.S. Department of Transportation, NHTSA, *Traffic Safety Facts 2002: Young Drivers*, DOT HS 809 619 (Washington, DC: NHTSA, 2004).

[6] M.X. Cammisa, A.F. Williams, and W.A. Leaf, "Vehicles Driven by Teenagers in Four States," *Journal for Safety Research*, Vol. 30, No. 1 (1999): 25–30.

The demonstration project did not yield strong evidence of a safety benefit associated with either the SPC or PDL curriculum. When the crash rates of the students assigned to each group (regardless of whether they completed the course or were licensed) were evaluated, no significant difference was found among the three groups, either in the percentage of students who were involved in a crash or in the average number of crashes per student.[7] Debate regarding the study's methodology has been ongoing. Nonetheless, two additional analyses[8] found no evidence of crash reduction effectiveness due to the driver education training after the first 6 months (for SPC) or after the first 18 months (for PDL). Both studies reported that the SPC and PDL courses resulted in earlier licensing among their students.

In 1981 (before results of the demonstration project were released), the Congress required NHTSA to reconsider its list of national priority programs in terms of their potential for reducing crashes. Based on available evidence (including preliminary results from the demonstration project), driver education was dropped from NHTSA's list of priority programs in that year.

Many driver education curricula, public and private, have been developed without the benefit of information about what constitutes an effective program. For example, the American Driver and Traffic Safety Education Association (ADTSEA), with funding from NHTSA, has developed a model driver education curriculum for classroom and behind-the-wheel instruction to provide information on the basics of safe vehicle operation. This curriculum has not yet been validated to determine whether it improves teenagers' safety. NHTSA plans, probably in 2006, to begin identifying the factors that would be involved in a large-scale evaluation of driver education effectiveness and then to perform a general evaluation of driver education, including ADTSEA's curriculum.[9] Some States already use the ADTSEA curriculum and some supplement it with other curricula.[10] For example, Idaho and Oregon use parts of the National Institute for Driver Behavior's behind-the-wheel curriculum, in addition to the ADTSEA curriculum. Other States have no standard driver education curricula.[11] Several private companies and associations discussed the content and effectiveness of their driver education curricula at the forum, and each claimed some level of success in reducing crashes;[12] however, no individuals or groups have comprehensively identified and evaluated best practices for driver education and training.

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[7] J.R. Stock, J.K. Weaver, H.W. Ray, J.R. Brink, and M.G. Sadoff, *Evaluation of Safe Performance Secondary School Driver Education Curriculum Demonstration Project, Final Report*, DOT HS 806 568 (Washington, DC: NHTSA, 1983).

[8] (a) A.K. Lund, A.F. Williams, and P. Zador, "High School Driver Education: Further Evaluation of the DeKalb County Study," *Accident Analysis and Prevention*, Vol. 18, No. 4 (1986): 349–357. (b) C.S. Davis, *The DeKalb County, Georgia, Driver Education Demonstration Project: Analysis of Its Long-Term Effect* (Iowa City, Iowa: University of Iowa, Department of Preventive Medicine, 1990).

[9] Conversation with Jim Wright, NHTSA, May 16, 2005.

[10] Elizabeth Weaver, Idaho Department of Education, 74. John Harvey, Oregon Department of Transportation, 107. (All references from the forum transcript are cited as [speaker, company or association, page number].)

[11] Greg Lantzy, Michigan Department of Education, 89.

[12] Examples include the AAA Foundation for Traffic Safety's Novice Driver Education Model Curriculum and its driver-ZED CD-ROM, the National Institute for Driver Behavior, TeenSmart, and the National Driver Training Institute.

Driver education takes place worldwide, and studies are under way in Europe, for example, to determine how best to provide driver education and behind-the-wheel training to improve novice driver safety. Although driver licensing generally does not occur until age 18 in Europe, the crash rate for European novice drivers is still higher than that for more experienced drivers.[13] Consequently, the European Union is researching ways to improve driver education and to reduce the novice driver crash rate. European researchers note, "[N]ovice drivers can have superior manoeuvering skills and still have many crashes. Teaching scanning[[14]] and anticipating as well as self-evaluation skills[[15]] appear to be promising ways to reduce crash rates of novice drivers."[16] Another European research program found that "driver education should expand from the knowledge and skills of vehicle manoeuvering and the mastery of traffic situations to include more about driving goals and context as well as about goals for life, risk awareness, and self-evaluation."[17]

A 1996 review of the role of driver education as part of GDL programs in the United States included the recommendation that an effective program "should be empirically based and focus on those psycho-motor, cognitive, and perceptual skill deficiencies that have been shown to be associated with high collision rates of novice drivers."[18] However, most driver education courses today are not based on an evaluation of the amount of time needed to master these skills. They therefore may not have sufficient hours or the right mix of classroom and behind-the-wheel training (30 hours classroom, 6 hours behind-the-wheel is the typical amount of training provided) to provide this type of instruction.

In summary, as stated at the forum, "Without national leadership, everyone has done their own thing. As a result, what driver education is in one community is entirely different [from what it is] in another community."[19] The Safety Board concludes that although the various approaches to driver education in the United States and Europe may have aspects that provide novice drivers with some of the training and skills needed to drive safely, no systematic evaluation has been conducted to determine which components are effective in teaching safe driving skills; consequently, educators and commercial driving schools have little or no reliable guidance to follow in designing an appropriate curriculum or in establishing requirements for classroom or behind-the-wheel instruction.

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[13] Nils-Petter Gregersen, *Reducing High Risks—Young Novice Driver Measures*. In <http://www.etsc.be/evebody.htm>.

[14] Scanning is the task of observing the entire scene around the vehicle to determine whether the path is safe.

[15] Self-evaluation skills are those used to observe one's own behavior and actions to determine whether that behavior contributes to safe driving.

[16] A. Hoeschen and E. Bekiaris, editors, *TRAINER System for Driver Training and Assessment Using Interactive Evaluation Tools and Reliable Methodologies,* Deliverable No. 2.1, "Inventory of Driver Training Needs and Major Gaps in the Relevant Training Procedures" (Brussels, Belgium: BIVV/CARA, 2001).

[17] S. Siegrist, editor, *Driver Training, Testing and Licensing—Towards a Theory Based Management of Young Drivers' Injury Risk in Road Traffic*, BFU Report No. 40 (Bern, Switzerland: BFU, 1999).

[18] D.R. Mayhew and H.M. Simpson, *Effectiveness and Role of Driver Education and Training in a Graduated Licensing System: Summary* (Arlington, Virginia: Insurance Institute for Highway Safety, 1996).

[19] Allen Robinson, ADTSEA, 37.

Teenagers' Learning Styles

Research has advanced significantly since the DeKalb study 2 decades ago, particularly in the area of how teenagers learn. A representative from the Idaho Department of Education stated that, in her experience, "traditional classroom lecture methods that we have used so long in our schools no longer work with teen drivers today. Our teens need to be visually, mentally, and physically stimulated and challenged."[20] Teenagers vary greatly in their learning capacity, learning style, maturity, and risk-taking behavior. Driver education and behind-the-wheel training need to accommodate those who learn visually, those who learn by listening, and those who learn by doing. Having students only read a book or listen to a lecture, as many classroom curricula do, does not take into consideration the varying ways in which students learn. A multivariate approach to teaching and learning can reach the maximum number of students and help them learn to drive safely. Noting that most programs do not attempt to employ the wide-ranging methods by which teenagers learn, a 2000 study[21] of policies and practices in driver education stated, "it will be important for future initiatives to ground efforts in the overall cognitive, emotional, and physical developmental processes of youth."

Thus, developing comprehensive driver education and behind-the-wheel training curricula requires an understanding not only of traffic safety but also of how teenagers learn. In the absence of such an understanding, educators can lose the opportunity to teach teenagers how to drive safely. Furthermore, as is reflected in their behavior, teenagers are extremely susceptible to peer pressure. Understanding this pressure and other aspects of the cultural and societal pressures that affect their behavior could help educators design curricula that take into account and compensate for risks associated with this environment. Some European programs have begun to focus on this aspect of educating teenage drivers.[22] The Safety Board concludes that to be effective, novice driver education must take into account research results that offer an understanding of how teenagers learn and of the behavioral environment in which teenagers typically function.

One function of the U.S. Department of Education is to promote improvements in the quality and usefulness of education throughout the United States.[23] Driver education in many States comes under the purview of the State Departments of Education; however, the U.S. Department of Education currently has no role in developing driver education courses. Yet the need for a more rigorous approach to novice driver education is pressing, and the time for Department of Education involvement is opportune. Research results from other educational fields on how teenagers learn may have applicability to driver education, and the Department of Education is best equipped to make this determination.

[20] Elizabeth Weaver, Idaho Department of Education, 75.

[21] D. Anderson, A. Abdalla, C.N. Goldberg, T. Diab, and B. Pomietto, *Young Driver: A Study of Policies and Practices, Report of Findings* (Fairfax, Virginia: George Mason University, December 2000).

[22] BFU Report No. 40.

[23] <www.ed.gov>.

Training is necessary for skill development and proficiency in any activity, and, logically, driver education and training should provide such benefits for novice drivers. Although statistics have not shown whether driver education is beneficial for novice drivers in terms of reducing the incidence of crashes, this does not necessarily indicate that driver education is unsuccessful, when in fact no methodology is available to measure whether the roads would be less safe without driver education. Further, what specifically would improve novice driver performance has not been identified; rather, driver education curricula, including the recently developed ADTSEA course funded by NHTSA, have been developed largely based on subjective measures and use of readily available components that have not been validated. NHTSA, through a cooperative agreement with ADTSEA, is preparing a summary of subjects being taught in driver education programs throughout the country, but this agreement does not include an evaluation of the benefits of these programs.[24] Therefore, NHTSA, in conjunction with the Department of Education, should determine which driver training methods result in increased safety for novice drivers, and the Safety Board encourages NHTSA and the Department of Education to solicit input from driver education providers during this effort. The Safety Board believes that NHTSA and the Department of Education should jointly review current driver education and training programs in use nationally and internationally and determine which instructional tools, training methods, and curricula are consistent with what the Department of Education has identified as best teaching methodologies and have led to or are likely to lead to a reduction in crashes. Further, they should incorporate these best practices into a model driver education and training curriculum.

Driver Education Sequencing

In 1949, the National Education Association's National Commission on Safety Education[25] recommended 30 hours of classroom education and 6 hours of behind-the-wheel training (30 + 6) as a standard for driver education and training. The commission derived these recommendations based on a compromise between the time needed to teach driver education and the time funded and feasible for teaching driving skills during the school day.[26]

Despite the dramatic changes in vehicles, highways, and the driving environment over the past 56 years, the approach to driver education has changed little. According to one of the speakers at the Safety Board's public forum, many schools still regard the 30 + 6 formula as the standard.[27] Researchers have shown that driver education, accomplished in 30 hours of classroom and 6 hours of behind-the-wheel training, cannot reasonably be expected to transform a nondriver into a safe driver.[28] Nonetheless, even the model

[24] Conversation with Jim Wright, NHTSA, May 16, 2005.

[25] The commission was formed to provide structure and guidance to the rapidly developing field of driver education.

[26] Correspondence with James Nichols, formerly of NHTSA, August 16, 2004.

[27] Allen Robinson, ADTSEA, 33.

[28] (a) P.F. Waller, "Driver Education: Can Its Goals Be Met?" *Perception,* Vol. 8, No. 6 (1975). (b) P.F. Waller, "The Genesis of GDL," *Journal of Safety Research,* Vol. 34 (2003): 17–23.

curriculum that ADTSEA recently developed for NHTSA is based on the 1949 standard (30 hours of classroom instruction and 6 hours of behind-the-wheel instruction),[29] because it reflects the number of instruction hours allotted in States that offer school-based driver education. One driver education teacher at the forum agreed that, based on her experience, precision driving skills and safe driving habit development cannot be taught in only 6 hours of behind-the-wheel instruction.[30] A teenage speaker at the forum also said she did not receive enough driving time with her instructor.[31] A speaker from the Insurance Institute for Highway Safety noted "the courses are generally of short duration, leading to concentration on teaching basic driving skills and less opportunity to teach safe driving techniques."[32] The Safety Board concludes that the 56-year-old formula of 30 hours of classroom training followed sequentially by 6 hours of behind-the-wheel training was determined arbitrarily and is probably inadequate to teach teenagers the skills necessary to drive safely on today's roadways.

GDL, which the Safety Board has recommended and all States have implemented (at least in part), is a three-stage system that incrementally gives young novice drivers added privileges as they gain experience driving. First, the young driver receives a learner's permit that requires completion of both a minimum of 6 months driving without an at-fault crash or traffic violation and supervised driving practice (including nighttime driving) in which the supervising licensed driver is age 21 or older. Next, the young driver receives an intermediate, or provisional, permit that requires completion of a minimum of 6 months driving without an at-fault crash or traffic violation and imposes nighttime driving restrictions and teenage passenger restrictions. During both stages one and two, young drivers are not allowed to operate a vehicle under the influence of alcohol (blood alcohol concentration of 0.0 grams/100 ml) and may not use interactive wireless communication devices (cell phones). The third and final stage is full licensure.

In many States, teenagers cannot receive their learner's permit until they have completed the classroom phase of driver education. However, at stage 1 of GDL and beyond, the opportunities for additional classroom education are limited. While GDL provides novice drivers with actual driving experience under controlled conditions,[33] the opportunity for behind-the-wheel practice in a safe environment from a qualified instructor is minimal.

The majority of States that require both classroom and behind-the-wheel training do not require that they be taken concurrently (see part 4). Most classroom training in driver education takes place when a novice driver has had little or no experience behind the wheel to relate concepts learned to real-life driving. Students listen to a lecture but often do not practice the lesson until weeks or even months later. Michigan, in cooperation

[29] <http://adtsea.iup.edu/adtsea/de_curriculum/de_curriculum.htm>.

[30] Deborah Cottonware, 2003 Teacher of the Year, ADTSEA, 125.

[31] Kayla Craddick, student, 136.

[32] Alan Williams, Insurance Institute for Highway Safety, 199.

[33] Examples include limiting driving to daytime, driving with adult supervision, limiting the number of passengers, mandatory seat belt usage, remaining accident/violation-free during the learner and intermediate stages, no alcohol violations, and prohibiting cell phone use.

with NHTSA, is studying the effect of providing two-phased classroom education, which inserts behind-the-wheel training between two classroom phases. Some privately offered driver education courses discussed at the forum combine classroom and behind-the-wheel learning so that they are done concurrently. No studies to date have shown whether students' driving skills benefit from concurrent classroom and behind-the-wheel training. Yet NHTSA, through its cooperative agreement with ADTSEA, will offer technical assistance to the States on providing driver education in conjunction with GDL without corresponding research to support the validity of such assistance.[34]

Although the specific number of hours that novice drivers need to learn to operate a motor vehicle safely may vary because of individual learning differences, setting a standard sequence for classroom and behind-the-wheel education, in conjunction with GDL qualifications, could guide educators and trainers in providing optimum training to teach the majority of novice drivers to become safe drivers. The Safety Board believes that NHTSA, in cooperation with the Department of Education, should determine the optimum sequencing, in conjunction with GDL qualifications, for educating teenagers on safe driving skills, both in the classroom and behind the wheel, and encourage the States to adopt this requirement.

Conclusions

1. Although the various approaches to driver education in the United States and Europe may have aspects that provide novice drivers with some of the training and skills needed to drive safely, no systematic evaluation has been conducted to determine which components are effective in teaching safe driving skills; consequently, educators and commercial driving schools have little or no reliable guidance to follow in designing an appropriate curriculum or in establishing requirements for classroom or behind-the-wheel instruction.

2. To be effective, novice driver education must take into account research results that offer an understanding of how teenagers learn and of the behavioral environment in which teenagers typically function.

3. The 56-year-old formula of 30 hours of classroom training followed sequentially by 6 hours of behind-the-wheel training was determined arbitrarily and is probably inadequate to teach teenagers the skills necessary to drive safely on today's roadways.

Recommendations

As a result of its investigation and public hearing, the National Transportation Safety Board makes the following safety recommendations:

[34] Conversation with Jim Wright, NHTSA, May 16, 2005.

To the U.S. Department of Education:

In cooperation with the National Highway Traffic Safety Administration, review current driver education and training programs in use nationally and internationally and determine which instructional tools, training methods, and curricula are consistent with what you have identified as best teaching methodologies and have led to or are likely to lead to a reduction in crashes. Further, incorporate these best practices into a model driver education and training curriculum. (H-05-23)

In cooperation with the National Highway Traffic Safety Administration, determine the optimum sequencing, in conjunction with graduated driver licensing qualifications, for educating teenagers on safe driving skills, both in the classroom and behind the wheel, and encourage the States to adopt this requirement. (H-05-24)

To the National Highway Traffic Safety Administration:

In cooperation with the U.S. Department of Education, review current driver education and training programs in use nationally and internationally and determine which instructional tools, training methods, and curricula are consistent with what the U.S. Department of Education has identified as best teaching methodologies and have led to or are likely to lead to a reduction in crashes. Further, incorporate these best practices into a model driver education and training curriculum. (H-05-25)

In cooperation with the U.S. Department of Education, determine the optimum sequencing, in conjunction with graduated driver licensing qualifications, for educating teenagers on safe driving skills, both in the classroom and behind the wheel, and encourage the States to adopt this requirement. (H-05-26)

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

MARK V. ROSENKER
Acting Chairman

RICHARD F. HEALING
Member

ELLEN ENGLEMAN CONNERS
Member

DEBORAH A. P. HERSMAN
Member

Adopted: August 1, 2005

Part 3

Graduated Driver Licensing Recommendations

To the Governors of Alabama, Alaska, Arizona, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Iowa, Kansas, Louisiana, Maine, Massachusetts, Minnesota, Mississippi, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oklahoma, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, West Virginia, Wisconsin, and Wyoming and the Mayor of the District of Columbia:

Raise the minimum legal age for drinking or purchasing all alcoholic beverages to 21 years of age. (H-82-18)

To the State Governors:

Review your drinking age (age 21) laws to determine if they prohibit persons under the age of 21 from attempting to purchase, purchasing, publicly possessing, or consuming alcoholic beverages and prohibit the sale of alcoholic beverages to persons under the age of 21. Enact laws to include these provisions and to eliminate deficiencies that may exist. (H-93-1)

Enact comprehensive laws that prohibit drivers under the age of 21 from driving with any measurable blood alcohol concentration (any level above 0.00 BAC), to include: provisions for administrative license revocation. (H-93-5)

Enact laws that prohibit driving by young novice drivers between certain times, especially midnight to 5 a.m. (H-93-9)

Require that the supervising adult driver in the learner's permit stage of your graduated licensing law is age 21 or older. (H-02-31)

To the Governors of Alabama, Arkansas, Colorado, Delaware, Florida, Georgia, Idaho, Indiana, Illinois, Iowa, Louisiana, Maine, Maryland, Michigan, Mississippi, Missouri, New Hampshire, New Mexico, New York, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Texas, Virginia, Washington, West Virginia, and the Mayor of the District of Columbia:

Restrict young, novice drivers with provisional (intermediate) licenses, unless accompanied by a supervising adult driver who is at least 21 years old, from carrying more than one passenger under the age of 20 until they receive an unrestricted license or for at least 6 months (whichever is longer). (H-02-30)

To the Governors of Alaska, Arizona, Connecticut, Hawaii, Kansas, Kentucky, Minnesota, Montana, Nebraska, Nevada, North Dakota, Oklahoma, Utah, and Wyoming:

Enact laws to provide for a three-stage graduated licensing system for young novice drivers, and restrict young novice drivers with provisional or intermediate licenses (second stage), unless accompanied by a supervising adult driver who is at least 21 years old, from carrying more than one passenger under the age of 20 until they receive an unrestricted license or for at least 6 months (whichever is longer). (H-02-32)

To the 48 States that do not have legislation prohibiting holders of learner's permits and intermediate licenses from using interactive wireless communication devices:

Enact legislation to prohibit holders of learner's permits and intermediate licenses from using interactive wireless communication devices while driving. (H-03-8)

Part 4

Novice Driver Requirements in the 50 States and District of Columbia

Table 1. Learner's permit requirements (based upon Insurance Institute for Highway Safety [IIHS] information, June 2005).

	Requirements				Restrictions	
	Type	Age	Training	Testing	Supervision	Other (hours, locations, passengers, cell phone usage)
Alabama	Learner's license	15	—	Pass written test	Not drive unless supervised	—
Alaska	Instruction permit	14	—	Pass written test	Not drive unless supervised	—
Arizona	Restricted instruction permit	15	Enrolled in driver education program	Pass written test	Not drive unless supervised	Only drive on designated highway or area
	Instruction permit	15 years, 7 months	—	Pass written test	Not drive unless supervised	—
Arkansas	Instruction permit	14	—	Pass written test	Not drive unless supervised	—
	Learner's license	14	Hold instruction permit 30 days	Pass driving test	Not drive unless supervised	—
California	Instruction permit	15 years, 6 months	Complete driver education and enrolled in or completed on-the-road training	Pass written test	Not drive unless supervised	—
Colorado	Instruction permit	16	—	Pass written test	Not drive unless supervised	Not drive while using a cell phone
	Instruction permit	15 years, 6 months	Complete 4-hour driver awareness program	Pass written test	Not drive unless supervised	Not drive while using a cell phone
	Instruction permit	15	Enrolled in driver education program	Pass written test	Not drive unless supervised	Not drive while using a cell phone
Connecticut	Learner's permit	16	—	Pass written test	Not drive unless supervised	Not drive while using a cell phone
Delaware	Level 1 learner's permit	15 years, 10 months	Complete driver education and certified by driving instructor	Pass written and driving test	Not drive unless supervised for first 6 months	Not carry more than two passengers in addition to supervising driver (family excepted) Not drive while using a cell phone
District of Columbia	Learner's permit	16	—	Pass written test	Not drive unless supervised	Not drive between 9 p.m. and 6 a.m. Not drive while using a cell phone
Florida	Learner's license	15	Complete traffic law and substance abuse course	Pass written test	Not drive unless supervised	First 3 months: not drive after sunset; after 3 months: not drive after 10 p.m.

	Requirements				Restrictions	
Georgia	Instruction permit	15	—	Pass written test	Not drive unless supervised	—
Hawaii	Instruction permit	15 years, 6 months	—	Pass written test	Not drive unless supervised	—
Idaho	Driver training instruction permit	14 years, 6 months	Enrolled in driver training	—	Not drive unless supervised by driving instructor	—
	Supervised instruction permit	14 years, 6 months	Completed driver training	—	Not drive unless supervised	—
Illinois	Instruction permit	15	Enrolled in driver education	Pass written test	Not drive unless supervised	Not drive while using a cell phone
	Instruction permit	15 years, 6 months	Enrolled in school	Pass written test	Not drive unless supervised	
	Instruction permit	17 years, 9 months	—	Pass written test	Not drive unless supervised	
Indiana	Unvalidated learner's permit	15	Enrolled in driver education	—	Not drive unless supervised by instructor or parent	—
	Validated learner's permit	15	Completed driver education	—	Not drive unless supervised by parent or relative	—
	Validated learner's permit	16	—	Pass written test	Not drive unless supervised by parent or relative	—
Iowa	Instruction permit	14	—	Pass written test	Not drive unless supervised	—
Kansas	Instruction permit	14	—	Pass written test	Not drive unless supervised	—
	Restricted driver's license	15	Complete driver education, drive at least 25 hours supervised	—	Not drive unless supervised other than to and from work and school by the most direct route	Not carry minor passengers (siblings excepted), hold instruction permit at least 6 months, and obtain recommendation of chief law enforcement officer of city or county if required
Kentucky	Instruction permit	16	—	Pass written test	Not drive unless supervised	Not drive between midnight and 6 a.m.
Louisiana	Learner's license	15	Completed driver education	Pass written test	Not drive unless supervised	—
	Learner's license	17	—	Pass written test	Not drive unless supervised	—
Maine	Instruction permit	15	Completed driver education	Pass written test	Not drive unless supervised	Not drive while using a cell phone
Maryland	Learner's instructional permit	15 years, 9 months	—	Pass written test	Not drive unless supervised	Not drive while using a cell phone
Massachusetts	Learner's permit	16	—	Pass written test	Not drive unless supervised	If under 18, not drive between midnight and 5 a.m. unless supervised by licensed parent or guardian who has been licensed for at least 1 year

Requirements					Restrictions	
Michigan	Level 1 license	14 years, 9 months	Completed segment 1 driver education and 6 hours of driving	—	Not drive unless supervised	—
Minnesota	Instruction permit	15	Enrolled in or completed driver education	Pass written test	Not drive unless supervised	—
Mississippi	Temporary permit	15	—	Pass written test	Not drive unless supervised	—
Missouri	Instruction permit	15	—	Pass written test	Not drive unless supervised	—
Montana*	Traffic education learner license	14 years, 6 months	Enrolled in or completed driver education	—	Not drive unless supervised by parent or driving instructor	—
	Instruction permit	15	Completed driver education	Pass written test	Not drive unless supervised	—
	Instruction permit	16	—	Pass written test	Not drive unless supervised	—
Nebraska	Learner's permit	15	—	Pass written test	Not drive unless supervised	—
Nevada	Instruction permit	15 years, 6 months	—	Pass written test	Not drive unless supervised	—
New Hampshire	To practice driving; no learner's permit	15 years, 6 months	—	—	Not drive unless supervised	—
New Jersey	Special learner's permit	16	Completed driver education	Pass written test	Not drive unless supervised	Not drive while using a cell phone Not carry more than 1 passenger beyond supervisor (household members excepted) Not drive between 11 p.m. and 5 a.m.
	Examination permit	17	—	Pass written test	Not drive unless supervised	Not drive while using a cell phone Not carry more than 1 passenger (household members excepted) Not drive between midnight and 5 a.m.
New Mexico	Instruction permit	15	Enrolled in driver education	—	Not drive unless supervised	—
New York	Learner's permit	16	—	Pass written test	Not drive unless supervised	Restrictions in New York City and surrounding counties
	Limited use DJ license	16	Drive at least 20 hours supervised	Pass driving test	Not drive in New York City and surrounding counties unless supervised	Not drive unless going to and from school, school activities, work, medical appointments, and daycare for family members
North Carolina	Limited learner's permit	15	Completed driver education	Pass written test	Not drive unless supervised	First 6 months: not drive between 9 p.m. and 5 a.m.
North Dakota	Instruction permit	14	—	Pass written test	Not drive unless supervised	—

Requirements					Restrictions	
Ohio	Instruction permit	15 years, 6 months	—	Pass written test	Not drive unless supervised	Not drive between 1 a.m. and 5 a.m. unless supervised by parent or guardian
Oklahoma	Learner permit	15 years, 6 months	Completed or enrolled in driver education; enrolled in parent-taught driver education certified by DPS; or completed 36 hours of supervised practice driving, as certified by parent or guardian	Pass written test	Not drive unless supervised	—
	Learner permit	16		Pass written test	Not drive unless supervised	—
Oregon	Instruction permit	15	—	Pass written test	Not drive unless supervised	—
Pennsylvania	Learner's permit	16	—	Pass written test	Not drive unless supervised	—
Rhode Island	Limited instruction permit	16	Completed driver education	Pass written test	Not drive unless supervised	—
South Carolina	Beginner's permit	15	—	Pass written test	Not drive unless supervised	Not drive between midnight and 6 a.m. unless supervised by a parent or guardian
South Dakota	Instruction permit	14	—	Pass written test	Not drive unless supervised	Not drive between 10 p.m. and 6 a.m. unless supervised by a parent or guardian
Tennessee	Learner's permit	15	—	Pass written test	Not drive unless supervised	Not drive between 10 p.m. and 6 a.m. Not drive while using a cell phone
Texas	Instruction permit	15	Completed classroom phase of driver education	Pass written test	Not drive unless supervised	—
Utah	Practice permit	15 years, 6 months	Enrolled in driver education	Pass written test	Not drive unless supervised	—
Vermont	Learner's permit	15	—	Pass written test	Not drive unless supervised	—
Virginia	Learner's permit	15 years, 6 months	—	Pass written test	Not drive unless supervised	Not carry more than 1 passenger under 18 Not drive between midnight and 4 a.m.
Washington	Instruction permit	15	Enrolled in driver education	—	Not drive unless supervised	—
	Instruction permit	15 years, 6 months	—	Pass written test	Not drive unless supervised	—
West Virginia	Level 1 instruction permit	15	—	Pass written test	Not drive unless supervised	Not carry more than 2 passengers in addition to supervising driver (family excepted) Not drive between 11 p.m. and 5 a.m.

Requirements					Restrictions	
Wisconsin	Regular instruction permit	15 years, 6 months	—	Pass written test	Not drive unless supervised	Carry family members if supervised by parent or guardian Carry 3 passengers if supervised by instructor in dual-control vehicle If 16, carry 1 passenger, 25 years or older, who has been licensed 2 years
Wyoming	Instruction permit	15	—	Pass written test	Not drive unless supervised	—

*In additon to requirements noted by IIHS above, the Montana Department of Justice or an approved traffic education instructor may issue a Restricted Instruction Permit to anyone age 14 years, 6 months, who has passed a knowledge test.

Table 2. Intermediate/provisional license requirements (based upon IIHS information, June 2005).

	Requirements					Restrictions (hours, locations, passengers, cell phone usage)	Restrictions end (age, experience, and training)
	Age	Learner's permit held	On-the-road experience	Training	Testing		
Alabama	16	6 months	30 hours supervised driving; if driver education completed, no supervised driving experience required	Optional	Pass driving test	Not carry more than 3 passengers (parents or guardians excepted) Not drive between midnight and 6 a.m. unless supervised	17, after 6 months restricted
Alaska	16	6 months	40 hours supervised driving, 10 at night or in inclement weather	—	Pass driving test	Not carry passengers under 21 (siblings excepted) unless supervised Not drive between 1 a.m. and 5 a.m. unless supervised	After 6 months or at 18, whichever comes first
Arizona	16	5 months	25 hours supervised, 5 at night; if driver education completed, no supervised driving experience required	Optional	Pass driving test	—	—
Arkansas	16	Instruction and learner's permit (6 months total)	—	—	—	—	—
California	16	6 months	50 hours supervised, 10 at night	Pass driver education and training	Pass driving test	First 6 months, not carry passengers under 20 (immediate family excepted in limited circumstances) unless supervised Not drive between midnight and 5 a.m. unless supervised	After 1 year or at 18, whichever comes first
Colorado	16	12 months	50 hours supervised,10 at night	—	Pass driving test	First 6 months, not carry passengers (family excepted); second 6 months, not carry more than 1 passenger (family excepted) unless supervised Not drive between midnight and 5 a.m. unless supervised	17
Connecticut	16	6 months, or 4 months with driver education	20 hours supervised; if driver education completed, no supervised driving experience required	Complete course in driver education or home study with parent or guardian; complete course on safe driving practices	Pass driving test	First 3 months, not carry passengers; second 3 months, not carry passengers (family excepted) Not drive between midnight and 5 a.m. Not drive while using a hand-held cell phone	After 6 months—passenger restriction 18—night driving restriction and cell phone restriction
Delaware	16 years, 4 months	6 months	—	—	—	Not carry more than 2 passengers unless supervised Not drive between 10 p.m. and 6 a.m. unless supervised Not drive while using a cell phone	After 6 months

Requirements						Restrictions (hours, locations, passengers, cell phone usage)	Restrictions end (age, experience, and training)
	Age	Learner's permit held	On-the-road experience	Training	Testing		
District of Columbia	16 years, 6 months	6 months	40 hours supervised	—	Pass driving test	Not carry passengers (family excepted) Not drive between 11 p.m. and 6 a.m. (weekends and summers between midnight and 6 a.m.)	17 and after 6 months restricted
	17	6 months	10 hours at night	—	—	Not carry more than 2 passengers (siblings excepted) Not drive between 11 p.m. and 6 a.m. (weekends and summers between midnight and 6 a.m.)	18
Florida	16	1 year	50 hours supervised, 10 at night	—	Pass driving test	Under 17—not drive between 11 p.m. and 6 a.m. unless supervised 17—not drive between 1 a.m. and 5 a.m. unless supervised	18
Georgia	16	1 year	40 hours supervised, 6 at night; if driver education completed, 20 hours supervised, 6 at night	Optional	—	First 6 months, not carry passengers (family excepted); after that, not carry more than 3 passengers under 21 (family excepted) Not drive between midnight and 6 a.m.	18
Hawaii	16	6 months	—	Complete driver education	Pass driving test	Not carry more than 1 passenger under 18 (household members excepted) unless supervised Not drive between 11 p.m. and 5 a.m. unless supervised	17
Idaho	15	4 months	50 hours supervised, 10 at night	—	Pass written and driving test	Not drive after daylight hours unless supervised	16
Illinois	16	3 months	25 hours supervised	Complete driver education	Pass driving test	Not carry more than 1 passenger under 20 (family excepted) Not drive between 11 p.m. and 6 a.m. weekdays and midnight and 6 a.m. weekends unless supervised Not drive while using a cell phone	After 6 months or at 18, whichever comes first—passenger restriction 17—night driving restriction 18—cell phone restriction
Indiana	16 years, 1 month	2 months	—	Complete driver education	Pass driving test	Not carry passengers unless supervised	After 90 days or at 18, whichever comes first—passenger restriction
	16 years, 6 months	2 months	—	—	Pass driving test	Not drive between 11 p.m. and 5 a.m. weekdays and 1 a.m. and 5 a.m. weekends	18—night driving restriction

Requirements						Restrictions (hours, locations, passengers, cell phone usage)	Restrictions end (age, experience, and training)
	Age	Learner's permit held	On-the-road experience	Training	Testing		
Iowa	16	6 months	20 hours supervised, 2 at night	Complete driver education	—	Not drive between 12:30 a.m. and 5 a.m. unless supervised	17, after holding intermediate license for 1 year
Kansas	16	—	50 hours supervised, 10 at night	Complete driver education or driving test	—	—	—
Kentucky	16 years, 6 months	6 months	—	—	Pass driving test	—	18 If under 18, must attend driver education course or State traffic school within 1 year
Louisiana	16	6 months	—	—	Pass driving test	Not drive between 11 p.m. and 5 a.m. unless supervised	17
Maine	16	6 months	35 hours supervised, 5 at night	—	Pass driving test	Not carry passengers (family excepted) unless supervised Not drive between midnight and 5 a.m. Not drive while using cell phone	After 6 months or at 18, whichever comes first
Maryland	16 years, 3 months	6 months	60 hours supervised, 10 at night	Complete driver education	Pass driving test	Not carry passengers under 18 unless supervised Not drive between midnight and 5 a.m unless supervised Not drive while using a cell phone	After 5 months or at 18, whichever comes first—passenger restriction After 18 months or at 18, whichever comes first—night driving restriction
Massachusetts	16 years, 6 months	6 months	12 hours supervised	Complete driver education	Pass driving test	Not carry passengers under 18 (family excepted) unless supervised Not drive between midnight and 5 a.m. unless supervised	After 6 months or at 18, whichever comes first—passenger restriction 18—night driving restriction
Michigan	16	6 months	50 hours supervised, 10 at night	Complete segment 2 driver education	Pass driving test	Not drive between midnight and 5 a.m. unless supervised	17
Minnesota	16	6 months	30 hours supervised, 10 at night	Complete driver education	Pass driving test	—	—
Mississippi	15 years, 6 months	6 months	—	—	Pass driving test	Not drive between 10 p.m. and 6 a.m. unless supervised	After 6 months or at 17, whichever comes first
Missouri	16	6 months	20 hours supervised	—	Pass driving test	Not drive between 1 a.m. and 5 a.m. unless supervised	18

	Requirements					Restrictions (hours, locations, passengers, cell phone usage)	Restrictions end (age, experience, and training)
	Age	Learner's permit held	On-the-road experience	Training	Testing		
Montana	15 16	6 months 6 months	50 hours supervised, 10 at night 50 hours supervised, 10 at night	Complete driver education —	Pass driving test Pass driving test	First 6 months, not carry more than 1 passenger under 18 (family excepted) unless supervised; second 6 months, not carry more than 3 passengers under 18 (family excepted) unless supervised	— —
Nebraska	16	—	50 hours supervised; if driver education completed, no supervised driving experience required	Optional	Pass written and driving tests	Not drive between midnight and 6 a.m. unless supervised	After 1 year or at 18, whichever comes first
Nevada	No earlier than 16	6 months	50 hours supervised, 10 at night, and complete driver education or 100 hours supervised (in locations where driver education not available)	Complete driver education	—	Not carry passengers under 18 (family excepted) Not drive between 10 p.m. and 5 a.m.	3 months
New Hampshire	16	—	20 hours supervised	Complete driver education	Pass driving test	Not carry more than 1 passenger under 25 (family excepted) unless supervised Not drive between 1 a.m. and 5 a.m.	After 6 months or at 18, whichever comes first—passenger restriction After 13 months or at 18, whichever comes first—night driving restriction
New Jersey	17	6 months (learner's or examination permit)	—	Complete driver education	Pass driving test	Not carry more than 1 passenger (household members excepted) unless supervised Not drive between midnight and 5 a.m. Not drive while using a cell phone	After 1 year or at 21, whichever comes first
New Mexico	15 years, 6 months	6 months	50 hours supervised, 10 at night	Complete driver education	Pass driving test	Not carry more than 1 passenger under 21 (family excepted) Not drive between midnight and 5 a.m. unless supervised	After 1 year or at 18, whichever comes first
New York	16	6 months	20 hours supervised	—	Pass driving test	Not carry more than 2 passengers under 21 (family excepted) unless supervised Not drive between 9 p.m. and 5 a.m. unless supervised Not drive in New York City and only to and from school in surrounding counties	17, with driver education; 18, without

	Requirements					Restrictions (hours, locations, passengers, cell phone usage)	Restrictions end (age, experience, and training)
	Age	Learner's permit held	On-the-road experience	Training	Testing		
North Carolina	16	1 year	—	—	Pass driving test	Not carry more than 1 passenger under 21 (family and household members excepted) unless supervised Not drive between 9 p.m. and 5 a.m. unless supervised	After 6 months
North Dakota	16	6 months	—	—	—	—	—
Ohio	16	6 months	50 hours supervised, 10 at night	Complete driver education	Pass driving test	Not drive between 1 a.m. and 5 a.m.	17
Oklahoma	16	6 months	40 hours supervised, 10 at night	Optional	Pass written and driving tests	Not carry more than 1 passenger (household members excepted) unless supervised Not drive between 11 p.m. and 5 a.m. unless supervised	After 1 year; after 6 months if completed driver education and supervised driving practice
Oregon	16	6 months	50 hours supervised and complete driver education or 100 hours supervised	Optional	Pass driving test	First 6 months, not carry passengers under 20 (family excepted); after that, not carry more than 3 passengers under 20 (family excepted) Not drive between midnight and 5 a.m. unless supervised	After 1 year or at 18, whichever comes first
Pennsylvania	16 years, 6 months	6 months	50 hours supervised	—	Pass driving test	Not drive between 11 p.m. and 5 a.m. unless supervised	17
Rhode Island	16 years, 6 months	6 months	50 hours supervised, 10 at night	—	Pass driving test	Not carry more than 1 passenger under 21 (family and household members excepted) Not drive between 1 a.m. and 5 a.m. unless supervised	After 1 year or at 18, whichever comes first
South Carolina	15 years, 6 months for conditional restricted license (16 to get special restricted license)	6 months	40 hours supervised, 10 at night	Complete driver education	Pass driving test	Not carry more than 2 passengers under 21 (family and students going to and from school excepted), unless supervised Not drive between 6 p.m. and 6 a.m. (between 8 p.m. and 6 a.m. during daylight saving time) unless supervised; between midnight and 6 a.m. must be supervised by parent or guardian	After 1 year or at 17, whichever comes first
South Dakota	14 years, 6 months, or 14 years, 3 months, with driver education	6 months, or 3 months with driver education	—	—	Pass driving test	Not drive between 6 a.m. and 10 p.m. without parent's permission; not drive between 10 p.m. and 6 a.m. unless supervised	16

Requirements						Restrictions (hours, locations, passengers, cell phone usage)	Restrictions end (age, experience, and training)
	Age	Learner's permit held	On-the-road experience	Training	Testing		
Tennessee	16	6 months	50 hours supervised, 10 at night	—	Pass driving test	Not carry more than 1 passenger (family to and from school excepted) unless supervised Not drive between 11 p.m. and 6 a.m. unless supervised Not drive while using a cell phone	After 1 year or at 18, whichever comes first
Texas	16	6 months	—	Complete driver education	Pass driving test	Not carry more than 1 passenger under 21 (family excepted) Not drive between midnight and 5 a.m. unless supervised Not drive while using a cell phone	After 6 months or at 18, whichever comes first
Utah	16	—	40 hours supervised, 10 at night	Complete driver education	Pass driving test	Not carry passengers (family excepted) unless supervised Not drive between midnight and 5 a.m. unless supervised	After 6 months or at 18, whichever comes first—passenger restriction 17—night driving restriction
Vermont	16	1 year	40 hours supervised, 10 at night	Complete driver education	Pass driving test	First 3 months, not carry passengers unless supervised; next 3 months, not carry passengers (family excepted) unless supervised	After 6 months or at 18, whichever comes first
Virginia	16 years, 3 months	9 months	40 hours supervised, 10 at night	Complete driver education	Pass driving test	First year, not carry more than 1 passenger under 18 (family excepted); after 1 year, not carry more than 3 passengers under 18 (family excepted) Not drive between midnight and 4 a.m. unless supervised	18
Washington	16	6 months	50 hours supervised, 10 at night	Complete driver education	Pass driving test	First 6 months, not carry passengers under 20 (family excepted); after 6 months, not carry more than 3 passengers under 20 (family excepted) Not drive between 1 a.m. and 5 a.m. unless supervised	After 1 year or at 18, whichever comes first
West Virginia	16	6 months	30 hours supervised; if driver education completed, no supervised driving experience required	Optional	Pass driving test	Not carry more than 3 passengers under 19 (family excepted) Not drive between 11 p.m. and 5 a.m. unless supervised	After 1 year or at 18, whichever comes first

	Requirements					Restrictions (hours, locations, passengers, cell phone usage)	Restrictions end (age, experience, and training)
	Age	Learner's permit held	On-the-road experience	Training	Testing		
Wisconsin	No earlier than 16	6 months	30 hours supervised, 10 at night	—	Pass driving test	Not carry more than 1 passenger in addition to supervising driver (family excepted) Not drive between midnight and 5 a.m. unless supervised	After 9 months or at 18, whichever comes first
Wyoming	16	10 days	50 hours supervised, 10 at night	Complete driver education and have intermediate permit for 6 months or have learner's permit for 10 days and be 17 or older	Pass driving test	Not carry more than 1 passenger under 18 (family excepted) unless supervised Not drive between 11 p.m. and 5 a.m. unless supervised	After 6 months or at 17, whichever comes first

Part 5

Public Forum on Driver Education and Training, October 28–29, 2003

Executive Summary

More than 4,000 teen traffic fatalities occur on the Nation's roadways each year. To help determine what can be done to prevent them, the National Transportation Safety Board (NTSB) convened a public forum in Washington, DC, on October 28 and 29, 2003, to consider issues related to driver education and training.

Speakers from Federal agencies, State governments, Europe, Canada, driver education and traffic safety associations and companies, as well as students, teachers, and researchers addressed the forum. Speakers discussed the history and current state of novice driver education and training, the extent to which it is used, and its quality and effectiveness. Speakers also explored the strengths and weaknesses in driver education and training and what can be done to improve it. Private, State and Federal programs (both here and abroad), experiences with current driver education programs, and new initiatives to improve driver education were also discussed.

The decision to hold the forum was prompted by an accident that occurred near Belgrade, Montana, on January 23, 2003. On that day, about 3:20 p.m., a 1997 Oldsmobile Achieva, operated by a 14-year-old participant in the driver education program at Manhattan Christian School, was westbound on Amsterdam Road (State Route 347) west of Belgrade. Also in the vehicle were two other students, ages 14 and 15, and the driver education instructor, age 49. Amsterdam Road, a two-lane rural roadway (70 mph speed limit), was wet with snow and slush that had accumulated on the edges of the roadway and in the center of the westbound lane. The weather was overcast and partly sunny; the temperature was about 37° F.

About the same time, a 1991 International tractor-semitrailer combination vehicle, operated by a 29-year-old driver, was eastbound on Amsterdam Road, crossing a short bridge over a drainage ditch. According to the truckdriver, both vehicles were traveling 35 to 45 mph when he saw the Oldsmobile begin to "fishtail" and veer into the eastbound lane, directly in front of him. He said he tried to avoid the collision by steering to his left. The tractor-semitrailer struck the Oldsmobile on the right side, causing it to rotate clockwise and plunge down a 10-foot embankment on the south side of the roadway. The truck came to rest facing north on the roadway, blocking both travel lanes.

The four occupants of the Oldsmobile, all of whom were wearing seat belts, sustained fatal injuries. The truckdriver, who was also wearing his seat belt, was not injured.

Some of the speakers' remarks in these proceedings have been edited. A public docket (HWY-03-MH-018) has been established for this forum. In addition to verbatim transcripts of the speakers' presentations, the docket contains administrative information pertaining to the hearing. Additional information about the public docket may be obtained from the Public Inquiries Section, RE-51, National Transportation Safety Board, Washington, DC, 20594, 800-877-6799 or 202-314-6551.

Agenda

Tuesday, October 28, 2003

Welcome and Introduction

History and Research – Kevin Quinlan, NTSB

Essential background information on driver education and training, including its history, development, evaluation, and major studies in the area

Jim Nichols (retired)

Allen Robinson – American Driver and Traffic Safety Education Association (ADTSEA)

U.S. and International Programs – Jennifer Bishop, NTSB

The current state of driver education and training in the U.S. and abroad

Sean McLaurin – United States (National Highway Traffic Safety Administration (NHTSA))

Larry Lonero – Canada (Northport Associates)

Stefan Siegrist – Europe (Swiss Council for Accident Prevention)

State Programs – Gary Van Etten, NTSB

State programs, their effectiveness, and needs

Elizabeth Weaver – Idaho Department of Education

Greg Lantzy – Michigan Department of Education

David Huff – Montana Office of Public Instruction

John Harvey – Oregon Department of Transportation, Transportation Safety Division

Barry Ford – Vermont Department of Education

Wednesday, October 29, 2003

Driver Education Teacher and Student Perspectives – Peter Kotowski, NTSB

Teaching standards and techniques, simulators, and a perspective on program effectiveness from recent graduates

Delores Cottonware – Teacher of the Year, ADTSEA
Steve Cebulka – Colonial School District, New Castle County, Delaware
Kayla Craddick – National Student Safety Program (NSSP)
Brad Wells – National Student Safety Program

Associations Panels – Rafael Marshall and Paula Sind-Prunier, NTSB

Issues pertaining to the current state of driver education and initiatives underway to improve novice driver safety

Randy Thiel – American Driver and Traffic Safety Education Association
D. Keith Russell – Driving School Association of the Americas (DSAA)
Wayne Tully – National Driver Training Institute
Frederik Mottola – National Institute of Driver Behavior (NIDB)
Dr. Richard Harkness – Adept, Inc.
Troy Costalas – Governors' Highway Safety Association (GHSA)
Charles Butler – American Automobile Association (AAA)
Allan Williams – Insurance Institute for Highway Safety
Chuck Hurley – National Safety Council (NSC)
Peter Kissinger – AAA Foundation for Traffic Safety
Gerald Donaldson – Advocates for Highway and Auto Safety

Current Research – Robert Molloy, NTSB

Validation studies for driver education techniques and future research needs

Terry Kline – Eastern Kentucky University Traffic Safety Institute
Bimal Aponso – Systems Technology, Inc.
Dale Ritzel – Southern Illinois University
Jean Shope – University of Michigan Transportation Research Institute

Welcome and Introduction

MR. OSTERMAN: I'd like to welcome everybody to the National Transportation Safety Board and the NTSB Conference and Hearing Room. My name is Joe Osterman. I'm the director of the Office of Highway Safety. And over the next two days, we're going to be exploring the issues related to driver education.

To begin with, I'd like to introduce our chairman, Chairman Ellen Engleman from the NTSB, for some opening remarks.

CHAIRMAN ENGLEMAN: Good morning, everyone. I want to thank you all for being here today, and this is really what the NTSB -- it's one of our best aspects of being here and providing a sanctuary for safety discussions in order to bring forth the topics that really matter in order to bring them forth in a way that we can discuss them thoroughly and without prejudice or in, shall we say, a neutral setting. So we can really focus on we like to say the facts, the science, and the data, and not allowing ourselves to be distracted by supposition or guess or desire or, you know, things that really don't matter to the real topic of safety because that's really the job that we have.

When I give speeches and talk to people outside the NTSB, I always like to brag about the NTSB, saying we have 429 dedicated professionals who really don't have jobs; they have missions, and they're on mission every day. So I'm very proud to serve, and it's truly a privilege to be the chairman of the National Transportation Safety Board.

Today's forum is sponsored by our brand new NTSB Academy. And it's the first time that the Board has addressed this issue of novice education driving -- driver education probably since the early 1970s, around 1971.

I think it's really critical that we understand the role of the Board in that everything we do is based on the fact that someone has lost their life. Our role is to be the lead investigation agency into determining what we call the probable cause of an accident. And when we find out why and what, we're able to issue safety recommendations in order to ensure that it doesn't occur in the future.

So this discussion was actually prompted by an accident that occurred in Belgrade, Montana, earlier this year.

Now, the Safety Board supported and promoted a graduated driver's license to try to curb, to lessen, the number of fatalities by younger drivers. And we believe that the effort needs to begin at the beginning.

It kind of reminds me of "The Sound of Music," you know. Where do you begin; you begin at the beginning. So perhaps this is the "Do Re Mi" of driver education.

Driver education is so much more than a three-point turn or parallel parking. We need to focus on the -- our attention on the history, on the substance, on the true quality and effectiveness of driver education. We need to explore the strengths and weaknesses of the programs and what we can do to improve them.

So that's really critical. It's not a role of criticism; it's a role of construction. We need to determine what we can do to make things better.

So we have a group of panelists, and these are some of the best that we can offer from the NTSB. Kevin Quinlan, Jennifer Bishop, Gary Van Etten, Peter Kotowski, Rafael Marshall, Dr. Paula Sind-Prunier, and Dr. Robert Molloy, and Mr. Larry Yohe, Ronald Kaminski, and Michele McMurtry will all be assisting with this forum.

Now, again, as I mentioned, our forum will be a fact-gathering exercise. We'll spend our time looking at the current safety problems and try to study possible solutions. We will use this information to help develop our recommendations and other materials on this issue of novice education, novice driver education.

So here's the procedure, the rules of the road if you will. The panelists will be introduced. Each will make a presentation in his or her area of expertise. With each group of panelists, we'll make sure that there is time for questions.

We're going to pass out cards, have you write down your questions, and then give them to the Board staff who'll be up and down the aisles. And then they'll try to get to as many of the questions as possible, all right?

We'll also have a table outside the auditorium that'll contain information on a variety of the driver education programs that we've accumulated -- about programs throughout the country. Please take it.

There are also two driver's training simulators in the room to your left. If you exit the auditorium and you'll be able to try. So that'll be kind of interesting. I think that's important. Now, the simulators are not endorsed by the NTSB Safety Board as a product per se, but they are being utilized today as an information tool.

We will have a transcript of the forum and all the exhibits entered into the record. That'll be part of the public record in the Safety Board's Washington Office. Anyone desiring to purchase a transcript should contact the court reporter. We do not provide copies of the transcript per se.

An archive of the webcast can be found on our website, which is www.ntsb.gov. And in addition, the Safety Board's accident investigation reports, our publications, and our Academy classes will be available on our website.

So, any general questions at the very beginning?

(No response)

CHAIRMAN ENGLEMAN: No? All right. Thank you so much for being here. Again, this is an important forum for us because we're really talking about the future, and that's the future of the young people that are driving today.

As you may know, traffic accidents are the number one what we call non-voluntary form of death for teenagers, meaning suicide is, unfortunately, the number one. But highway accidents are the number one cause of death for teenagers. This is a critical area for us to address. There's nothing, I think, sadder than seeing a young life taken far too soon.

And with over 45,000 accidents or deaths on our highways, we do have an epidemic that we hope today won't be a band-aid but truly will be a first aspect of trying to wipe out this condition that we truly find intolerable.

Thank you for your attention. I'll let the panelists begin, and we'll look forward to a very, very successful forum. Thank you.

(Applause)

MS. BISHOP: Good morning. My name is Jennifer Bishop, and I'm the project manager for this forum. And I'd like to introduce Gary Van Etten. He was the investigator-in-charge on the Belgrade, Montana, accident which prompted us to have this forum, and he'll give you some background on that accident.

MR. VAN ETTEN: Good morning. I am pleased to see many of you here who I've spoken to before, and I'm glad you're part of the forum that we're going to have over the next couple days.

This whole process started with a traffic collision that occurred in Belgrade, Montana, in January of this year. I'm going to talk to you a little bit about what happened that time, give you a little bit of background of how this whole process got started, how it was generated.

We have a Manhattan Christian School was the school in which our driver education vehicle was originated. They have an after-hours driver education school. It consists of 30 hours of classroom and six hours of behind-the-wheel training.

Our students were in their third session of the six hours behind the wheel. The first session is spent in a parking lot just getting familiar with the vehicle and how it works and getting a little comfortable with that kind of driving process. And then this was the -- actually just the second time that they were out on the roadway.

Each time they go out, there are three students in the car. They go out for about three hours, so each student gets between 45 minutes and an hour of driving. So they

were actually returning at the end of this third session, so each student in the vehicle had had approximately two hours of behind the wheel driving out on the street.

The driver education vehicle that they were driving was a 1997 Oldsmobile Achieva. It was a leased vehicle from the local Chevrolet dealership.

Our driver was a 14-year-old male. We had a 49-year-old instructor sitting in the right front seat. The vehicle comes equipped with the auxiliary brake but not the auxiliary steering wheel, so there was a brake that the instructor could operate, but not the steering wheel.

And then in the back seat we had two other students, a 14-year-old and a 15-year-old.

The vehicle was involved in a collision with a tractor semi-trailer combination vehicle weighing about 50,000 pounds. It had a load of potatoes on it. That was operated by Food Services of America. They have a 29-year-old driver who had been driving for the company for several years. Basically, he would leave his tractor at a tow yard. A semi-trailer would be there waiting for him in the morning to go out, and he would make his deliveries and his pickups.

He'd bring that semi-trailer back on the hook, and then somebody from Billings would come with another tractor semi-trailer, drop off the one that they brought from Billings, pick up the one there in Belgrade, and then take it back. And then the driver would come in the morning and do his route over again.

And he, again, was at the end of his delivery and he was headed back to the tow yard at the end of his day.

The location of our accident occurred just outside of Belgrade; the red circle shows the roadway. It's Amsterdam Roadway, State Route 347. The school is down in this area here. And this roadway is about five miles long, and it is the major route into and out of that particular area where the school is located. So they really didn't have another option of roadway to be on because this is the road that connects basically the Bozeman-Belgrade area where they were out driving during the day.

This picture was taken standing approximately where the collision occurred. And we're looking westbound. And a couple of features on the roadway that I'd like for you to look at which were things that we take into consideration when we do our evaluation of any accident.

We've got a two-lane roadway. It goes across a little bridge over a culvert. You can see the warning paddles. You can see the guardrails on either side. And from the pavement, there really are no shoulders. You've got about a foot or two of dirt shoulder, and then it drops off into ditches on either side. So there really isn't a whole lot of room.

And as the vehicle going westbound, which our driver education vehicle was going westbound, as it approaches the bridge, it gives the perception of the roadway narrowing. And so we feel this probably had an effect on the decision-making process that both drivers had as they were coming across the bridge because as the driver is going westbound, our truck is coming eastbound across that bridge.

And so we've got this big truck coming at us, and this inexperienced driver. And now where does he go; he's got a narrowing of the roadway. He doesn't have shoulders to go to. What kind of decision-making processes does he have going through there.

Also, I'd like for you to notice the trees that are on the south side of the roadway, which would be right over in this area here. Typically, what happens during the wintertime when the sun starts to set, it gets lower on the horizon, it causes shadows to come across the roadway.

And because the accident occurred when it was near freezing, in fact, it had snowed the night before. The road had been plowed, but still there was enough snow and slush on the roadway that as those shadows come across and the wind blows, it starts to freeze, creating slippery spots on the roadway. So we've got a number of considerations here to look at once we start evaluating what occurred.

This is just the same position, only turned around and facing eastbound. You can see it's a pretty straight roadway. There are no visual obstructions. Again, you can see the drop-off on either side of the roadway. So the south side of the roadway over here, we have four single family residences, just the four. And then there is some open area to the east of that.

To the north, we have some horse property. So there's nothing really close to the roadway. There's a driveway that leads back in there to about two or three homes. But basically, there's nothing there on the north side of the roadway.

Again, look at the roadway. See how wet it is. This was actually taken about two days later. Still a lot of snow; still a lot of slush on the roadway itself.

The speed limit on this roadway, by the way, is 70 miles an hour, which is very typical for Montana to have a roadway like that with that kind of speed limit. Our -- from what we have determined, the evidence that we have, the statements that we have, we believe both these vehicles are going somewhere between 35 and 40 miles an hour. So while the 70-mile-an-hour speed limit is pretty high, the actual speeds of the vehicles really didn't play into this all that much.

So this is basically what happened. Our driver education vehicle with the 14-year-old driver is headed westbound on Amsterdam Road. Our truck driver, as he's coming eastbound across the bridge, says that he sees the vehicle start to fishtail a little bit and then suddenly veers right into his lane, right in front of him, before he can put on his brakes. We have our collision. And then the driver education vehicle is spun out about 180 degrees and ends up in the ditch on the south side of the roadway.

This is a picture taken by the Montana Highway Patrol right after the accident, about 20 minutes after the accident occurred. You can see our truck blocking the roadway with the tractor down in the ditch. Over here is our driver education vehicle, right in this area here.

But I want you to notice again the roadway, the slush. When the plows come through and they plow the snow off of the roadway, it creates these banks of snow and slush and ice on the sides of the roadway. And that gives, again, the perception of the roadway narrowing because you don't seem to have as much room because of all the snow and slush that's there.

And again, it's a very cold time of the day. A lot of this was melting and freezing, melting and freezing even as the investigators were out there. So we have weather conditions that were played into our evaluation of this particular accident.

These are the issues that we looked at here. First we looked at roadway geometry, and I've explained to you a little bit about some of the issues that we looked at in terms of the roadway geometry: its narrowness, the lack of shoulders, the drop down, the perception of the narrowing of the roadway. The speed limit on the roadway, again, as I mentioned, 70 miles an hour, didn't play a whole lot into that, although we looked at that real, real closely.

The weather conditions we believed played a fairly significant factor here. Again, you can see what was going on the roadway in terms of ice and snow and slush. Again, roadway conditions.

Our driver's experience. He'd only been out on the roadway for at most two hours out driving on the public roadways. So he's going to be rather tenuous about what he does.

And then we looked at the driver education and the driving the training curriculum, and that led us to come to the conclusion that we needed to take a little bit closer look at the driver's education in general and the programs that are put on by the folks across the country.

I want to emphasize, we didn't look at the safety of driver's education. We looked at the effectiveness of driver's education.

So it led us to our purpose, and the purpose of our meeting here today is to survey the history and current state of the novice driver education and training programs to the extent to which they are used and their quality and effectiveness. We are to explore the strengths and weaknesses of such programs and what can be done to improve them.

That's why we're here today, to make driver education better, more effective so that we can have an impact on the youthful driver fatality and injury rate that we see in this country today.

I'm pleased with the panelists that we have. I think this is going to be a very profitable, very interesting and informative time here.

Thank you very much.

MS. BISHOP: I'd also like to thank a few other people who've been involved in the planning of this forum.

Lauren Peduzzi is our public affairs officer. Peter Knudsen and Donald Chupp are from the Academy, and they'll help you outside if you want more information about courses that are offered by our academy. Mary Jones and Carolyn Dargen have provided administrative assistance. And Will Skolochenko and Antion Downs are responsible for the audio/visual in here.

As the chairman said, we will take questions at the end of each panel. We will have people walking up and down the aisles handing out question cards and also collecting them from you to bring up here. We can't promise we'll get to every question. We'll get to as many as we can, time permitting.

Also, feel free to try out the simulators during the breaks or during lunch. And also, there are some bios for the panelists that are out in the hallway out there that you can pick up for more information about the panelists.

And with that, I will turn it over to Kevin Quinlan.

History and Research

MR. QUINLAN: Good morning, ladies and gentlemen. I'm Kevin Quinlan. I'm the chief of Safety Advocacy Division at the National Transportation Safety Board.

In order to start off a forum like this, we felt that it was important to have essential background information on driver education and training: its history; the evaluations and research that have been conducted; the major studies, the strengths and weaknesses of them. That is intended to give us a common frame of reference so that we know history and we don't repeat it.

So to that end, I would like to introduce our first speaker. Dr. Jim Nichols received his Ph.D. in psychology from the University of South Dakota and was with the federal government National Highway Traffic Safety Administration for over 30 years, retiring as the director of the Office of Research and Traffic Records, which includes driver education. And he was also involved in the Safe Performance curriculum.

He has a number of awards and a very large number of articles written, and in one of them he had the good judgment to ask me to coauthor for the surgeon general's report on drunk driving.

Dr. Nichols.

Presentation by Jim Nichols

DR. NICHOLS: Thank you.

I know this is a very serious occasion and a very serious subject. I'd like to start with something that's just a little bit lighter. I have a lot of material to cover but there are a few people sitting in this room who didn't think I was going to be here on time. I got here at 7:00 this morning just to prove to them that I could do this. Actually, it was because I forgot to set my clock back.

(Laughter)

DR. NICHOLS: But this story goes back to Saturday, when my wife told me about the change from daylight savings time to regular time this weekend. Saturday, I took my son to the baseball game and got him there late (at the end of the first inning). I guess I set the clock back a little early.

So then, after getting this straightened out with my wife, yesterday morning I left both boys at school at 7:20 a.m. When I got home last night, my wife said to me, "didn't it occur to you that you were early, that there was nobody there?" And I said, I just thought I was late as usual.

In any case, I'm happy to say that I'm here on time today and very happy to take part in this forum. A little bit of a qualification. I think that I'm quite qualified to talk about the history and the effectiveness of driver education. If you want to talk about what content of driver education currently is and has been, I think there are at least a dozen people in this room who know a lot more than I do about that. I think that we're very fortunate to have these people here with us.

The Problem

[Note: This presentation had a PowerPoint component which contained the nucleus of information regarding the history and effectiveness of driver education. A description of the relevant figures, referred to in this presentation, is included in bracketed italics.]

DR. NICHOLS: I'm going to start very briefly with the youth crash and fatality problem. [In reference to start of slide presentation] I'm not going to take a lot of time for each of these slides, but I think a brief review provides a useful context to talk about why we are even dealing with the youth [safety] issue. I think it comes as no surprise to anybody that we have a tremendous spike in crashes and fatalities and injuries with the 15 to 24 age group. This slide shows the dramatic increase for the 15-24 age group, using data from the National Center for Health Statistics. You can just look at the bars on this graph and you can get the picture. You don't need to look at the numbers.

[Figure shows "Unintentional Motor Vehicle Traffic Deaths by Age Group, for Year 2000". Number of death increases dramatically (to 10,323) for 15-24 age group]

DR. NICHOLS: I'm not sure, but I believe that NTSB will make all of these figures (and the comprehensive review on which they are based) available to you at some point.

[The Next figure lists "Key Factors Associated with Youth Crashes." It includes: Youngest drivers, 1st 6 months of driving, alcohol, low seat belt use, presence of young passengers, nighttime driving, males, and older vehicles]

DR. NICHOLS: If you look at all of the factors that affect youth crashes, there are many more than are shown in this figure, but these are some of the key factors. The youngest of drivers are at the greatest risk, particularly during the first six months of driving. Alcohol is a factor and it becomes more of a factor as you proceed from the youngest (i.e., age 16) to the older youth (i.e., age 20).

Low seat belt use is one key factor that just has to be talked about. It's probably one of the single most important issues associated with youth fatalities and injuries today.

Other key factors have to do with having young passengers in the car and with nighttime driving, the latter of which is dangerous for everybody but which is much more dangerous for young people, primarily in reference to the rate of crashes per miles driven.

Youth crashes most often involve male drivers. And, finally, I include this [reference to older vehicles on the list of key factors] because it always comes out in the research. I don't know exactly what to do about it (in terms of countermeasures), but certainly older vehicles are more prevalent among crashes involving young drivers than among crashes involving older drivers.

[The next five Figures in the presentation graphically illustrate the relationship between youth crashes and (1) age, (2) alcohol, (3) seat belt non-use, (4) young passengers, and (5) nighttime driving, respectively]

DR. NICHOLS: There are a couple of things that I would like to illustrate with regard to a few of these key issues. This figure shows the results of a study conducted by the Insurance Institute for Highway Safety (IIHS) several years ago.

[This Figure shows increasing death rates for 16-year-olds from 1975 to 1996 (red line) as compared with rates for older groups],

DR. NICHOLS: If you look at the red line you can see how relatively dangerous driving has become for the youngest of drivers, while rates have actually decreased for older youth. Back in the 1970's, when I first looked at this issue, we frequently cited the studies conducted by Peltz and Schuman. These studies, as well as studies conducted by other researchers, generally reported the youth crash fatality problem to be most severe for the 17 to 20 age group or for the 18 to 20 age group, which actually had had the highest death rate.

Over the years, however, the death rate for the 16-year-old age group has increased and has actually overtaken the rate for the older age groups. As you can see [from the Figure showing death rates for younger and older youth], there have been major increases in the rate of fatalities among younger drivers, while progress has been made with regard to reducing these rates among older (youth) drivers. I understand (from discussions with IIHS researchers) that that this (rate of increase among 16-year-old drivers) has plateaued in recent years. I didn't do a reanalysis of that. But basically, it appears that the youngest of drivers have become more dangerous over the time that we're talking about (in reference to 1975-1996, the period of time included in the IIHS study).

[The next figure in the presentation showed the percent of youth ages, 15, 16, 17, 18, 19, and 20, killed who have blood alcohol concentrations (BACs) of .08 or greater. Other than an elevated amount for 15-year-olds, it is relatively low for 16-year olds (10% with a BAC >=.08) and increases steadily to age 20 (35% with BAC >=.08)]

DR. NICHOLS: In terms of alcohol, as you can see, alcohol becomes more of a factor as we get up towards age 20. However, at any level, what the general research data show is that alcohol -- even small amounts of alcohol -- affects young people more than it affects older people. And by the way, alcohol-involvement in crashes occurs primarily at night.

[The next Figure showed the percent of drivers (on the road and killed in crashes) who were unbuckled. This percentage increases from 27% (on the road) to nearly 80% (among young driver, alcohol-related fatalities)]

DR. NICHOLS: This is seat belt non-use among a variety of groups. If you look at our most recent national (observational) surveys, we have about 27 percent of non-use among all drivers and front seat passengers on the roadways (73% use in 2002).

But if we look at fatalities of all ages, look at the percent that are not using seat belts (62%), and then look at the 16 to 24 age group with alcohol (79%). Clearly, if there's an area where we can improve the situation, this is it. We can't change the number of crashes (by increasing seat belt use), but we can reduce the numbers of fatalities and injuries that result. This is an area which surely needs some work.

[The next figure shows Driver Crash Rates and the Presence of Passengers. It shows a dramatic increase in crash rates among 16-17 year-old drivers, associated with the number of passengers being transported. This increase is less evident among 18-19 year-old drivers and is non-existent among older drivers (30-39)]

DR. NICHOLS: Finally, with regard to the presence of passengers, as you can see on the left, the 16 to 17 age group already has much higher rates of crashes. But if you add passengers, it's much more of a detrimental factor with these younger drivers than it is even with the 18- or 19-year-olds. And, having passengers actually appears to be safer, rather than more risky, for older drivers.

[The next figure "Daytime versus Nighttime Crashes" shows a much higher nighttime rate of crashes (per miles traveled), for every age group but particularly for the youngest of drivers.]

DR. NICHOLS: Finally, as you can see, nighttime driving is dangerous for everybody. But because young people (particularly 16 year-olds) have so many crashes and because so many of them are at night, nighttime driving has to be an issue of major concern to us.

[Figure "Some Progress has been Made: Youth Fatalities Down by 1/3rd Since 1978]

DR. NICHOLS: The good news is that we have made progress over the past several decades and much of that progress has been in terms of reducing alcohol-related youth crashes. In fact, most of the approximately 30 percent reduction in youth crashes has resulted from a reduction in alcohol-related crashes.

So some things have worked - like minimum drinking age laws, zero tolerance laws, deterrence programs, all of which have demonstrated some impact.

[The next Figure shows a dramatic increase in number of deaths per age-year (from less than 100 for ages 0-12, to nearly 300 by age 15, over 800 by age 16)].

DR. NICHOLS: However, here is the sobering fact [that there is a significant and dramatic increase in fatalities among young people ages 15-16]. I took this [Figure] from a paper that I just completed for the Automotive Coalition for Traffic Safety (ACTS). It's just so sobering to see how dramatically things change between the ages of 13 and 16 in terms of risk to our children.

I have a young boy who's 12 right now, and this is of extreme interest to me because he's just entering this very high-risk period. This is an area that we must do something about. It's the dramatic change during this period – during these few age years that is so troubling. It's just something that must be addressed.

The History

[Figures Outlining Driver Education: History, Effectiveness, and Future Role. Next Figure Summarizes a Historical Review including: Key Events, Expansion Issues, and Challenges]

DR. NICHOLS: Let's now look at the history, the effectiveness, and a potential future role for driver education. I'm going to start with a historical review. Again, I think the things that I am most comfortable talking about are the key events that have occurred [since the 1960's]. Much of the data that I reviewed initially came from monitoring articles in traffic safety magazines in the '60s, '70s, '80s, and '90s, as well as from other reviews that have been conducted.

In terms of course content and things like that, the speakers that will follow me are much more able to give you an idea of what kinds of programs and what variations there are [and have been]. I will just say that there have been extreme variations in course content was over the years [from one program to another].

[The next Figure outlines Five (arbitrary) Phases: The Beginning; Rapid Expansion; Challenges and Federal Involvement; A Period of Decline; and a Re-Emergence]

DR. NICHOLS: I have organized this historical review, somewhat arbitrarily, into five overlapping phases.

Phase I

[Figure "The Beginning' shown which outlines events from 1932-1940, including references to: pioneers such as Dr. Herbert Stack and Dr. Amos Neyhart; involvement by

key organizations such as National Safety Council, American Automobile Association, Automotive Safety Foundation (ASF); first classrooms, texts, and programs; teaching centers at New York University (NYU) and Pennsylvania State University (PSU), etc.]

DR. NICHOLS: The first phase I call "the beginning" and, after looking at it, I really wanted to call it "a lofty beginning" because it really must have been very exciting to be involved in this program in the 1930s. Driver education, at the time, was primarily a product of the universities, primarily PSU, Columbia University and NYU at the time. There were a lot of people who really believed in this movement. I have to say that it was my kind of time in that, more than anything else, I love to promote new, potentially effective programs. I would have liked to have been involved in driver education back then.

Phase II

[The next Figures "Rapid Expansion (1947-64)" and "Growth in Enrollment (1947-64)" highlight rapid growth, relatively uncontrolled development and quality control, teacher training at PSU and NYU, the National Commission for Safety Education (NCSE), and its 1st National Conference to provide some structure, the "30+6" rule, insurance discounts, State requirement for licensing, additional centers, additional national conferences, etc.]

DR. NICHOLS: From 1941 to 1965, there was major expansion and this expansion caused many growing pains.

Phase III

[The next figures entitled "Federal Role and New Challenges" and "Growth in Enrollment" highlight continued growth, implications of the Highway Safety Act of 1966, Challenges from the research community, and a decade-long federal effort to develop and demonstrate a "state-of-the-art" driver education] program.]

DR. NICHOLS: From 1965 to 1980, there was an increasing federal involvement, starting with the Highway Safety Act of 1966, and lots of challenges that came about from researchers and evaluators.

Phase IV

[The next two figures "A Period of Decline" and "Decline in Enrollment" show the impact of the federal (Safe Performance Criteria (SPC)) development and demonstration (with its negative results regarding program effectiveness), a change in driver education's status as a "priority" safety program, and evidence of change in the level of driver education activity.]

DR. NICHOLS: These challenges resulted in the phase that I'm calling "A Period of Decline" from 1980 to 2000. During and since this period, driver education activity,

by all accounts, is less well documented [e.g., in terms of enrollment, funding, etc.] than in earlier years.

Phase V

[The next figure suggests a "Re-emergence of Driver Education (2000 – present) with a new Role" along with parallel developments in novice driver licensing (emergence of graduated driver license (GDL)]

DR. NICHOLS: Finally, there is at least anecdotal evidence of a "re-emergence" of driver education in recent years, particularly in conjunction with the emergence of GDL.

That is basically how I see what has happened over the past 7 decades. It has its beginning in places like Pennsylvania State University, Columbia University, and New York State University. During this period, it is nurtured by organizations such as the National Safety Council, the American Automobile Association and the Automotive Safety Foundation.

It includes the development of early textbooks, simulators, laboratories, and classroom activities. Ohio State and Iowa State also figured prominently in this history. There were not a lot of training centers around the country at the time. Thus, much of this activity was centered in a few (but expanding number of) universities.

One of most significant activities that occurred in the (rapid expansion) period from 1947 to 1964, in my opinion, was the establishment of the National Commission for Safety Education which was formed (with a grant from the Automotive Safety Foundation) primarily for the purpose of improving the standardization of course content and teacher preparation and to address some of the growing pains that were becoming apparent during that period.

The main tool that the NCSE used during this period was the conduct of four national conferences, at the first of which the "30 Plus 6" rule was proposed, and at the last of which 90 hours of education was proposed.

And so these (figures showing expansion from 1947 to 1964) illustrate some of the tools that were being implemented to try to bring quality and standardization to a program that was expanding so rapidly that problems were developing. Some of these problems had to do with not having enough instructors involved to deal with the demand. This was a major issue in the literature of the period.

In my view, one very significant event that contributed to the rapid proliferation of driver education was the offering, by Allstate Insurance, of incentives or premium discounts for driver education graduates. Other insurance companies soon followed this lead. Another significant event was the requirement, by the State of Michigan, of driver education for driver licensing (prior to age 18).

I did not actually go back and check out [the next statement] with regard to changes in each State's licensing laws, as I had to conduct this review relatively quickly. But, a point is made in the 1982 "Effectiveness and Efficiency Study" written by Gary Butler (NHTSA) that Michigan (as well as many other States) did not lower its driving license age requirement, but that it actually raised its age limit to 18 years for people who did not take driver education. I think that's a relevant point.

Basically, to give you an idea of how much driver education expanded in the early years, this ["Growth in Enrollment"] figure shows an increase from approximately 200,000 students in 1947 to about 1.3 million in 1964, a six-fold increase. During this period, [this figure shows that] the number of schools offering driver education increases from about 3,000 to about 12,000, a four-fold increase.

The period (of Federal Involvement and Research Challenges) from 1965 to 1980 is a very critical period in that the Highway Safety Act of 1966 made driver education a priority safety program and it provided for additional (driver education) funding to the States. It also marks a period during which much responsibility for driver education was shifted to a new government agency (the National Highway Safety Bureau). The NCSE, which was monitoring driver education up to this point, was disbanded -- according to my recollection in 1970.

But much more significant, I think, are the challenges that came about at this time. The Moynihan Report was one such report. In 1968, Daniel Patrick Moynihan authored a report to the secretary of Health, Education, and Welfare which raised issues regarding the effectiveness of driver education.

In 1969, the McGuire & Kersh Report was published. It critically challenged all of the previous research regarding driver education effectiveness.. And there was a back-and-forth exchange for probably a year between Dr. Leon Goldstein, who I believe at that time was with NTSB, and Dr Frederick McGuire. This issue of effectiveness and research design simply dominated the driver education literature during this period of time when the Highway Safety Act was being implemented.

Then, at the end of this period (from 1965-1980), you have the Robertson and Zador (IIHS) study, which not only challenges the safety effectiveness of driver education but, in addition, suggests that it has the effect of increasing the number of young drivers licensed (thus increasing their exposure to crashes and fatalities). These reports presented very serious challenges to driver education.

Also, towards the end of this period, NHTSA was completing its decade-long development and demonstration of a "state-of-the-art" driver education program. Because of time constraints, I will have to gloss over much of this development and evaluation activity and not give it due justice, but this was a long term, very meticulous program. It actually started in 1968 with a series of research plan proposals. It proceeded with a task analysis (in 1971), the development of instructional objectives (in 1973) and performance requirements, measurement of skill acquisition (in 1974), pilot testing (in 1977), and then the demonstration phase (implemented in 1978).

[The next figure showed the continued "Growth in Enrollment and Number of Schools Offering Driver Education" from 1964-78]

DR. NICHOLS: During this period of time you get an idea of the continued increase in enrollment and school offerings, at least through the 1976-77 school year, when enrollment was approximately 3.2 million students in about 17,000 schools. At this time, I believe that the total cost was in the neighborhood of $250 million in total federal, State, and local funding.

[The next two figures describe "A Period of Decline (1980-200)" and illustrate the "Decline in Enrollment" during this period]

DR. NICHOLS: A period of decline followed. The reasons for this decline are multiple. However, I think that the results of the Safe Performance Curriculum evaluation, combined with all of the other challenges and research accumulated during this period (primarily from 1965 to 1983) contributed significantly to this decline.

In addition, there was a change in the status of driver education as a priority program.

[In reference to Figure showing "Change in Status as a Priority Program," which describes a re-examination of NHTSA priorities ordered by Congress and the result that driver education was dropped from the list of priority programs]

In 1981 (prior to the release of the findings of the SPC evaluation), Congress required NHTSA to reconsider its list of priority programs in terms of their potential in reducing crashes. Based on available evidence (including preliminary results from the SPC evaluation), driver education was dropped from NHTSA's list of priority programs.

This re-examination and reprioritization was not initiated with driver education in mind. There was a general feeling that 18 safety standards (resulting in 18 priority areas) was too many and that the number needed to be paired down considerably (ultimately to about six). At least in part, the accumulating evidence regarding its lack of safety effectiveness, contributed to driver education being dropped as a priority program. That also meant that funding was reduced.

[Figure showing "Decline in Enrollment" after 1976; Information is less complete than for previous years but shows the percentage of eligible students enrolled dropping from about 80 percent in 1976 to about 50 percent in 1990]

DR. NICHOLS: With regard to changes in enrollment, there is much less solid data during this period. I've talked with a number of people, including Allen (Robinson) about this, and it appears that there clearly there was a significant decline in the 1980's, as measured by the percentage of eligible students who were actually enrolled. This figure provides the best information that I can give you in terms of enrollment. Prior to 1980, the numbers come primarily from the driver education status reports. After 1980, the numbers are primarily estimates.

One problem with these data involves the fact that there are different numbers of States reporting each year, so you kind of have to assume that the reporting States are representative of the non-reporting States as well – which is unlikely. The final 50 percent figure for 1990 is derived from personal conversations I've had with persons in the driver education program (e.g. John Harvey and Allen (Robinson). This (50%) figure is also reported in a recent review by Christie.

By all accounts, it appears that there has been a significant decline in enrollment (and schools offering driver education) since 1980.

[Figure entitled "Re-emergence – with a new Role" describes three points: (1) driver education is still a part of most States' licensing laws; (2) driver education is being integrated into emerging graduated driver licensing systems; and (3) as part of this integration, driver education may be resulting in a lessening of critical time requirements in the GDL systems. This is a matter of concern]

DR. NICHOLS: Now, I think that – while largely undocumented in terms of absolute numbers -- there are indications of a revival in driver education that probably began in the late 1990s, but which has certainly picked up momentum since 2000. It is related to the new optimism associated with the GDL systems that have been adopted by many of the States.

And it has to do with the fact that driver education is still ingrained in the licensing laws in more than half the States. So it's automatically part of the graduated driver licensing programs that exist in those States. Associated with this re-emergence, a key question that I think remains for us to consider is how should it (driver education) be partnered with graduated driver licensing. Certainly, we need to be concerned that it not result in any "watering down" of the time requirements which are so integral to the success of GDL systems.

Effectiveness

[This section begins with a figure which asks what the objective of driver education should be. It suggests that the objective is "to develop the skills, knowledge, and attitudes necessary for safe driving."]

DR. NICHOLS: With regard to the studies of the evidence of effectiveness, there's much discussion in the literature (certainly since 1965) regarding what the objectives of driver education should be. I'm taking the position in this review, as many people have -- certainly as the National Highway Traffic Safety Administration has -- that the objective of driver education is to develop the skills, knowledge, and attitudes necessary for safe driving. Certainly the ultimate outcome we want is safe drivers and that implies that we want drivers who have fewer crashes.

I'm going to digress for a moment and point out that, if there's any question about it, driver education certainly provides persons with the skills necessary to drive. It is an

empirical fact that millions of people have gotten their driver's license as a result of taking driver education. Further, there is some evidence from the Safe Performance Curriculum evaluation that students who actually took the course were superior in their driving skills, as compared with students in the control group. This evidence of superiority in performance was measured as part of a California driving test.

So, I think there's no question about the fact that driver education does teach people the skills necessary to begin operating a motor vehicle. The key question for this review is: does it result in safer drivers? We could argue for a long time about whether it should be charged with that (onerous) responsibility, but that is what this is all about – safety impact. And, because safety ultimately translates into reduced crash involvement, crash reduction must be part of the objective of driver education.

[Figure showing four phases of "Driver Education Effectiveness Studies:" Early studies (1940-65; Challenges (1965-1980); SPC Results (1980-90) and Other studies (1980-2000.]

As with the historical events, I've broken the effectiveness studies into several phases.

[Next Figure entitled "Early Studies" summarizes literature from 1940-65 as follows: DE reduces accidents one-half; 30+ studies showing 20-50% effect; studies conducted by advocates, DMVs, and universities; "self-selection" of driver education students not considered; much of effect likely the result of group differences on other dimension.]

There is an early phase, from 1940 to 1965, during which many of the early studies were accumulated. These studies resulted in the very common claim – as was indicated in the latest review that was done for the AAA -- that driver education reduces crashes by half. This, in fact, was a common assumption at least until 1965.

[Next figure outlines "Challenges" to effectiveness findings from 1965-1980. It includes: the Moynihan Report (1968); McGuire and Kersh (1969); Goldstein vs. McGuire (1969-70); California Department of Motor Vehicles (DMV) studies; and the 1978 IIHS study of the effect on early licensing]

From 1965 to 1980 is when we have the McGuire and Kersh challenge to driver education effectiveness as well as other reports and studies. There was an awful lot of activity during this period. For example, at the California DMV, several studies were underway (e.g., Conger, Miller, & Rainey; Ferdun, Coppin, & Peck; etc.) There were five or six studies that were conducted by the California DMV during the 1960s, in an attempt to identify the personality variables and other factors that contributed to the differences between driver education and non-driver education groups. [Not all of these studies were detrimental to driver education].

The McGuire and Kersh study resulted in a major public discussion with Dr. Leon Goldstein (of the NTSB) with regard to the merits of various research designs and the robustness of the findings of earlier studies.

At the end of this period, a new problem emerged – research evidence that suggested that driver education, as promoted at the time, may have resulted in a greater number of young drivers being licensed at an earlier age, thus contributing to their early exposure to crashes, deaths, and injuries. The first such study was conducted in 1978 by Robertson and Zador. NHTSA quickly re-analyzed these data and found similar results.

[The next figure summarized nine studies conducted during this period (1965-1980), showing mixed results regarding the effectiveness of driver education and its various components]

[The next four figures summarize the results and impact of the SPC evaluations. The first points out that the Dekalb Driver Education (SPC) Evaluation "remains one of the most critical tests of the safety impact of driver education to date." The remaining figures list five analyses and re-analyses of this program and summarize their (largely negative) results.]

The period from 1980 to 1990 is dominated by the results of the SPC evaluations. They start in 1983, and continue in 1986, 1987, 1988, and 1990. As this figure shows, their results are largely negative. The original report (Stock, 1983) suggests that there may be some small effect of the SPC curriculum but also suggests that it results in early licensure. The second (Lund, et al., 1986) finds no evidence of effectiveness but evidence of early licensure. The third (Smith and Blatt, 1987) find a small effect for a very basic comparison course (PDL) but no effect for the comprehensive SPC curriculum; The fourth study (deWolf and Smith (1988) finds no evidence of any impact; and the five study (Davis, 1990) also finds no evidence of safety effectiveness but does find evidence of early licensure.

[Figure entitled "Driver Education Effectiveness: Other U.S. Studies (1990-2000)" lists five studies conducted in Texas, Ohio, Oregon, Pennsylvania and a multi-State study covering 47 States and summarizes their results]

I know that there's a concern and a general feeling among some that there has been no new information (since the SPC evaluations). This is not really the case. This review suggests that, internationally, there have been at least 15 studies conducted either at the same time as or since the SPC evaluations. Five U.S. studies are identified in the current figure and eight of the foreign studies are included in the next figure.

[Figure entitled Driver Education Effectiveness: Foreign Studies (1990-2000) lists studies conducted in Quebec, Denmark, Sweden, Norway, Austria, Australia, New Zealand, and Tasmania. Most suggest no effect in terms of crash reduction. Two suggest an effect of early licensure. One study (in Denmark suggests a relatively robust effect.]

While a couple of these (U.S.) studies suggest that high school driver education may be superior to commercial driver education, there certainly is no consistent evidence of impact. On the other hand, there is rather consistent (and accumulating) evidence that driver education results in early licensure.

Okay. In review of the earliest studies, there are 30 or more studies that have been reviewed in the various reports supported by AAA and the American Casualty Insurance Association, as well as other reviews. But, let's say 30 early studies, the majority of which contributed to the general consensus that driver education is 20 to 50 percent effective in reducing crashes and violations among its students. Basically, it is the people who are primarily involved in the (driver education) movement at the time that are reporting on these studies.

A primary problem with these early studies and their conclusions is that there is no recognition that driver education students are different from people (young novice drivers) who don't take driver education. And much of the effect reported during this early period has, more recently, been attributed to these group differences.

The next phase, beginning in 1965 starts with the Moynihan criticism. Next, we have McGuire & Kersh, who published the results of two of their own studies, one conducted in Mississippi and one conducted in California, that claimed that driver education has no impact. In addition, McGuire and Kersh critique 30 of the earlier studies included in a report prepared for AAA. This report by McGuire and Kersh resulted in a major exchange and very public exchange between them and Dr. Goldstein.

Meanwhile, there are several studies ongoing at the California DMV trying to ferret out the differences between driver education and non-driver education groups. These differences add a new dimension to the interpretation of the results of earlier studies.

And then, at the end of this era you have a challenge that probably is not fully recognized at the time – the suggestion that driver education results in early licensure and thus adds to the exposure of young persons to crashes, deaths, and injuries. I remember it because I was on the other side of this argument. It starts with the study by Leon Robertson and Paul Zador that says, look, driver education results in earlier licensing amongst the highest risk people that you could possibly have licensed. And, it continues, this impact overwhelms any small safety benefit that driver education might have.

We, at NHTSA, did a reanalysis of that study. We found that while the effect wasn't as great as was reported in the IIHS study, driver education did appear to be associated with early licensure and the effect seemed to be greater when there were efforts to enroll all young drivers in the program.

During this period, as was shown in the figures provided earlier [i.e., in figure entitled "Driver Education Effectiveness: Summary of Results (1965-1980)"], there were both pluses and minuses with regard to evidence of impact. Some results reflected the impact of overall programs and some reflected the relative effectiveness of different

components or configurations of driver education programs. The main thing to take from this summary is that, at very least, there are conflicting results. There certainly is no longer a consensus that driver education is 50 percent effective in reducing deaths and injuries among its students. Some studies find an effect and some do not. Importantly, nearly all of the authors of these studies are attempting to control for the kinds of differences between education and no-education groups (e.g., differences in age, grade average, socioeconomic status, etc.) that have been found to be associated with crashes.

Then, we come to the evaluations of the Safe Performance curriculum and its basic counterpart, the pre-driver licensing (PDL) course. I think Dan Mayhew and Herb Simpson summed it up accurately when they said the DeKalb County Education Project remains the most critical test of the safety impact of driver education to date. I believe that as well. Sixteen thousand young drivers were assigned randomly to this state-of-the-art program that every effort was made to make it just that -- a state-of-the-art driver education program. Students assigned to the SPC were compared with those assigned to the PDL program, and to those assigned to a no-education control group. This is the design approach that had been recommended in the safety literature for over a decade.

Several analyses and re-analyses resulted. They were conducted by NHTSA (three analyses), IIHS (one analysis) and by an independent researcher (one analysis. The majority of the studies found either no effect or a different or conflicting effects depending on which groups (e.g., assigned versus completed driver education) were being compared.

[Figure entitled “SPC Results: Percent Involved in a Crash” shows results for those assigned to the three conditions, to those assigned and licensed, and to those who completed the courses and were licensed]

This figure shows that if you’re looking only at people assigned -- in other words, all of the people that were randomly assigned to SPC, PDL, and control groups, there was a tendency for higher crashes amongst the SPC group. This was attributed primarily to the effects of early licensure of those who were assigned to the SPC course. This trend is consistent in the other comparisons as well.

[Next figure entitled “Further SPC Analysis” shows lower number of crashes for SPC group in first 6-months of driving]

However, if you controlled for the period of licensing (e.g. by looking only at the first six months of driving, regardless of when that occurred, it appears that both the SPC and PDL groups have lower levels of crashes during this period. However, this approach can be criticized on the basis that you again may be looking at the effects of a self-selection process.

In summary, while there was some evidence of effect, the SPC evaluation did not result in a definitive demonstration of the effectiveness of a state-of-the-art driver education program.

[Figure showing Other U.S. Studies since 1990]

Since 1990, there have been several additional studies, conducted in a number of States, including one 47-State law which involved a regression analysis of the impact of laws requiring driver education for licensing (at an earlier age) and their relationship to crashes. This study finds evidence of a reduction in crash rates associated with such a law but it also suggests that such an effect is countered by an early licensure effect. The two other studies which provided at least some control of extraneous factors were the Oregon and Pennsylvania studies, both of which found no evidence of effectiveness.

[Figure entitled "Foreign Studies (1990-2000)"]

As suggested earlier, there have been several foreign studies that more often than not have found no evidence of effect, but there's one study, conducted in Denmark (by Carstensen), that clearly suggested that, when the driver education program was improved and implemented on a large scale, there was evidence of a reduction in crashes. This program and study perhaps deserves additional examination.

[Next figure entitled "Driver Education Effectiveness: 28 Studies Reviewed (1970-2000)" summarizes 28 studies reported since 1970.]

This figure shows that while the majority of studies conducted since 1970 have found no evidence of impact in terms of crash reduction, studies have consistently reported that driver education increases or leads to premature licensing.

Eighteen studies looked at the effect of driver education programs. Two of them (11%) found evidence of an effect; four (22%) found inconsistent evidence of an effect (including two of the five SPC studies); and twelve studies (67%), reported no evidence of effect.

Two studies of laws (requiring driver education for licensing) find them to be associated with reductions in crashes. These are two studies conducted by Levy (1988 and 1990). Again, ten studies reported increased licensure associated with driver education programs. Eight studies used random assignment. Of these eight studies, six (75%) found no effect and two found inconsistent or conflicting evidence. Finally, four studies looked at high school driver education versus commercial driver education, again showing mixed results.

Other Reviews and Their Conclusions

[Figure entitled "Driver Education Effectiveness: Other Reviews and Conclusions" lists five reviews by: Mayhew and Simpson (1996); Vernick et al. (1999); Christie (2001); Roberts et al. (2002); and Engstrom et al. (2003), each of which finds no convincing evidence of crash reduction associated with driver education]

I'm not the only one who's looked at these data. (On this figure), I've identified five other recent reviews, the first of which is by Mayhew & Simpson in 1996. Not all of these reviews are alike.

The Vernick (1999) review and the Roberts (2001) review are what I would call systematic reviews. These reviewers established a set of criteria by which studies would be either included or excluded. Only those studies that met these criteria were used to form their conclusions, which were: no convincing evidence of effect (Vernick et al.) and no evidence of effect (Roberts et al.).

I would describe the reviews by Mayhew & Simpson (1996), by Christie (2001), and by Engstrom et al. (2003), as well as my own review (Nichols, 2003), as descriptive reviews. Each of these reviews looked at all of the available studies and tried to organize their results in a meaningful way. While these reviews have been less selective (alternatively, more inclusive), their results have been generally the same: no conclusive evidence of effect (Mayhew and Simpson); little support for claim of safety effect (Christie); and much knowledge not yet applied; need for additional experimentation (Engstrom). At least three of these reviews (Mayhew and Simpson, Vernick, and Roberts) found consistent evidence of increased licensure associated with driver education programs.

Other findings. Basically, this is significant, the best learning environment is on the road under supervision of either a trainer or an older adult. There is no compelling evidence in the area of motorcycle education, but with regard to remedial training -- in other words, when somebody fails a test -- there is some evidence. And there's some evidence of effect for nighttime training.

[The next three figures summarized the findings of Mayhew and Simpson, Christie et al., and Engstrom et al., respectively.

From Mayhew and Simpson: the best learning environment is on the road; mixed results for advanced skills training; no compelling evidence for effect of motorcycle rider training; some evidence of effect for remedial motorcycle rider training; and some evidence of effect for nighttime training.

From Christie et al.: more supervised practice may reduce crashes up to 35%; higher order cognitive skills better learned on-road; targeted deterrence and enforcement are effective; no evidence of effect for mandatory training; little evidence of difference in effect for professional versus parental training; disbenefit of off-road training; emergency training may increase crash risk.

From Engstrom et al.: young driver crashes involve loss of control, speed, alcohol, no seat belt use, fatigue, nighttime and weekend driving; GDL restrictions have been effective in reducing crashes; acquisition of early experience is crucial; if high school driver education (HSDE) is introduced into (licensing/GDL) system, it should not be accompanied by licensing incentive (e.g., reduction in age or learning time); driver

education should not be exchanged for shorter periods of practice; and laws and enforcement are effective but some youth are hard to reach.]

With regard to other findings, I'm not going to have time to look over each element of these next figures. But, I would like to point out that several reviewers have concluded that: early experience is crucial to reducing crash risk among young drivers; additional supervised practice (on-road) is likely one of the most important factors associated with reducing crash risk; higher order cognitive skills are best learned on-road; and GDL restrictions are likely the best means for maximizing supervised, on-road driving experience. Unlike driver education, with which there is, at best, mixed evidence of impact, there are some actions that have provided evidence of effectiveness in reducing the crash involvement of young drivers. They include graduated driver licensing, various laws, targeted deterrence and enforcement programs.

From the Engstrom review, there is this same general conclusion with regard to the effectiveness of GDL, deterrence and enforcement. It is notable that, as you review this (driver education) literature, there is more and more reference to driver education in conjunction with graduated driver licensing, the U.S. development of which began in the 1970s, as a part of a research and development program at NHTSA.

On the one hand, there is reference to driver education working as an effective component of a GDL system. On the other hand, there is frequent reference to problems associated with introducing driver education in a manner which reduces the effectiveness of GDL by reducing its time and practice requirements.

Current Problems and the Future

[The next Figure in the presentation focus on "Driver Education as a Highway Safety Program: What's In the Future?" Reference is made to important opportunities to partner in an effective (GDL) program]

DR. NICHOLS: Where this leads us -- I'm really sorry that I'm going to have to rush through this material – is to a summarization of the current problems associated with driver education. To do this, I'm going to focus on the conclusions from three recent reviews or reports.

[Next Figure entitled "The Future: Problems and Solutions: outlined in a 1994 NHTSA Report to Congress entitled "Research Agenda for and Improved Novice Driver Education Program."]

DR. NICHOLS: The 1964 NHTSA Report to Congress concluded that focusing on both basic and higher order skills at the same time presented a learning problem for young novice drivers. It suggested that the timing of these activities was important – focus first on basic skills and teach higher order skills later.

It also highlighted another problem – the fact that students are not generally motivated to learn.

What are some of the solutions suggested to address these problems? Well, the Report suggests that we teach skills first and higher order safety issues later. Further, there is the implication that we should get driver education more integrated into the GDL environment, which provides an opportunity for more lengthy and distributed learning. Finally, it suggests that both of these issues can be addressed via a two-phase driver education course, designed to be integrated into a graduated driver licensing system.

[The next Figure "The Future - Problems and Solutions: Mayhew and Simpson (1996)" provides a second summarization of problems and solutions. Among the problems listed are: failure to teach critical knowledge and skills; students not motivated to learn; fostering of overconfidence in abilities; failure to effectively address youth lifestyles (e.g. risk taking); and failure to tailor content. Solutions include: identifying "when" to teach; tailoring material to students and distributing training over time; and linking driver education with GDL and parental involvement in supervised practice.]

DR. NICHOLS: In Mayhew & Simpson's review, which I think is perhaps the most complete descriptive review that I looked at, several problems are identified, some of which overlap with those of the NHTSA Report. The identified problems include: failure to teach critical knowledge skills, students not motivated; fostering overconfidence; failure to effectively address lifestyle issues -- that's basically risk-taking; and failure to tailor content.

I think we need to recognize that the one problem -- failure to effectively address lifestyle -- is perhaps one of the most significant problems that we have. No matter what we do (or have done), we have not been able to address that issue effectively. How can you do that with 30 hours of classroom training?

With regard to proposed solutions, this figure shows several, some of which overlap with those suggested in the NHTSA Report. Mayhew and Simpson suggest: identifying when to teach various things; the fact that teaching emergency skills is of questionable value, but that, if you're going to teach emergency skills, accompany such training with insight training with regard to risk-taking and skill limitations; think more about tailoring driver education to the student rather than to time (i.e. competency-based instruction rather than time-based instruction); and finally, linking driver education with GDL, parental involvement, and supervised practice.

[The next Figure "The Future – Problems and Solutions: Christie (2001)" summarizes some of the conclusions from this review as they related to problems and solutions. Problems include: false assumptions regarding skill deficiencies as the problem and that deficiencies can be remedied; assuming that driver education can reduce crash risk; and not depending on more effective approaches. Solutions include: setting more reasonable objectives; depending more on effective programs such as enforcement; increasing (the period of) supervised learning; and integrating driver education with GDL systems.]

DR. NICHOLS: From Christie, we have a slightly different set of identified problems. They include: false assumptions with regard to skill deficiencies and their role in the causation of crashes; and a false assumption that we can change skill deficiencies with education.

Basically, Christie takes a somewhat negative view regarding potential solutions. He suggests: setting more reasonable objectives; depending more on effective programs, such as enforcement and deterrence programs; focusing more on increasing supervised learning; and integrating driver education into the GDL system.

Conclusions

[The final two figures entitled "Lists," provide conclusions identified in the current review as being either recurrent in the literature and/or of significant importance so as to be considered for improving the effectiveness of driver education.

They include: (youth) lifestyles (and personalities) have not been adequately addressed; instruction must be better timed; motivation to learn must be addressed; advanced skills training appears to be of questionable value and may have some disbenefit; the first six months of driving is the most dangerous; supervised, on-road experience is a priority need; delayed licensure is desirable from a crash-risk-reduction point of view; GDL restriction (especially nighttime and passenger restrictions) are effective; youth "mature out" of high-risk behavior; GDL provides time for more on-road, supervised experience (early experience in a "safer" environment; GDL systems are effective in reducing crash risk; driver education is already tied to licensing laws and thus GDL systems in may States; driver education should be modified to fit GDL (rather than vice versa); and driver education is not an effective substitute for supervised experience (time).]

DR. NICHOLS: Now, my list. The things that are replete in the literature are the following. First of all, lifestyle, risk-taking, and lack of experience or age -- actually, age in this case – have not been adequately addressed in driver education (or any other program), and I'm not sure that any program can effectively address the lifestyle aspect. We, as a society, have not found an acceptable and effective way to modify the exuberance, the risk-taking, and the lack of judgment of young people. It's a problem that remains with us and I don't know that it's been effectively addressed in anything that we've done in safety throughout the years.

We need to more effectively time our instruction to consider the motivations and attention capacities of young novice drivers. That issue comes through in several reports -- in the NHTSA report to Congress, in the Mayhew & Simpson report, and from other reviews. There have been some attempts made to better time instruction objectives – efforts to focus on skills first and advanced (safety) skills at a later period -- but these efforts have not yet resulted in any demonstrated.

There's considerable concern in the research literature regarding the effectiveness of advanced skills training.

Certainly, there's much consensus that the first six months of driving is the most dangerous time. Further, there is the suggestion that supervised on-the-road experience during this period is the safest, best way to prepare students for driving. Under what conditions (such training should be provided) may be an issue.

But certainly, of all of the things that come through in the literature, one of the most important is that this (i.e., the fist few months of driving) is a very dangerous period and that the best way to address this situation is to provide the maximum amount of on-road supervised training prior to full licensure.

Delayed licensure is desirable and has been found to result in reduced crashes (and crash risk). Restrictions, such as nighttime and passenger restrictions (i.e., they are associated with reductions in crashes). Fortunately, youth mature out of high-risk behaviors.

GDL provides the opportunity for early experience in a safer environment. GDL systems are effective. Driver education is already tied to GDL systems in terms of the licensing laws in at least half the States.

Driver education should be modified to fit better with graduated driver licensing systems.

It is most important to recognize that driver education is not a substitute for increased experience behind the wheel during the learning period. In other words, there should be no hastening of the learning period (and its requirements) by offering licensure incentives (e.g., reducing learning time) in exchange for driver education. The benefit of that tradeoff certainly has not been documented in the literature.

So, that is what I have. And, if I were to make a conclusion with regard to the effectiveness of driver education, I would conclude that it likely is effective in teaching basic skills. Is it effective in making young drivers safer drivers? Certainly, that effect has not been demonstrated. Well, should it be? (i.e., should we expect driver education to result in reduced crashes?) Well, in my opinion, if driver education is going to be considered as a safety program, it seems appropriate to expect that it be capable of reducing crash risk.

Why hasn't driver education been more effective in increasing safety – reducing crashes? Well, there may be some effect but, if there is, it's not large and its operating against very difficult odds (i.e. the personality and behavioral propensities of youth). On the one hand, I think I have to agree with Dr. Pat Waller when she indicated that it is ridiculous to assume that driver education in 30 hours is going to change behavior. But, on the other hand, this is where we are. We are looking at the effectiveness of driver education as a safety program.

So where's the shining light? Well, and I don't have time to go into this totally, but there's been a lot of discussion over the years with regard to the value of positioning of driver education – and education of any type seems – as an adjunct to other more effective, more institutionalized programs. With regard to smoking, for example, when I presented at a meeting regarding "Medicine for the 21st Century," at least one speaker talked about the fact that, following smoking restrictions in the work place and in restaurants, etc., there was evidence that anti-smoking, public information programs worked better.

In our situation, I think the current environment with graduated driver licensing offers some real potential. But, I also think that we need to be really careful in how we pursue this potential. We need to make very sure that we don't reduce the effectiveness of the existing (and future) graduated driver licensing programs by taking away the very thing that makes them effective – the period of time under restricted learning. That's a very important point. If we solve that problem, I think we have a unanimous vote to try to make this a partnership.

Thank you.

(Applause)

Presentation by Allen Robinson

Our next presenter is Dr. Allen Robinson, who received his doctorate in secondary education from Michigan State University. He is the director and -- of and professor in the Highway Safety Center at the Indiana University of Pennsylvania. He's also a professor of health and physical education, and he's currently the chief executive officer of the American Driver and Traffic Safety Education Association.

As with Dr. Nichols, he's received numerous awards and also published a large number of articles. I've worked with Allen for some time, and I find him always challenging, provocative, and informative. I think you will, too.

Dr. Robinson.

DR. ROBINSON: I also want to comment a little bit on Jim's (Nichols) presentation. As always, he's very thorough, to the point, and covers a great deal of content. If he just had more time, he would give us enough detail that we could plow through it for weeks and weeks to go.

I took some notes during his comments. They were important to me because they're going to be referred to in my own presentation.

And he started with the most important point. I'll compare notes with Jimmy (Nichols) later to see if we really do concur on some of these important points. But he

said there's extreme variations in course content in driver education. That's critical. You know, what driver education is to you, to me, and to your neighbor is probably very different.

He did get into the problems of no impact in driver education, and I'm going to cover that in my remarks as well. And we have a great deal of problems when we start studying fatalities and looking at official accident records and trying to measure differences. Differences, as he mentioned, sometimes are very small and we don't tend to look at that. We always are looking for larger differences.

He covered the problems of premature licensing as an incentive in driver education to get early licensure, as that being of concern because, depending how you use the statistics and how you make your statements, you can make a negative for driver education by saying driver education allowed them to get their license earlier so that's really the problems in terms of young driver crashes. And it's questionable whether that's the problem or just exactly how does it tie in with licensing.

He ended with some great comments. You know, how can you do all of this in 30 hours? Well, many in this room have been trying to change that concept. At a White House conference many years ago, "30 and 6" became buzz words, and it really has stuck.

Then he said something even more important. Jimmy (Nichols) probably doesn't know he said so many important things, but he always does. It should be competency-based instruction. That shouldn't be foreign to most of us, but it is foreign to the general public in terms of what they think of driver education.

And we do need a maximum amount of supervised driving. There's a great scholar from the State of Wisconsin that always talked about piano lessons and tennis lessons and soccer. How much money and how much time we spend on those things, and the fact that when you take piano lessons, you don't just play the piano in front of the teacher. You probably have a piano at home, or at least access to one, where you put in many hours of practice learning that delicate skill of playing properly.

Yet in driver education, we haven't done very much of that because, in our earlier years, we didn't want parents anywhere near our students. We made some drastic mistakes in our -- not just our early years but in our continuing years in driver education.

Well, what do I have to say about the problem and the solutions. First of all, I think that the collection of people here to speak to us today is really wonderful in terms of helping us understand where we've been and where we need to go. So I'm grateful to the Board for bringing this forum together and bringing the kinds of people that they have here today to help us discuss an issue that's obviously very important to me and obviously very important to all of you.

I'm pleased to speak on this topic at this forum on driver education and training because the issues that are of concern to all of us in this room are vital to America.

Nearly all of our society drives cars, and our young people are no exception. All of us in one way or another arrived at this meeting today in an automobile, either getting to the airport, from the airport to the hotel, or coming from home, many of the local people. We all drove cars.

The fatality rate of drivers in the United States is far better than any other country. You know, sometimes we don't step back and look at our successes. Even though our fatality rate is much better than any other country, it's not satisfactory to us.

Clearly, the easiest way to further reduce the fatality rate is to restrict driving. If we restrict driving privileges, we are going to reduce the amount of potential for collision and crashes. For example, your initial driver's license would be issued at age 20, and your license privilege would end at age 65. We all know that that is totally unacceptable in our society.

Therefore, we are here today to discuss the responsible solutions to solving this problem. The specific program solutions we are discussing today is driver education and training.

It is important that we strive to find solutions and not use the easy approach of reducing fatalities by simply restricting driver licenses. In driver education, we have historically made many mistakes. The single biggest mistake has been to overstate our program outcomes.

Jim (Nichols) referred to this. In 1955, traffic safety professionals said that driver education reduces 10 -- teen fatalities by 50 percent. This came out of the information in Michigan, who has been our leader in driver education. In 1981, the Safe Performance Secondary Driver Education Demonstration Project, DeKalb Study, said that driver education would reduce teen fatalities by 10 percent. At least we're getting more realistic.

Clearly, both of these statements are ridiculous. No single countermeasure can reduce fatalities by these percentages. We have clearly overstated the purpose of driver education.

In addition, the wrong approach has been used to evaluate driver education. No other countermeasure is evaluated by employing a control-experimental group comparison with fatality reduction utilizing official accident records as the only criteria for demonstrating successful programs.

Now, I know Jim (Nichols) clearly pointed out to us that there's a lot more evaluations than just fatality comparisons. But it's the public who zeroes in on those studies that deal with fatality comparisons. When we look at reduction in crashes, severity of crashes, reduction in violations and other incidents, those are important factors that help us measure successful programs.

This approach of simply measuring fatalities using control studies really is not the best way to measure the effectiveness. Sample sizes are frequently not large enough, official traffic records are inadequate, and controlling the research design in many cases is impossible. Traffic records becomes a critical element in the process of measuring program effectiveness.

This method or technique to determine effectiveness is not used for seat belt programs, current alcohol programs, driver licensing, or any of the single components of graduated driver licensing. It is true that newly enacted graduated driver licensing programs have a significant reduction in fatalities of young drivers the first two years of the program. This is primarily due to driver restrictions. If the 16-year-olds don't drive, they're not killed as drivers. However, they still show up in the passenger deaths.

The greatest value of GDL is its combination of countermeasures working together to reduce fatalities. And Jim (Nichols) also mentioned this. The importance of these countermeasures working together, trying to have an impact, a controlling factor on how people not only learn to drive a car but their initial years in driving and that as we employ the restrictions and as we keep monitoring what the driver is doing, we're enhancing their maturity and we're enhancing their experiences.

It is essential that driver education be included as one of those countermeasures within GDL. Most of us in this room learned to drive a car through driver education, and most of our children learn to drive through driver education. How can we expect new drivers to learn to drive if we don't teach them the proper driving skills?

Driver education has been an essential tool in teaching basic driving skills. That is, the start, stop, turn, and basic interaction with other drivers. These requirements are essential in obtaining a driver's license and in gaining initial driving experience.

Driver education needs to have better resources and techniques in order to teach safe driving practices. This includes making good choices concerning risk, driver decision, use of occupant restraints, not driving under the influence, dealing with fatigues, distractions, and aggressive drivers.

And I might say, not only do youth need better programs to learn these things, we as adults do, too. You know, when we take that 44- or 45,000 deaths, about 5- to 6000 are those young people. Another five to six are these older people, like some of us are getting to be. But there's a big chunk in the middle that's not doing too well, either.

Well, how do we impact new drivers to understand all of the basic concepts and skills if we simply tell them to learn on their own? Driver licensing alone will not do this. Driver restrictions alone will not do this. We must have driver education programs that do teach basic driving skills and safe driving practices to the youth of our nation. We must quit trying to evaluate driver education simply by comparing control-experimental groups with official accident records using fatalities as the primary criteria.

There's not enough time here today to completely describe what I feel needs to be done. I am providing a handout to the Board that describes in detail what driver education should be, how it should be delivered, and what outcomes we should expect.

I do have a few extra copies other than what I'm giving to the Board.

This document deals with, first of all, what is driver education, since there are so many variations and descriptions of driver education. And in this document we describe Segment 1 and Segment 2 driver education.

It's a great concept NHTSA came up with. I think it's one of the best concepts that has come about in driver education. Greg Lantzy from the State of Michigan will talk about this later. They're the only ones that believe it. And we've worked very hard on it, and no one seems to believe it.

Now, in some form or another, if you use violator programs as a Segment 2 driver education, Ohio does that. But we first teach them how to drive a car. We give them some experiences. And then we bring them back and deal with safe driving practices.

How can you get a young person who's never started, stopped, and went through an intersection to understand how alcohol affects their ability to go through that intersection if they haven't been driving or drinking? I know you skeptics in the back are saying, well, they've been drinking long before they were driving. I don't happen to believe that.

But how do we get young people to understand risk when risk is not even in their vocabulary in terms of the risk that they take when they drive a car? How do we get young people to understand that they must have seat belts because eventually they're going to crash when they know that they're such good drivers that crashes are not in their vocabulary.

So in Segment 1 driver education, we teach all the basic skills, and in Segment 2 we teach safe practices, which includes improved perception and decision-making.

Well, what outcome should we have? Those are described in this document because the outcomes, if we can agree on what we're to accomplish, it's far easier to measure what we're doing.

And then, how about the delivery of driver education? We have some great ideas on the delivery, but they're expensive and I doubt that anybody is using them. And I encourage others to look at the proper delivery of driver education to have its greatest impact. We can't complete driver education in just a few weeks. It's a long-term activity.

And to make it simple, in the document I've provided a topical outline of what driver education looks like because reading some of these thick, boring books puts us to sleep.

Well, there are other panelists today that will share good ideas on addressing this problem, and there will be some that simply say driver education does not reduce teen fatalities. Let me share with you my ideas on improving driver education.

To accomplish any changes in society, you must first create an awareness of the problem and an understanding of the solutions to the problem. The task of reducing highway collisions involving young drivers is a goal that almost seems impossible to accomplish. However, with combined resources, expertise, and financial support, this goal could become a reality. A strong foundation needs to be laid to fully utilize all available assets.

An informational campaign needs to be developed, and it should clearly outline the problems and solutions facing driver education. We need to communicate this information to corporate America, the general public, and the traffic safety community. To achieve success with driver education and training, we need everyone working together on common problems and solutions.

One component of the awareness effort is to clearly define what the young driver problems are and how we can reduce these problems. Corporations and traffic safety professionals have a different understanding and perception of what driver education is. Even within the driver education community, there is a lack of specification as to what driver education is.

This is an understandable problem. Without national leadership, everyone has done their own thing. As a result, what driver education is in one community is entirely different in another community. Driver education is whatever you want it to be.

There are many single-purpose organizations that work in traffic safety. These organizations include youth groups, alcohol groups, seat belt coalitions, Mothers Against Drunk Driving (MADD), and others who know their specific area of interest regarding safety. They also have some knowledge of the specific education awareness they promote. Solving a single issue with young drivers does not solve the problem. Without formal driver education, there is a limited audience for these single-purpose programs.

The second component is in the driver education teacher. Most teachers are of retirement age. They have not even stayed current with existing driver education concepts let alone progressed to the new theories of training young drivers.

New teachers have not entered the field because the job prospect has been limited. As a result, colleges and universities have dropped teacher training programs for driver education, and many State education offices do not require training standards, nor do they provide supervision and guidance to the driver education programs for young drivers.

The monitoring of both basic driver education programs and teacher training programs is limited at best. Federal and State resources have been reduced, and driver education has suffered. What we need today is a clear direction at the national level with

the support of all federal, State, and private agencies to plan, implement, and monitor a concentrated effort to provide complete training programs to all new drivers.

The American Driver and Traffic Safety Education Association stands ready to work cooperatively with all interested parties to accomplish this goal. It is impossible for us to do it alone. This is a national problem that requires national recognition and national program solutions.

Thank you.

(Applause)

Question and Answer Session

MR. QUINLAN: Now is the question and answer period. And if you have questions, please hand them to the folks roving the aisles there.

Dr. Robinson, what's your view of behind-the-wheel instructions in conditions that are not optimal, such as rain, fog, snow, and slush, which seems particularly germane to the Belgrade crash?

DR. ROBINSON: Well, the more experiences that you give people in controlled environments, the better off you are. Obviously, when you start scheduling your training environments and it's time for adverse weather conditions, it's pretty hard to program the weather outside to do what it is that you want to do in order to accomplish that teaching.

Certainly, though, I think we've overlooked the value and the importance of classroom instruction. In classroom instruction, it's much easier to deal with the concepts of these adverse conditions to better prepare the student so that when they do get in the car they're able to demonstrate their understanding, awareness, and ability to drive in these situations.

I know it's not theoretically possible, but it is ideal that if we did a better job in the classroom, the in-car instruction would be simply an evaluation tool. Our classroom instruction lags way behind what we do in in-car instruction.

MR. QUINLAN: A follow-on question for both of you, actually. In your experience, is there an optimal age for beginning driver training and for unrestricted licensure? And start with Dr. Robinson.

DR. ROBINSON: He knows that's a loaded question, but that's all right.

I don't know that there's an optimal age. For those of you who have raised children, you know they're all different. They respond differently at different ages. So to arbitrarily say that there is in fact an age that people should do something is difficult.

What I believe is essential is that the licensing process takes two years. And during that two years, you have the controls, one which is driver education; secondly, the restrictions on nighttime driving, passengers, seat belts, zero tolerance. And if anything goes wrong in terms of how they relate to those laws, that license is pulled. If they can't demonstrate that they're going to follow the rules and regulations and safe practices, they should not have a license.

And some people mature earlier and they will follow all those rules, and by age 18 they should have an unrestricted license. If they don't follow those rules, they shouldn't get an unrestricted license till they're 19. That's a national program that would have a direct impact on people listening to safety messages.

DR. NICHOLS: Well, I think that the research clearly shows that 16 and 17 are the riskiest years, so that's at least in part an answer. If you want to eliminate the riskiest years, 16 and 17 are those.

I think that a lot of the laws are oriented around 18 as kind of a target year for unrestricted licensing, so that might be a reasonable target that fits with the data.

I don't know that I could say there's an optimal, but those are two factors that I would certainly consider.

MR. QUINLAN: Dr. Nichols, one of the European studies, Carstensen's study in Denmark, showed a marked decrease in crash rates with the new program compared with the old program. Do you think that this is a rigorous scientific study, and if so, should we be paying more attention to the way Denmark trains, educates, and licenses?

DR. NICHOLS: Well, I can't say that I totally know what the Denmark program was all about. I read about it and basically it had more in site training and it spent more time on the road, and -- but I think that in terms of the rigor of the study, it was a longitudinal study. Basically, it looked at what happened to the crash rate of the target population in the years preceding versus the years after the new law, and it compared it with, I believe, if I remember right, 20-year-olds, or some control.

I think it's a very good design, and I think that it measured -- I think that it has some of the advantages that Allen (Robinson) alluded to. I think that when you evaluate a law or a change that affects an entire population, you have the advantage of a larger sample size. So your test is going to be somewhat more powerful.

But the answer to your question is, yes, I thought it was a very good study.

MR. QUINLAN: A question from the audience for Dr. Nichols. "How important is the distinction between classroom and behind-the-wheel training in evaluating the effectiveness of driver education programs?"

DR. NICHOLS: I think it's always important to know what it is you're evaluating. Unfortunately, the descriptions that we have in the research have included a

number of different combinations. And even further, there's not a lot of consistency between more complete programs and less complete programs.

So I think that you have a very -- at best, you have a small measurable effect and that when you start varying the different combinations, as Allen (Robinson) mentions, you get smaller sample size and you get variation in results.

So after talking about this, I guess my answer is, I think it's very important to always know what you're evaluating, but the more you define the group in such a way that it makes it a smaller group, then the less powerful your evaluation is.

MR. QUINLAN: For either Dr. Robinson or Dr. Nichols. "I've always had the idea that supervised driving was very safe. Do we know how many crashes happen in training or practice?"

DR. NICHOLS: I'll start. No, we don't know how many. At least, I know of no study that's looked at that. Well, actually some of them have alluded to it. Several of the reviews which have looked at the European literature have indicated that that is the safest period in terms of crashes for young people, under the supervision of an adult. But the number that they would have, I don't know.

DR. ROBINSON: Well, I think Jim (Nichols) is right. When you look back and, as you noticed in his very thorough review of what has happened in driver education, there is very little statistical data of what has happened in terms of controlled driving environments.

In my memory, and I've probably been in this too long, I can't remember of another fatality in a driver education vehicle. I do know that there have been some incidents in vehicles with a licensed driver with a young driver. But again, those incidents have been very infrequent, very few.

Those of you living in this area do know of some of the extraordinary cases where a drunk father was riding with a 16-year-old, and there was a crash and the father was cited for Driving Under the Influence (DUI). You know, those are so weird you can hardly use them. But the monitored, controlled driving environments have been very safe for young drivers.

DR. NICHOLS: If I could just have a follow-up to that, I agree with Allen (Robinson). I think there's two points that should be made here. You want -- what is your objective? Well, you want the people to be safe while you're teaching them. And there's evidence that under supervision they are very safe.

Obviously you could make the case, well, if they weren't on the road they'd be safer. That may be true, but countered by that is that the experience, the importance of the experience gained, is so much greater on the road for preparing them for the period after the training that you have to consider that aspect of it as well.

So I think this combination is why all of the reviewers that I looked at, all of the reviews that I looked at suggest that maximizing that period of training under supervision is the most important thing that you can do in driver education.

MR. QUINLAN: For either of you, "What about a test to study risk level before allowing the licensing of the new driver?"

DR. ROBINSON: Good luck. Well, yeah, we could do that, but licensing won't allow for it. You know, you have to look at what society will accept. Several people have done some inventories and personality characteristic studies and said, you know, that person shouldn't drive. But getting that through a licensing system is not easy to do.

DR. NICHOLS: No, I think, you know, you have the issue of just testing is not a great predictor of anything. There are just so many false positives, false negatives, that I think that would be very difficult to do. And I think the work that's been done with regard to the elderly driver bears that out.

MR. QUINLAN: Again for Dr. Nichols. "What's the value of research and studies that are 30 to 40 years old for our youthful driver problems today?"

DR. NICHOLS: Well, I think because I'm trying to provide a history, I think it's important to know how things have evolved, but I have tried to include at least -- there were 15 studies conducted since 1980. There were several studies conducted since 1990. So the most recent study was conducted in 2000.

So it's a matter of trying to give a full picture. And you could cut it off at any point, but no matter where you cut it off, the answers are the same.

MR. QUINLAN: Dr. Robinson, "Many feel competency/performance-based driver education is essential. Are these competencies and performance standards developed? How do we use such standards in today's driver education?"

DR. ROBINSON: The simple answer is, yes and yes. Competency-based standards have been developed, and I am convinced that a whole bunch of people know how to teach to those competencies. The problem that you run into when you get into a competency-based situation is that you've elongated the training system. It's time-consuming; it's repetitive; people want a license yesterday, not tomorrow, and they don't want to put up with a competency-based system.

And that's why I'll challenge all of you. You're probably wondering, what kind of recommendations did that nut have? If we don't do a publicity campaign that tells the world what the problem is and what the solutions are, trying to change driver education is useless. They need to understand that through a competency-based system we can do a better job, but it's going to take more time, there are going to be more restrictions, and it's going to take more money. If we continue to do 30 and six, you're not going to have any competencies accomplished. I do think we have the ability to do that.

MR. QUINLAN: For either or both, "What minimum objective beyond the basic car-handling skills should driver education try to accomplish?" Let's start with Dr. Nichols.

DR. NICHOLS: I would say an objective is to maximize the period of on-the-road supervised training.

DR. ROBINSON: For once today I'll disagree with you. If we can teach people perception and to deal with risk, then the driving will follow.

We've all heard the police officer's report. They didn't see what they hit. We do a terrible job of teaching perceptual skills and decision-making. People make the wrong choices. Now, making the wrong choice is directly related to risk. They don't see that it's a problem, so that's the decision that they make.

And absolutely, Jim (Nichols) is right. We have to follow that with improved long-term monitoring of initial driving. So we can't just come up with a simple solution. There is not one. But decision-making and perceptual skills followed by that long-term monitoring of driving is absolutely needed.

DR. NICHOLS: I'd like to just come back on that. I don't disagree with you. I think that one of the best environments for teaching those perceptual skills is on the road under supervision. And then I think that under an ideal system we would accomplish the rest, the safety part, later, either after some of the restrictions have been removed or by having the higher order safety education at some later stage.

MR. QUINLAN: Actually, there seems to be a trend in the questions because this one again is for either or both of you. "In evaluating the effectiveness of supervised driving, has there been an assessment of what supervision should be or mean? The issue is that there are many parents that do not themselves have the requisite driving skills to supervise their child's driving."

DR. ROBINSON: I'll start. The problem is guided instruction. Just going for a ride to the 7-11 or the K-Mart or the Wally World doesn't cut it. If the -- if the guided instruction and practice doesn't deal first of all with light traffic, then moderate traffic, then high-density traffic so that we're progressing through this decision-making process, it just doesn't work.

Parents do want to help, but they need guided instruction. And if we give them some guided instruction, that home practice, just like the piano lesson and the tennis lesson, can be very productive.

DR. NICHOLS: I don't know exactly what it should be because I'm not close enough to actually sitting in the car watching and I do know this. There have been a number of studies that have shown relatively equal effects of let's say on-the-road instruction with professional instructors versus on-the-road instruction with parents. And

I would guess that time is probably a factor there. There's much more of it with parents. And so time is an issue too because you're trying to accumulate experience.

I think the ideal system tries to integrate both professional supervision by someone who's aware of the dangers and risks and what the objectives of the training are, supplemented by as much parental supervision as possible.

MR. QUINLAN: This is the last question for both of you. "Do you believe that uncontrolled environments could be tested with the use of virtual reality?"

DR. ROBINSON: Yes. If you've got several million dollars.

MR. QUINLAN: Okay. Dr. Robinson, "How can behind-the-wheel students be screened for neuromuscular limitations so that the behind-the-wheel instructor accommodates the student's driving limitations," and this goes on at some length discussing directional dyslexia and the information being critical to the instructor before they go on the road.

DR. ROBINSON: Well, that is a heavy question. One of the areas that we probably do the worst job in is dealing with our special population students and helping them to acquire the skills they need to drive a car, although I think that question goes a little bit further than dealing with special needs.

The evaluation tools to measure what you've described, Kevin (Quinlan), I believe are there. It's just that in most school settings they're not used. And since driver education for the most part is after school and weekends, there's no tie-in between health situations, a counseling situation, or any kind of psychological or physiological testing that is used by the driver education teacher. It could help, but it doesn't happen.

MR. QUINLAN: For Dr. Nichols, again going at supervised driving. "DMV in California records that only 17 percent of parents complete the required 50 hours at home. How do you think we should replace the loss of training to the new driver?"

DR. NICHOLS: Well, I think that we need to find ways to increase the amount of time that parents are willing to spend. I think you only have a limited amount of time that you can spend under supervised professional training, and you have to supplement it. The parents or an older adult are the best ways, so we have to find better ways of increasing that percentage.

MR. QUINLAN: My understanding is that in a survey done by Jean Shope in Michigan that Michigan required 50 hours and the average supervised driving reported was 75 hours. I may be misinterpreting that, but Dr. Robinson?

DR. ROBINSON: Well, I'm sure that the supervised instruction in Michigan has been very high because of the interest of a lot of agencies supporting it. When you use voluntary 50-hour practice driving, that's what you get, a voluntary system.

There are States that require that the statement that says the 50 hours was provided is notarized. There are States that have driving logs that must be turned in. And I know all of those can be forged, but the greater the responsibility of the parent and the greater controls by the system, the State licensing system, that says these are important and they have to be done, the greater probability that they will be done. But that practice is essential.

DR. NICHOLS: If I could just follow up on that, again if those data are correct, I think it's an example that if you do work on this you can make a difference.

MR. QUINLAN: Our last question. For Dr. Nichols. "What has been the trend of driver education moving out of high schools and into commercial schools and trainers? And what will be the future of the same?"

DR. NICHOLS: I think Dr. Allen Robinson is a lot more qualified to answer that question.

What I saw in the literature basically is considerable use of commercial driving schools in some school districts and not very much in others. And so it's variable. I think if the commercial driving programs are there and available and I would guess reasonably economical to use, they were used in a number of cases.

But in terms of whether that's increasing or decreasing, I have to ask Allen (Robinson) to answer that.

DR. ROBINSON: Sure. If we would clearly define what we want in driver education and define our outcomes, it doesn't make any difference where that training actually takes place as long as the right training is provided. Our difficulty has been in the control and the monitoring of what is the training and where does it take place.

The school system is an ideal place for teaching driver education. All the facilities are there; the trained teachers are there; the counselors are there; all the things that's needed to help contribute to that young person. And there are many ways that commercial driving schools can help.

Part of this continued practice is an ideal way to use commercial schools. Commercial schools contracting with public schools to provide the instruction when there are inadequate facilities and inadequate numbers of teachers in the public schools in many cases have demonstrated an effective system of offering driver education.

We can't just look back at the old ways. We have to look at new and improved ways of making sure that instruction is available to all youth, not just part of our youth.

MR. QUINLAN: Audience, I want to thank you for your questions. Let's give our presenters a round of applause.

(Applause)

U.S. and International Programs

MS. BISHOP: The last session talked about some of the history and research that's gone on and some of the generalizations on driver education. Now we're going to talk about some of the specific programs going on in the United States, Canada, and in Europe.

Presentation by Sean McLaurin

MS. BISHOP: Our first speaker is Sean McLaurin. He is a highway safety specialist with the National Highway Traffic Safety Administration's Office of Program Development and Delivery. Mr. McLaurin's responsibilities include graduated driver licensing programs for young novice drivers, driver education programs, driver license security, and crash record information systems.

MR. McLAURIN: Now, you're going to find out through the series of my presentations here that most of what Jimmy (Nichols) covered I'm going to cover again. So if you've lost some sleep lately, this is a good opportunity to catch up.

I always like to start some of my presentations by relating one of the typical teenage driver education stories from my past, and it involved me and my father. At the time I was 17 years old and I had gone through the Colonel's very rigorous driver education program. And believe me, my father was an excellent trainer. He had seven children; I was the third. So he had pretty much honed his skills down by the time he got to me.

One time I wanted to go buy my girlfriend a nice little promise ring or something like that when I was a senior in high school. And I had a friend of mine drop me by the place where my sister had the car. And we had one kid car and one family car. I borrowed the car, and we were headed in a direction where there was a lot of traffic, through the Springfield area. Those of you that live here know that Springfield is notorious for crowded conditions.

It had started to rain just lightly, just enough to lift a lot of the garbage up off the roads. And we came over a hill traveling at what wasn't an excessive amount of speed but probably was a speed considered to be too fast for the conditions.

At the time I came over the hill, the traffic had backed up because of a truck that was turning left, and I did what any other teenager did at the time. I smashed the brakes on the car and fishtailed around.

Now, those of you that have a lot of history behind you will realize that the Maverick of that day did not have a lot of weight in its tail end, and it came around on me very quick. Thanks to the Colonel, I learned when he was in the command and general staff school in Leavenworth, Kansas, how to negotiate through some pretty treacherous conditions.

So I negotiated the skid pretty well. As I came back across the road and avoided the truck that was heading up the hill, I managed to get my wheels onto the gravel, at which time I got traction again. And I swerved into a tree.

Now, I didn't kill the car; I just dented it. Much to my chagrin, there was a State trooper three cars behind me who pulled over and got out. And first question, of course, was, is everybody okay? I said yes. He says, were you wearing a seat belt? I said yes. He goes, it's not against the law to not wear a seat belt. And I said, I was wearing a seat belt. Believe me, I've never gotten into a car without one. He says, you sure? And I said yes.

About that time, I turned around and I looked at the road. And there goes my father and my mother driving up the hill. And my father at that time turned, and we made eye contact. And I told the State trooper at that time, if that weapon of yours is loaded, you need to kill me right now because there's nothing you're going to do that's going to be worse than when that man gets out of the car. And believe me, just going into prom season, that was a bad thing.

So anyway, there was the typical teenage situation. I had another teenager in the car. I was driving too fast for conditions. I overreacted; didn't know I was in trouble. And I had a mild crash. Luckily, there were no serious injuries, and that was the only crash I've ever had.

Today I'm going to go over a little bit of what Jimmy (Nichols) and Allen (Robinson) had covered with you, but I'm going to talk about a little bit of what's going on now in the United States in the federal role of driver education.

As kind of a little anecdote, I want to get to how we do training and everything in this country in different areas.

I'll have you know that I am a certified trainer in a particular area. I'm not going to tell you what that is. I'm going to let you know that I train young people in passage through crowded environments. I teach them how to change directions, avoid obstacles. I teach them acceleration, deceleration, decision-making, passing, and stopping.

Can any of you give me any suggestions on what it is that I'm certified to train in?

(No response)

MR. McLAURIN: Come on. Take a wild guess.

(No response)

MR. McLAURIN: I am a certified soccer trainer. I'm a soccer coach.

We're required in this environment that I currently exist in to constantly recertify, to constantly keep my credentials up, and to constantly be on top of any new developments in the world of soccer. We sometimes take an approach towards driver education that we'll have a football coach come in, somebody with my qualifications, and try to teach a subject that they're not qualified to teach. And that leads to a great deal of problems.

Throughout this presentation I think I'm going to leave you with a great deal more questions than I am going to leave you with answers, and that's because I think that right now, after being involved with the driver education programs in the United States over the last seven years, I see that driver education currently is in a state of transition.

And I think Jimmy (Nichols) and Allen (Robinson) touched on it very quickly, and I'm going to reemphasize the fact that when you're in a transition, you can either transition into a good area or you can transition into an area that is going to bring your program into further decline. I think that we're into a positive transition right now.

Just to go over some facts with you. We have 191 million licensed drivers in this country. We've got 15- to 20-year-old drivers that comprise about 6.6 percent of those licensed drivers. There are approximately 8,200 teen drivers that are involved in fatal crashes in the year 2002, which is our most recent data. Fourteen percent of all fatal crashes involved a teenage driver. Sixteen percent of all police-reported crashes involved teenage drivers, and that was 1,800,000 of those.

There are 20 million teenagers in the United States; 12.6 million of those are licensed. So when you think about a driver education problem, you think about, what are we doing; what is our pool of people that are involved. You've got 12 million of them out there. We're not doing a poor job at all. I think on the general view of driver education, I think we're educating our kids well.

The costs of crashes. Eight thousand of the occupants of motor vehicle crashes are killed by teenage drivers. There's 3,827 -- now, these are teenage drivers only, that are killed in the crashes in 2000.

And there were 324,000 injuries. This is everything from a sprained wrist to a broken neck. And it's a fairly serious amount. I'm not going to try to minimize what's going on with our teenage drivers.

And we estimate the annual cost of automobile crashes involving the teenage drivers to be about $32 billion.

Some more historical facts. 1999, 2000, 2001, 2002, grand total of 25,000 fatalities involving teenagers over the last four years. And this is a serious problem.

I can't tell you how many times I get phone calls from moms and dads that say, my son was just killed. I need to do something about this. I feel so impotent now that he's gone and I don't know what it is that I can do. Please tell me something that I can do. And so I try to hook people up with the different advocacy groups and tell them that the education of the teenager is of primary importance.

I'm going to go over a little bit of history for you, and I'm going to go real quick because Jimmy (Nichols) and Allen (Robinson) covered this fairly effectively.

Driver education reached its zenith in the late '60s and '70s. And you had about 14,000 schools across this country that offered driver education. There were about 2 million students that were involved in the process.

This represented about 70 percent of the total number that were eligible to take it. And you've got the National Highway Safety Bureau, which is the forerunner of NHTSA where I'm employed, that had 18 State highway safety programs. Number 4 in that was driver education.

The bureau supported the driver education standard by providing State and community highway safety grant program funds -- this is Section 402 -- to the States to improve and evaluate their driver education programs. And as most of you know, a lot of times when you have a grant program, the money doesn't exactly always go to where you wanted or how you intended the money to go there. States primarily used the funds to expand their programs, they did very little to improve the programs and improve the training for the trainers and to evaluate their programs.

Now, I will tell you that I agree with Dr. Robinson when he said that we hold driver education to an unfair standard in this country. And it's a simple reason that you can go to the student and see -- and I always go -- when I talk to students, I always will go and talk to them and say, why is it that you are in this class? And nine times out of 10 they will say, to get a driver's license. I said, well, aren't you going to learn how to drive safely? And they go, yeah, but, you know, I just want to get the license, you know.

And so you go to the motivation of the student that you have. The student doesn't want to learn to drive safely. They want the keys to the car.

Now, as a probably secondary reason why they're in there, if I wreck Dad's car he's going to drive up the road with me and restrict me and I'll be double-dating for the prom.

And so you've got what is a receptive audience in one particular respect. They're there to learn. But they're there to learn the very basics to get the license. They want to get through.

I have girls in my neighborhood that associate with my older daughter that say, hey, I got a "B" in driver's ed, I got the car. And I substitute sometimes in the local high schools and I'm horrified when the sophomores walk into class. And I'm thinking, oh no,

they're going to be driving down my street in a couple of weeks. But they can't even remember -- I had -- this is a great story.

I asked one of the girls one time. I said, what is your next class? And she goes, fifth period. I said, okay. What is the fifth period? She goes, I don't know, fifth period. I said, do you have a book? She goes, yeah, it's in my locker. I said, what does it say on the front? She goes, I don't know. I said, oh, she's going to get the keys to the car.

All right. So the agency then decided that we were going to do our own evaluation of driver education programs. And we used the Highway Safety Research and Development Fund Section 403 to initiate major programs of research and development to evaluate, you know, driver education. And basically, what we wanted to do is just find out if there was a positive effect of this program that we were throwing so much money on.

And basically, what happened was we were kind of disappointed by the results that we found out because, as Dr. Robinson said, we had kind of overstated our expectation. You can think of any other number of countermeasures that we have people will mark out and say this is our goal. That's for sure. But if they don't reach the goal they don't kill the whole program.

But with driver education it's just like the federal government at that particular time says this isn't what we were expecting. And it kind of provided impetus for us to basically just go ahead and stop funding State driver education.

Now, most schools are now still offering driver education, but what they're doing now is they've moved instead of like when I took it back in the Stone Age, they're offering it as an after-school program. So there's a great deal of competition with people like me, who are soccer trainers or piano teachers or the marching band or the football or the basketball.

And so you've got kids that sometimes will go ahead and take this 30 hours of classroom and they've got to wait six months before they start taking their in-car. And the separation of the two provides for a great deal of laxity in the applied learning that you learn in the 30 hours. All of a sudden, you're going to apply it in the six hours in the car and you've got a real problem there.

Right now there are no federal standards. There are no basic State-involved federal government standards for driver education. We don't give States any money for driver education. And what we do is basically -- and I'll get into this in just a minute -- provide some groups to do some research and evaluation and development for us.

Over the last couple of years, though, what we've noticed is that with the State budget crunches that have been overtaking this country, that driver education programs even in the after-school programs have been declining seriously simply because they can't spend the money to train, they can't spend the money for the cars, and basically the private schools are stepping up and saying, we can do it all.

Now, I can go to another example of my sports background to give you an example of, you know, what the mindset is with driver education as compared to say, for instance, sports.

To train -- to be on some of the teams in Stafford County, Virginia, you have to pay almost $800 or $900 a year to participate in that team. During the year, you have other advanced training sessions that take place that parents willingly write those checks to because they're seeing a World Cup soccer player developing even at eight years old.

But I often get calls from parents that will say I had to spend 300 bucks on teaching my kid how to drive. And when you talk about one of the most complex psychomotor skills that you will ever develop and use for the entirety of your adult productive life, there it is.

And I've got people that are complaining that it's a $300 investment. By the way, hold on. I've got to write a $1000 check for this travel team. And they'll just write it down. Same thing for piano lessons. Same thing for marching band. Cheerleading. Cheerleading in a high school these days is almost a $1000 venture.

But when this person gets in this $25,000 bundle of glass and steel, they drive down the street by my kids. And by the way, I have six. So I'm invested in the driver education program. Believe me, my 22-year-old will tell you that the Colonel had nothing on Dad.

Okay. Currently, the National Highway Traffic Safety Administration has two cooperative agreements where we do projects in driver education. The first one is with Dr. Robinson's Indiana University of Pennsylvania's (IUP) Highway Safety Center. And what we do there is we're developing credentialing programs for driver education instructors. We're developing standardized driver education curricula. And within that, we're doing the two-phase driver education curriculum as well.

We're putting out driver education public information and education materials so that the public can be better informed on what it is that driver education is, what the expectation can be, what the students should be ready for, et cetera.

IUP and ADTSEA. We are also doing a study into the development of the two-stage driver education program. We've got cooperative activities involving -- and I'll get to these in just a second -- with the American Association of Motor Vehicle Administrators (AAMVA). And it's like a marriage made in heaven. We all have the same interests.

We all have the highest regard for the level of expertise from IUP's Highway Safety Center and AAMVA. These are the experts.

We also have technical assistance that we will provide to the States on their graduated driver licensing programs. And that's to get them established. There are still 14

States by our estimation that do not have what we would consider to be a three-stage graduated driver licensing system.

And for those States that have it and need to improve it, we'll go in there and help them with what we call a model program, show them how to do it. We have model legislation, and we'll provide testimony. NTSB often does as well.

Part of the cooperative agreement with AAMVA, we develop a driver education curriculum of classroom and behind-the-wheel curricula.

We develop a national model non-commercial driver testing system. And this is important insofar as it states that we're trying to modernize our testing system. They don't have to go out and pay somebody to proprietarily develop one for them. We've got the materials that should be coming out in the '04 fiscal year that will be available to the States so that they can just go ahead and take these materials and make it just their State-specific sort of information in there as well as the general, and then they can go ahead and deploy these. And it'll cut down on their costs as well.

We're also developing a GDL parent-teen guide. And Allen (Robinson) touched on that just a little bit earlier.

I want to tell you that when you first get in a car with a teenager, the first thing, I'm thinking at 48 years old is, what are the basics that I need to teach. And I'm very good at teaching basics. And one of the funniest things that I found out when I first started doing this is that you get lost when you go out on your first couple of trips because you're thinking about turn right, turn left, turn right again. Stop. Go into the parking lot. Turn around, and all of a sudden it's like, where are we? It's just like you don't think about where it is that you're going to go.

And part of this parent-teen guide is insistence on planning your trip, understanding that when you first start to learn this, gripping the wheel like it's trying to run away is going to tire out your student very quickly.

And so we go from a very remedial level in this parent-teen guide up to a more complicated series of driving maneuvers and things that you can do. You can write notes. You can say, okay, here are some things that I need to go ahead and practice again with the teenagers.

And this is invaluable because you never know what it is to practice until you've been in a game and you take a note and say, well, we need to practice finishing, you know. But if you don't write it down, you're not going to realize that when two or three days later you say, okay, let's hop in the car and let's go back. And you go over the same things and all of a sudden it's like making the same mistakes.

Constant practice with a novice driver is something that is critical. And I saw it in a friend of mine whose daughter was learning and went through several weeks of training

and then went away to band camp. And they came back, and her mother said, you would not believe. It is like back to square one because she's been out of a car for two weeks.

And that is graduated driver licensing and two-stage driver education at its best because you have a kid in a controlled environment that they're receptive. A lot of parents will tell me the kid doesn't talk to me anymore. You don't have anything that's of value to them. But when you have the keys in your hand and you set them in that driver's seat, suddenly you can't shut them up. They're like, ba-ba-ba-ba-ba-ba.

I can tell you, I've been through it with two of them already, you know. If you want to find out what's going on in their life, put them in a car and make them drive. And then they'll just talk, talk, talk, talk, talk, talk, talk.

So, we're also developing generic road tests and knowledge test item pools, skill test exercises. And we've also got at NHTSA some research projects. And these are starting to come out now because of the need involving better training these teenage drivers.

The first one, and it's been underway for quite a while in Michigan, is the two-stage driver education. We're going to try to test and see what sort of effectiveness this has. We've been in Michigan for a couple of years, and Dr. Shope, I guess, will touch a little bit on this, or maybe not. But their graduated driver licensing program there is basically a national model, and it's something that has shown as far as countermeasures go, it is an atomic bomb. Their program there is absolutely astounding.

In Texas, we're going to start a research project very soon on the effectiveness of home-schooled driver education. Now, remember I told you that I think that driver education is in transition, and I'm going to point this out further as I go along. Home schooling driver education. Well, there's the ultimate in parental involvement. We've been preaching parental involvement for a long time; here it is. Now you're going to have the parent as the teacher, the parent as the in-car instructor, and the parent as the administrator of the graduated driver licensing program. And Texas does have a GDL program.

So now what you've got is school, driver education school at home. Now, what are your material. And so you need to have the materials and what have you, and how effective is this going to be.

In Oregon, the effectiveness of the required hours of parental involvement. How much is enough? Is it 25? Is it 50? Is it 100? Do parents overshoot the runway?

I've listened to a couple of researchers from North Carolina that said when you ask the parents, it's 75 hours. When you ask the kids, it's 25. What is it? The parents are being socially responsible and so, yes, it's 75. And the kids are saying, no-o-o, we're only in there for 25 hours. Who's right?

How much is it going to take to properly train this driver, to get them so that they can solo without crashing?

In Georgia, we're trying to find out what the long-term effects of graduated driver licensing. And then Johns Hopkins University, through some of our funds, is going to start into the effects of graduated driver licensing over multiple States.

Now we're back to the future. What's going on? The corporations are now getting involved. I can't tell you how many times I've got to do technical assistance with corporate America on their brand new spanking great driver education programs.

And as Dr. Robinson pointed out that we've got a lot of very specific programs that touch on one aspect or the other aspect of driver education. AAA has a very good program. Cingular Wireless has one on distracted driving. Ford, Daimler-Chrysler, Mitsubishi. NETS -- that's the Network of Employees for Traffic Safety -- has a parent-teen guide.

So the involvement of corporate America shows that there's a bit of a vacuum that they're flowing into. And this is also, I think, for driver education a great opportunity because corporate America has the big bucks. And how do you get involved participation with this corporate America to bring them into what it is that you want to do with these children. It's a great opportunity.

I think we're seeing a lot more private schools. I know that because I get calls weekly, at least two or three calls a week, from a new driver school that is just opening up and they've got this great program. And if the federal government would just write them a check for $10 million, they would save all the teenagers out there. And I keep telling them, well, we don't really do that sort of thing, but I'm sure if you just send me your program I can look at it and let you know what it is that you need to do with it. And about 50 percent of the time it's, find another occupation.

Web-based training. That's on the increase. It's huge now. You've got a group of techno-junkies coming up in this generation.

I know that, going back to ancient history, I can still tell you the name of the film that we watched. One of them was "Death on the Highway," and the other one is "Mechanized Death." And that is the reason why I never get into a car without a seat belt on.

I remember as a junior in high school going to wrestling matches and riding in this 1962 Chevrolet that my friend had that was the most disgusting thing you've ever seen in your life. Four out of the eight cylinders worked. And we piled into the car, and there was no seat belts. And so I actually dug the seat out, took the seat out, dug into who knows how many years of grunge in the bottom of that thing to get a seat belt out and put it across me because I just knew my friends and I know my friends weren't going to really be all that concerned about safety.

But these days those films don't affect kids the way they affected me. I can remember the first shot in one of those films was a large red splotch on the highway, and they said, this is a human body. And I was horrified. Kids these days are like, well, who shot them.

My kids are always saying, hey, Dad, they got a great new video game out there where all you do is kill people and run over them with cars. You can imagine the look I get from my wife for that one.

Anyway, another thing that's coming out really strong, and we're going to do this study in Texas like I told you, is about home schooling. Thirty years ago no one would have thought of home schooling driver education.

So like I said before, you've got a program here that's in transition. And it's in transition in a positive way, I think, and it's time for us to kind of take a little bit of time to guide it, to give direction. And I think that the NTSB is on the right note here by saying, okay, let's gather all these experts together. And I tell you, I feel kind of humbled by sitting by some of these people because I don't feel really all that well qualified to be here.

Why can't we come to a consensus about the importance of driver education? I know you're going to hear from people in the next two days that are going to say, well, driver education just doesn't work.

I had that conversation with somebody in Pennsylvania two months ago. And I said, well, let me prove to you that it did. How did you learn how to drive? He said, well, I went to the driver education class. I said, killed anybody with your car lately? He said no. I said, it works. That's it. It just works. It's like we know safety belts work. You know, if you apply what you know, then it works.

If training is so important in other areas of traffic safety, why doesn't driver education get the same attention? And I would even put in parentheses, respect. How much can you learn from 30 hours in classroom and six hours of applied instruction? Would you have somebody change the plumbing in your house that had only gone through a plumbing apprenticeship program for 30 hours and six hours on the job, your brand new house? I know I wouldn't. But here you are; we're throwing the keys at kids that are taking that car down the street where my kids are playing on the side of the road.

We need to take a more advanced, a more applied approach towards driver education in this country, and we need to elevate it to the level of importance it is. This is a skill that you will use for 50 years. Probably been doing it for 50 years already, so.

And then, the other thing is, a lot of you parents are going to be teaching somebody to do it. So learning the basics is extremely important. We need to find out what's being offered, what's working, what's working well, what's not working. We need to get rid of the bad and start to emphasize the new.

And this is where I'm talking about this cooperation with corporate America, with private schools, with public driver education. None of those are going away. They're going to be here. They're going to stay. And you've got to realize in this country, you know, we're going to educate these kids. There's a little population boom starting to happen with the teenagers, and we've got to take a very serious -- a very active and proactive look at this.

Who's conducting the research? If you give me your card at the end of this presentation, I can give you a handout that was done up at the Graduated Driver Licensing Symposium recently authored by Dr. Hedland, Dr. Compton, and Dr. Schultz on graduated driver licensing research in 2003 and beyond.

What is the future of 30 and six? This is something that I think we need to really, really look at now. Is it sufficient; does it need to be divided like it is in Michigan. I always say, when a kid is trying to remember that the brake pedal's on the right -- on the left -- I didn't remember myself. That the brake pedal is on the left, gas is on the right, and how to stay off of that sidewalk, they are not listening to safety stuff. It's only after they get that experience and the stuff is starting to click that you can finally get something in safety to start to register.

Does driver education need national attention? Does the federal government need to get more heavily involved in it? And let me tell you something, that we're not going to come to you and say in the States, we think you need national direction. What is going to work is you're going to come to us and say, you know what, we need national direction; we need national standards; we need something from the federal government that puts this and elevates this subject to a nationwide idea. And we've got to have the National Transportation Safety Board come forward like they are now and say bring them all together, let's see what we need, and let's go from there.

Like I said, driver training is in transition. We've got corporate involvement, distance learning, home schooling, and private schools. Driver education isn't going away. It's not. It's here to stay; I can guarantee you that.

What can be done to improve it? We've got to think about that.

How do we harness this techno-oriented group that we have now? We've got simulators out there. We've got people doing web-based design stuff. We've got people out there with great CD-roms that say if you just get the kids to click through this and get this prize and get this -- that prize that they'll be more aware of the risk involved.

The other thing we have to do is try to figure out, do we try to take the risk out of the kid? Can't do that. How do we assess this child for taking risks. And you've got to ask yourself this question: is a risk-taker necessarily a bad driver? I think that's a question we really need to consider.

I was a great driver like all my friends I knew. They were all great drivers. But at some point in my life I jumped off a balcony onto an eight-by-10-foot trampoline and my

friend and I used to jump up and jump down. Those were the days before liability, I guess. But one day I almost broke my back. And the next day I was back up running up, jumping off that, you know, trampoline again. But I was a safe driver.

Corporate America. We've got to get them involved. Private schools. Do they need to be regulated more heavily. I always say that when I talk to people about private schools in the United States that they're driven by the bottom line. And it's true.

If kids find out that this particular school is very stringent in their curricula and their testing, they'll flow to a school that isn't. So I always say that School A, you will test School B students. And that's kind of like one of those deals where if they keep failing and I'm going to that school, I'm going to go back to this school.

And thank you.

(Applause)

Presentation by Larry Lonero

MS. BISHOP: We'll move a little north now to Canada. And we have Mr. Larry Lonero. He has many years of experience in the human factors of collision prevention.

Before entering consulting, he held senior government positions in research and development, primarily in transportation safety. He was responsible for development, regulation, and administration of driver education in Ontario and for liaising with the Provincial Education Department and commercial driving school industry.

Mr. Lonero.

MR. LONERO: Thanks, Jennifer

I'd like to thank the Board for inviting me, and for thinking of looking to Canada either for a good example or a bad example, and I suppose I'll leave it up to you to decide which we are as time goes on. I would also like to mention that there are at least three other people from Canada here who know more about some aspects of Canadian driver education than I do. I'd like to introduce them and ask you to call on them at breaks and whenever if you need to get more information.

Barbara Sorbara from the Ontario Ministry of Transportation is here. John Svensson from the Driving School Association of Ontario is here. And Dan Keegan from Drivers.Com, and PDE publications, is here.

The situation with driver education in Canada is a similar in some ways to that here and drastically different in some other ways. The country is structured quite a bit differently, and that provides kind of a background to some of the differences. There is virtually no federal role at all in highway and driver matters within the provinces. Canada

is kind of a loose federation of provinces, and there's no federal highway funding -- nothing analogous to 402 funds, or any central kind of carrot or stick to influence the provinces. In this kind of field having to do with drivers and regulation, it's strictly a provincial responsibility. The provinces all have some sort of function in terms of regulations for driving schools and instructors, and that varies quite a bit from province to province.

There is one aspect of the situation in Canada that's really quite unique, and it's an interesting one. I don't want to go into it in great detail, but it could lead to some interesting considerations. Four of the provinces have government insurance. That's where automobile insurance is a monopoly that resides in a state-owned company. So you have one automobile insurer for the entire province. And think of the implications of that for driver education. They're quite substantial, as we will see in a moment.

In Canada the population is about the size of California. The economy is about the size of the economy of Texas. So I don't have to point out to you that, while it is considered a high-income country, and is very highly motorized, per capita income is a little lowers than in the U.S. Motor vehicle ownership is a little lower. We have somewhat fewer kids having their own cars. However, we end up parking the sled dogs for a good part of the year and mostly we use our cars, just like Americans do.

In terms of the sociopolitical climate for driver education, there is little coordination in the road safety business in general. Within the provinces responsibilities are divided up through different departments perhaps to a slightly greater degree than in the U.S.

Driver education, as I suggested, varies quite a lot from province to province. There is a core, at least in some provinces, that closely resembles what you think of as driver education in the States, somewhere between 25 and 30 hours in the classroom and six to 12 hours in the car. In some provinces this could take place in a high school.

There's a very wide range of one might call market penetration in driver education, and in some jurisdictions that have had high school driver education that has gotten to be very high, or was at least very high. It has probably drifted down a little bit, as it has in the States.

Canada has never had university programs in driver education, and that the academic and higher-level training function that took place in the U.S. never happened in Canada. There are no Canadian degrees in driver education.

To jump back to the issue of market penetration for a minute, as an example of how wide that can be. In a couple of the provinces that have government insurance, the insurance companies run driver education in the high schools. I'll come back to one of those in more detail in a minute. But they have very high levels of market penetration. Almost everybody in the past has gone through those programs.

In contrast, in British Columbia in the middle '90s approximately 10 percent of new drivers had some kind of formal instruction. The other 90 percent did not. So you can see that there was little driver education in the province at that time.

The programs are highly diverse. There are incentives for students to take driver education in many provinces in terms of an insurance premium discount. And where there are graduated driver license systems, there is often some kind of time discount associated with that as well.

The private driving school situation in Canada is interesting. I'll get back to that in more detail later, but we have kind of the best and worst of what you can expect out of the private driving school.

While we do have graduated driver licensing, there's not a great deal of coordination in the sense that we don't have any jurisdiction, with a staged program where the driver education is staged with the graduated driver licensing system. One province, Nova Scotia, when they first put their graduated driver licensing system in, tried to implement a staged training requirement, but that failed due to complaints from the public who basically saw it as having to take a full driver education course, which in many cases might cost $600 there, and then have to go back a little later and take another course and spend money again. And so it may be that the structure was not perfect, or maybe the market wasn't prepared adequately, or maybe there's a lesson to be learned -- that staged requirement isn't necessarily all that easy to implement.

In terms of private driver education delivery and support, we have a relatively unique organization based in Canada. It's Young Drivers of Canada, which is one of the biggest driving schools in the world. It has about 165 franchise and company-owned locations in Canada. It's been in business for more than 30 years. It has also developed its programs over the years and invested resources back into continuous improvement. It represents a pretty good example of how you might have a private driving school organization that doesn't just chase the bottom line, I think, as Sean mentioned.

However, we also have some of the opposite in private driving schools. Barbara was telling me that Ontario has about 450 approved private driving schools who are able to provide a certificate that provides an insurance discount and a time discount on the graduated driver licensing system. There are apparently both the best and the worse in that system. There is a whole range from very excellent schools down to those that basically sell certificates out of the trunks of cars in parking lots. The province has been, for a number of years, trying to sort out a way to better govern and regulate that business, apparently without much success to date.

We also have another relatively unique Canadian private organization in Propulsion International, which is a publishing company that produces textbooks and other materials. And they provide those on a custom basis to many jurisdictions, both in the United States and Canada.

We have the Road Safety Educators Association, which is a national organization that has especially concentrated on instructor preparation and qualification, and the Driving School Association of Ontario, represented here by John, that has been very strong in developing systems for course and school approval and regulation, which represents a model that can be used in other jurisdictions.

Manitoba Public Insurance (MPI) is one of the public insurance companies that provide driver education in the high schools that takes place in the school, mostly after school. - The people who deliver it are employees of the insurance company. So it has somewhat tighter control over how the program is delivered than would be typical of high school driver education, where you've got teachers that work for school boards and there are layers between the managers of the driver education program and the people who are delivering it. And MPI has also done some research on their program and a couple of generations of updates in it.

Another major private provider is the Alberta Motor Association, which is the Alberta affiliate of the Canadian Automobile Association (equivalent to the AAA in the U.S.). And they are the major provider of driver education courses in the province of Alberta.

The other relatively unique organization for Canada is Drivers.Com, represented here by Dan Keegan.

In terms of trends in Canada, I think we also see privatization. There has been a considerable reduction in the amount of high school driver education in some provinces, and in a lot of cases where there is still driver education in the high schools it is basically contracted out to a driving school. There is perhaps something of a counter-trend to this that I've heard about recently, where some school boards being squeezed financially are beginning to see driver education as something not to back out of but to use as a kind of profit center, where they'll charge a substantial fee and then contract the delivery of the program out to somebody who delivers it at a somewhat lower fee and then take a profit off the top of it.

Another trend is what we might call integration. I might call it sort of vertical integration, where Ford Motor Company of Canada bought Young Drivers of Canada, or a controlling interest in it, and in that sense went into the driver education business in a big way.

What we have not had in Canada, and that has taken place, as a business trend in the U.S., is the consolidation of the industry in the sense of some company going along and buying up driving schools as Top Driver has done.

Another integration trend is that of integrating assessment and training, and the blurring of the line between, who is a driving instructor, and who is a driving assessor. And this seems to be going fastest, maybe, in the field of senior drivers, but at some point we'll see something like that perhaps in beginner driver education as well, as privatization of driver testing progresses.

There's been a lot of talk about technology, and we've got a couple of trends that seem to be happening relatively fast. TeenSmart is being adopted by the Driving School Association of Ontario, and I think you'll hear more about TeenSmart from Richard Harkness tomorrow.

And Young Drivers of Canada is also using another kind of computer-based technology that addresses cognitive matters that comes out of human factors research in Israel. It's part of a large package of things that come under what's called CogniFit, of which Young Drivers is going to implement the DriveFit portion.

There's other interest certainly in simulation and computer-based assessment and training, and the training not just of driver performance per se, but also the assessment and training of the underlying skills, such as field of view and length of working memory. And that's the sort of thing that DriveFit tries to address.

In terms of extending the influence of drivers beyond the driver education program itself, we have a relatively new organization, the Smart Risk Foundation, which is a very broadly based organization that comes out of the public health/injury prevention field.

And a relatively new development along that sort of health promotion/injury prevention kind of process is something that's developing in Ontario called IDrive, which involved the province, and the Smart Risk Foundation. And we do also have a fair amount of chapters of MADD and Students Against Drunk Driving (SADD).

In terms of R & D support for driver education, we have a strong history but a relatively small number of players. The Traffic Injury Research Foundation (TIRF) we heard about earlier, in the work of Dan Mayhew, Doug Beirness, and Herb Simpson, who have been very strong in DUI work and graduated licensing and also review work in driver education. They have produced what must be the ultimate for-all-time review of the analyses and reanalyzes forth of the DeKalb experiment. They did recommend in their review rather strongly against using time discounts in graduated licensing systems for people who take driver education, on the basis that, without some kind of proven effect, if you use the driver education to permit more exposure, then perhaps you're not doing right the thing.

Human Factors North, Allison Smiley's company, has carried out a wide spectrum of R&D in human factors and road safety. We've just done with them a review of graduated license research, driver education research, and some other kinds of driver training, such as advanced training and driver improvement, for Foundation MAIF in France. That review should be available shortly.

John Svensson's company, TRIADD, has done various things in driver education over the years, and most in assessing the possible entry of another simulator company into the business.

And the last one on the list there is my company. And we won't go into a detail about that right now, but that's the next slide.

While we don't have much of a central function in terms of support of driver education, Transport Canada has always had a rather strong research and development (R&D) function within it, and certainly in terms of problem definition research and other things, they provide strong input.

The Insurance Corporation of British Columbia has always had a strong driver research unit, and it is involved in some work on their driver education program at the moment, as I understand it.

The Ontario Ministry of Transportation has a long history of R&D and has always maintained an R&D unit, and it has provided some strong input to all kinds of driver issues over the years.

We have in Canada some university-based researchers who have done various kinds of driver work. Jerry Wilde you may know as the inventor of the Theory of Risk Homeostasis. He is the person who pointed out to us that there's more to life just than safety, and that we need to structure safety programs accordingly.

Mary Chipman at the University of Toronto has done a lot of work on driver records and exposure to risk, and Peter Roth out in Alberta has done problem definition work and defined a bit of the sociology of driving and of driver education as well.

In terms of my own recent involvement in driver education, it really started with a paper that Northport did for the Ontario Ministry of Transportation in 1993, which was a comprehensive review of behavior change as you might apply it to road users. And we did a broad review of driver education research there.

And that led to the next opportunity, which was from the AAA Foundation for Traffic Safety in 1995, where we produced what was called the Curriculum Outline, which has had some influence in what's happened in driver education since then.

Because of that project, we had an opportunity to do some work in British Columbia -- to create a curriculum standard and then an administrative model for how to encourage and regulate driver education.

Based on all these other things, we had the opportunity to develop the classroom curriculum for Top Driver when they were getting started up. And then, after that, had the chance to do a broad review of the literature in support of the NHTSA project to produce a computer-based instruction module for young drivers' decision-making. And that paper looks at cognitive development and quite a broad range of issues as they might be applied to driver education.

For Manitoba Public Insurance, we have done what's called a longitudinal evaluation study of their existing driver education program that consisted of a very

comprehensive survey of their graduates and of people who learned to drive other ways, as well as parents and the general public. And that report should be available fairly shortly as well.

We've also been involved in the integration and consolidation strategy in driver education with Top Driver, with the Ford Young Driver integration. On our own initiative we have tried to promote and implement a vision of a kind of cradle-to-grave driver education, which starts with novice driver education. It would progress through multiple stages of beginner driver education. We see a need for driver education for life because, whether we like it or not, technology is advancing so rapidly in the vehicle fleet that either in your next new vehicle or the one after that, you're basically going to have to be trained how to use it. So we see the integration of driver education into a lifelong process that involves learning how to use new vehicles and also using those opportunities to advance other kinds of driving skills as the direction that driver education needs to go.

And I think I'm going to stop at that point.

(Applause)

Presentation by Stefan Siegrist

MS. BISHOP: Our next speaker is Dr. Stefan Siegrist from Switzerland who studied at the University of Bern with the main subject of psychology, specifically focusing on social psychology, general psychology, and criminal law. He earned his Ph.D. there in 1992.

From 1988 to 1996, he served as head of the Training Department at the Swiss Council for Accident Prevention, and since 1997 he has been head of the Research Department, which carries out safety-related research into road traffic, sport, and leisure activities.

DR. SIEGRIST: Ladies and gentlemen, it's a great pleasure for me to appear a presentation on driver licensing systems in Europe. I'd like to thank NTSB and mainly Jennifer Bishop for inviting me, and I hope I can give if not a comprehensive but at least a comprehensible picture on licensing systems, experiences, existing evidence, and perspective in Europe.

Please be aware I'm not an European Union (EU) official, so I'm not a representative of the EU as it was announced in the program.

But this presentation is based on a number of EU research projects namely on GADGET, BASIC and TRAINER, and I would like to thank the main coauthors which are namely Keskinen from the University of Finland. Then also, Neils Peter Gregersen from Sweden and Helen Groot from the Driver Testing Association Europe in Belgium.

Which are the contents of my presentation? First, I want to give you a typology of driver training and licensing systems in Europe, and then I talk about underlying or additional characteristics and reference models of European perspective. Then, the third step is the quality and effectiveness of European models. We have to choose the right outcome measure, and I'm going to talk about some studies. One of them already was mentioned this morning. The fourth step is then the future perspective; what should be done and what is planned on a European level.

I'm not going to talk very much about crash and injury data, but only one picture. And I think from a public health point of view, it is a relevant picture. We see here car occupant fatalities per 1 million inhabitants in different countries.

First of all, you see that 18- to 20-year-old drivers, the scale goes up to 350. On the other hand, you have the more experienced drivers, 25- to 64-years, and the scale goes up to 140.

You see that all countries you would find on this line, which not have young drivers over risk. And the flatter the line is, the greater is the young drivers' problem. You see here especially Germany had a relatively low problem, but on a high scale you find in Spain. Here, on the average, you find United States. But it is the public health point of view. It is not controlled by mileage.

And if you ever have problems to separate between Switzerland and Sweden, I can tell you it's even worse than you thought. You see here that both are at the same point.

So let me talk about the overall systems. First, there is the single-phase system that is applied in about 10 European countries. In this model, a student takes his or her training at a driving school and private or by combining the two. After having completed the training, the theory and practical test is passed. This results in the acquisition of a driver license.

After the acquisition of the driving license, there are no further restrictions. A full and permanent license is issued. One example is the Netherlands.

Then we have systems with a probationary license. At the very beginning it's about the same, but then, for a certain period of time immediately following obtaining the driving license, in most cases for two years the driving license is a probationary license without restrictions. This means that during the probationary period the student is subject to a number of special measures in case of violation of the traffic regulations. In some countries this is done in form of a penalty point system, giving points or taking them away from the driver when he or she commits traffic offenses.

So this is an example of a second phase where we combine education and enforcement. One example is Germany; another one is France, where they also have restrictions mainly in speed.

The next possibility is two-phase systems with a provisional license. This is a more and more popular system. Now it is applied in about six European countries, for example in Finland.

Here, the very beginning of the system for the student is about the same as in those mentioned before. But then, within a certain period after having obtained a driving license, the student has to follow a second phase of theory and/or practical training. This training can consist of various elements. It might be skid training, nighttime driving, hazard perception, or new methods of self-assessment and so on. I come to this back later.

The following of a training program is a precondition for obtaining a full license after a certain period of time. Usually it's two; sometimes it's three years.

And then, you know, the graduated driving license systems. They are not applied in Europe.

Further characteristics of European models. First of all, we can notice that we have a short education of professional teachers. I don't know how it is in the United States, but only Sweden and Finland have full-time training for professional trainers, which exceeds one year. Usually it's full-time training for about six months.

Then, the combination of layman and professional instruction is very common. Sometimes these two elements are very well coordinated; sometimes they are parallel.

We have few restrictions, like nighttime curfew, speed limits, and so on. Safety experts are in favor of restrictions, but in many European countries they are not accepted on a political level.

The minimum age for practicing mostly is 18. Sweden, Norway, France, and Austria are an exception. You can start practicing there at 16, but the minimum licensing age in most European countries is 18.

I'm not going into the details of basic training. I think they are quite the same everywhere: theory training, traffic regulations, but later on also perception, as an example. Then the contents of practical training not very surprising: some basic maneuvering skills and mastery of traffic situations.

In recent times the contents of driver training are being extended. For example, an extended training period under protected conditions. Then, mainly in second-phase training, new contents are being introduced. First of all, the analysis of dangerous situations while driving alone. This is a new post-test training content.

Then, self-assessment, improving hazard perception, motivational aspects of dangerous driving, and in part -- depends on the program -- also improving driving techniques.

This development was very much pushed by a model by Keskinen, and all he's trying to show is that there are different hierarchical levels of driving. And usually, basic driving training covers vehicle maneuvering and mastery of traffic situations referring to knowledge and skills but also risk-increasing factors.

The point he's trying to make is that in driver training, we should focus much more on higher levels and on self-assessment. This means that your absolute level of performance is not as important as the driver's awareness of the performance level he has reached.

And additionally, he says, second-phase driving alone is a new experience after the test. Then of course contextual and motivational aspects very much influence driving and risks and therefore driver training in the second phase without a doubt has to deal with these aspects. But how to do that; we come to that question later.

So once more, the trends in European driver training. There is a tendency to extend the accompanied pre-test driving period by introducing more layman instruction and lower minimal practicing age. This is a trend in about six countries.

Then, multi-phase systems are becoming more popular, and professional training to prepare candidates to accompanied driving is increased. Furthermore, the integration of demerit point systems and driver improvement programs into the driver licensing systems is becoming more and more popular.

There also is awareness that driving tests should be improved in the sense that at least they should cover the relevant and taught subjects.

Now, the evidence. The quality and effectiveness of European models. We have the same methodological problem you have. It is nearly not possible to produce any prospective case control studies, so we mainly have before and after studies as new programs usually are introduced in a whole country.

But there is a growing number of before and after studies referring to traffic safety outcome. Several studies did not sufficiently control for self-selection bias; some did. Some studies insufficiently controlled for further confounding factors. And I would say that the description of an evidence-based best-practice model for Europe is not possible by now, but I'm going to try to make some recommendations that are research-based.

Before I'm going to present the studies, I want to talk about the relevant outcome measure. You see, from a public health point of view, the relevant outcome measure is injured and killed per population and year. With this respect, changes in exposure are not relevant except if lifetime exposure is concerned. So whenever you compare a system, one starting at 14, the other one at 18, you have to be aware that the first group has a lifetime exposure that is four years longer than the other group.

But in order to analyze a system's potential to produce safe driving and to control for negative side effects, for example social inequalities if some people just can't afford a new driver training system and you have less licensed drivers -- in order to control for these things, an additional outcome measure is needed, and it is injured and killed per license holder and year. In the different studies in the United States and Europe, and outcome measure is not always the same, which makes it also somewhat difficult to draw conclusions.

First, I want to mention this Denmark study by Carstensen in 1986. They extended their driver training, and one of the relevant changes was they introduced new contents in driver training, mainly defensive training and hazard perception training. I can't explain the details now.

But the process evaluation showed that there were some problems in coordinating theoretical and practical parts. But on the outcome level, they noticed that there was a decrease in injury accident involvement of 18- to 19-year-olds by seven percent. They also controlled for confounding factors, which are general accident trend, population size, and so on. So I agree that this is quite a good study.

Then, Glaad in Norway. It's an old study, but it tells us something what we should not do. In a second phase, they added some technical training on a slippery surface and a dark driving course also. And the result was: no effect for females but there was some negative effects for males: an increase in accidents due to slippery surface course, a decrease in accidents due to dark driving course. But slippery surface courses seemed not to be an adequate measure in the second phase of driver training.

Then Meewes and Weiss Brodf based from Germany, they analyzed a provisional system. Due to political reasons, they had no chance to introduce also a second-phase training. So it's only that enforcement issue in a second phase, but nevertheless they had a reduction in crashes, not in injury crashes but in crashes by five percent.

Then, Sagberg in Norway. This is a newer study. They lowered minimal practicing age from 17 to 16 and at the same time they had a removal of geographical restrictions on lay instructions. So they wanted to boost layman instruction, but the process analysis showed that there was only a modest increase in lay-instructed driving by about 10 percent. And the outcome was there were significantly more crashes while training during the first months of training.

Then, in a Swedish study, they also lowered the minimum practicing age, but in Sweden they have coordinated layman training with professional driver training very well. The process analysis showed that 50 percent made use of early practicing, and there were social differences. Those who attended this voluntary possibility were of higher education. Private practicing increased by a factor 2.5.

After controlling for most confounders, for example general accident trend and social background, they noticed that there was a reduction in accidents per thousand license holders by 19 percent. So there are some contradictory results if you look at

Norway and then Sweden, but I think we can explain the difference to come back to this point.

I'm not going to talk about Luxembourg, but then Finland because Finland in my view has a very good two-phase model. They had new elements introduced, and I mainly want to show you what they did here.

They introduced new contents as motivational aspects of driving false new methods: self-evaluation, feedback methods, and reflection upon personal experiences. There were some positive results on the accident level not in the first year after training but during year two to four.

So I think there is some evidence that the following elements entail safety benefits. First of all, the introduction of a second phase including training and minimal restrictions seems to be positive. And then increased training under protected conditions; but only giving the possibility to have longer training by lowering the minimal training age is not enough. Contents in second-phase training besides mastery of vehicular and traffic situations should cover also driving motives, risky behavior, and self-perception is necessary and might have a positive outcome.

Also layman-accompanied driving is important but it should be integrated in a training system. I mentioned that point before. And the integration of improved pedagogical measures is necessary. The different elements have to be coordinated in a sophisticated way, which is not always the case in European driver training systems.

Nevertheless, there are some open questions. If we extend the training contents and if it comes to social aspects, motivational aspects, you all know that these are the relevant reasons for risky behavior and for a lot of accidents.

But how should we teach it? And new methods like self-evaluation increase the demands on the instructors. And in Switzerland at least, we really discuss whether driving instructors are able to do that. Even if they are well educated they deal mainly with cars and the techniques how to drive a car. Maybe other professionals, like social workers, teachers, and so on, should work in this field. But it is only a debate starting now.

Another question: which is the minimal amount of accompanied training? There seems to be a minimal threshold, as the Norwegian example shows us.

Then, which is the effect of different second phase training contents and methods? Only some knowledge is available here, but there are some European studies running now.

Which are the requirements to an effective two-phase model? Let's try drawing some conclusions, based on evidence as far as possible.

In the first phase you need a structured learning of basic requirements of driving. You need accompanied driving, which is as long as possible and an extended training period under protected conditions. So we have to put there some restrictions as you do it in the U.S.A.

And then you have the test, and the contents of the test must be extended and adapted to what was taught before, mainly a perceptions test should be adopted.

In the second phase, it is very important to combine education and enforcement. It is much more important than only increasing the number of lessons.

Referring to post-test experience in the second-phase driving lessons is very important. And the methodology should be more sophisticated. We have to change attitudes, and this may be achieved by self-evaluative methods and other meta-cognitive skills. So we need meetings, group discussions, and so on. Then, in a follow-up period, we need some further low threshold interventions.

Now, to come to an end, I want to show you what is going on in the European Union. First, improvement of driver licensing system is one of the priorities of the EU Commission's road safety action plan, though it is a statement and they also support some actions. For example, they want to improve the driver licensing directive aiming at standardized increased requirements on driving tests in order to influence contents and quality of driver training. And they want to develop standardized minimal requirements for driving instructors, also.

Concrete projects that are going on. There is a big project in six new member-States aiming at the evaluation of the second phase of driver training. And finally, the European standards for driver testing are being given out by now.

That's it. Thank you very much for your attention.

(Applause)

Question and Answer Session

MS. BISHOP: Mr. Lonero, you mentioned several different programs that are in place in Canada to teach novice drivers. What do you think are some of the most effective programs, and what do these programs comprise of?

MR. LONERO: Well, that's a tough question. The high school programs in Manitoba and Saskatchewan have been very well looked after in terms of reasonable administrative control and some attention to revising the curricula and so forth. So, they've at least had some kind of central management over the years. So I think they're a model in that sense. Somewhat analogous to a few States that have done something similar, Oregon and Washington for instance.

On the private side, Young Drivers of Canada represents a strong model. One person has run it basically for about 30 years. And I'm not sure how easy it would be to precisely replicate it elsewhere, because of the unique characteristics of that one person. But it's a private franchise operation, and is therefore basically replicable. It has fairly tight control over the training, retraining and monitoring of the instructors, and of the curriculum, which gets updated and developed over time.

So, if off the top of my head, I had to say that there were a couple of things that you could look to for possible examples of where to go, it would be those examples.

MS. BISHOP: Dr. Siegrist, you touched on driving tests. Here in the States I know when I got my driver's license, I had to drive around the block, stop at one traffic light, and pull straight into one parking space. It was pretty easy, and from what I've heard in some States, it's not much more difficult now.

Are the tests more difficult in the European Union or in some of the countries there? And if so, do you think that has an effect on the quality of drivers and the safety of new drivers?

DR. SIEGRIST: Yes, I think it's not the test itself that has a positive effect from safety but a test has an effect on the driver training because driver trainers and the administration is forced to have a minimal training in order to increase the possibility to pass the test.

And the situation in Europe is that in fact most countries have driving tests, which are longer, and maybe more demanding. For example, 45 minutes driving is very common and you have to cover several traffic situations. In some countries, even nighttime driving is tested. And I think it is more comprehensive also. The theoretical test takes one hour.

MS. BISHOP: Mr. McLaurin, you mentioned a credentialing program for driver's education instructors in a national model for the non-commercial driving test. Are there any plans to require all driving instructors to be qualified? This is from someone in the audience. As they understand it, in some States almost anyone with no relevant training can simply set up in business as an instructor.

MR. McLAURIN: You know, as many States as there are, there are as many requirements for training, certification, licensing. Sometimes within States you have different requirements from county to county.

So are there any national plans for certification? I doubt it. Until the States come to us and say, we need federal direction on this particular subject, it's not going to come. It's just not the political atmosphere right now with the current administration.

But, having said that, I will say it's needed because I talk with people every week that have this great new program that they're going to march out and they're going to

teach kids and they're going to save the world from all our problems, and all they need is that big check from the federal government.

And the first thing out of my mouth generally is, well, what sort of qualifications do you have to instruct driver training? And they say, well, I've been driving all my life. And I say, well, you know, so have I. It's one of those things.

So we need certification. We need standards. There are standards for everything out there, and driver education certainly is no exception. And I think probably one of the biggest things that's started to really drive us into a decline was trying to find football coaches or basketball coaches that had an open curricula for one hour, and they started teaching driver education based on no educational background or no training at all. Here's the book. Everybody knows how to train. All you do is develop your lesson plan and go.

So we definitely need it. We need the standards and we need State standards as well as federal standards, more than likely.

MS. BISHOP: Dr. Siegrist, do you know why most European countries have selected 18 as the minimum driving age? Are there any other types of vehicles that people can drive under 18, and are there any accident involvement statistics on those?

DR. SIEGRIST: In most European countries people under 18 are allowed to drive small motorcycles. The reason why some countries lower the minimal practicing age for car is that they want to increase training under protected conditions.

There are historical reasons why most European countries have 18 as a minimal driving age. Nowadays there are scientific arguments: age is a dominant time factor. Another reason may be that public transport in this mostly narrow countries is quite good. So there was just no need to have young people driving a car at 14 or 15 because they take the bus to school.

MS. BISHOP: Mr. McLaurin, with regard to home schooling, many parents have indeed set a bad example of driving for 15 years. Isn't it like smoking for 15 years and asking them not to smoke? Would it be best to have them augment a quality driver-training program?

MR. McLAURIN: Oh, absolutely. I tell parents every time where I go and talk to them that you're a role model. You've taught your child how to walk, how to talk, how to eat, and in most horrifying cases, how to dress. And certainly driver training is no exception.

And I tell them they're role models. They need to be considered, as a role model because, as my daughter Erin says when she pokes her head over the seat and says, Dad, isn't that just a little bit too fast, they're watching you the whole time. And when you're screaming and cussing and driving aggressively -- especially males think that they're

better drivers than their fathers even at the ripe old age of 17 -- they're going to learn that from you as well.

They learn drinking habits, they'll learn smoking habits, and they're going to learn driving habits. So I think that is a very good suggestion.

MS. BISHOP: This is for anyone. Are you aware of anyone doing an effective vision training program, cognitive training, or speed of recognition training program?

MR. McLAURIN: Not to my knowledge.

MR. LONERO: I think that going into that kind of field is what the DriveFit is intended to do. And in TeenSmart as well, so those are the two examples that come to mind for me.

DR. SIEGRIST: When it comes to a vision-training program, for example, we discussed that some years ago. The idea of training effective visioning is -- is a good idea, but you can't really train if as it develops according to experience and cognitive skills.

The point is that you have to make them experienced drivers and then vision is going to be better. So I don't think there is much sense in such programs. It is much more important to make them more accompanied experience in the car.

MR. LONERO: Could I add a supplementary to that? I think it should be clear that this is sort of a second stage kind of issue.

I also forgot to mention, the AAA Foundation developed a driver's education program, which has some evaluation results on it as well.

MS. BISHOP: Okay. Dr. Siegrist, what interactive or technology-based methods are used in evaluating or identifying high-risk or risky behavior in young drivers?

DR. SIEGRIST: At a driving test?

MS. BISHOP: Either in a driving test or through the education process.

DR. SIEGRIST: In training mainly feedback methods in order to make them aware which learning stage they are and where the problems are. Then self-evaluation and risk awareness meta-cognitive skills. In a driving test it is possible to integrate hazard-perception tests.

MS. BISHOP: What additional opportunities are there for corporate America to support progress in driver's education?

MR. McLAURIN: I think primarily partnerships, partnerships with the public schools. You've got a captive audience in the public schools. So I think that you're seeing a little bit more involvement these days having high school-aged children and

college-aged children in my family that the corporations are realizing first of all that they have a fairly fertile ground to harvest there.

But I think the most important thing is to get these partnerships going with the State governments, with the Department of Education, and with the high schools.

MS. BISHOP: And finally, when will the AAMVA curriculum and the Teen-Parent Guide be available, and how will it be distributed?

MR. McLAURIN: We're certainly hoping to have it done and available sometime in early '04. And it'll be distributed, I'm hoping, through the motor vehicle administrators' offices, through the high schools, and the American Driver and Traffic Safety Education Association, and available, hopefully, through the website at the National Highway Traffic Safety Administration as well.

State Programs

Presentation by Elizabeth Weaver

MR. VAN ETTEN: Our first panelist is going to be making a presentation is Elizabeth Weaver. Elizabeth was a graduate from Texas A & M University with masters in educational technology. She was with the Motorcycle Safety Foundation for over 18 years. And during 13 of those years, she was the director of education.

In that capacity, she was responsible for the development and maintenance of all motorcycle safety education and training materials for the novice and experienced motorcyclist, course delivery standards, and the training and certification of instructors and chief instructors.

She is a coauthor of the 10th edition of the "Skills and Application Workbook" for the Drive Right textbook, and will be coauthor of the next edition of the "Drive Right Student Education Textbook."

Ms. Weaver is a past president of the Association for State Supervisors for Safety and Driver Education, and is president-elect of the American Driver and Traffic Safety Education Association. She is currently the State director for driver education in Idaho, where she provides support for over 350 driver education teachers, 110 school districts, and 35 commercial schools.

MS. WEAVER: I am absolutely delighted to be here today, especially to be sharing this podium with my colleagues who, like I do, work with State programs for driver education and training.

I'm especially delighted to be here, too, to talk to you about our driver education program in Idaho and to share with you some of our strengths and our success. I want to assure you that driver education and training is alive in Idaho. Unfortunately, many States lost their State funding and support back in the 1980s, but we have survived.

Today I'm going to briefly talk with you about Idaho's future training, our curriculum standards and improvements, our driver education laws and program structure. Along the way I'm going to point out to you our strengths and our weaknesses with the 10 recommendations that I have that I hope would help to strengthen driver education and training not only in Idaho but nationally.

I'd like to start first by sharing with you a little bit about Idaho. Idaho is very much a rural State. Our average per capita income is just a little over $17,000. We only have 1.3 million people. That's one-third the size of Los Angeles County.

Our constitution requires us to have a balanced budget every year. And in spite of our economical struggles, the support for public school driver education continues to be very strong.

Now, you probably have heard about one of our most popular products that we produce in Idaho. Last year our farmers produced 13.8 billion pounds of tasty spuds. That's enough for two spuds for each living soul, man, woman, and child on the face of this planet.

To give you some idea of the size of Idaho, we're 497 miles long. So it would take you from the bottom of Oregon all the way to the top of Washington to travel the length of our State. And across it, it's 305 miles. And we have very few interstates that connect us.

During 2002, we had 110 school districts offer driver education and training. In our most rural areas we had 17 school districts that trained less than 25 students each in that one time period. And many of these rural areas have no signs, signals, or markings. They're lucky to have one stop sign.

Ninety-four percent of our roads are classified as rural. And this higher percentage of rural roadways in Idaho may account for the fact that Idaho's fatality rate is unfortunately consistently higher than the national fatality rate.

We are striving very hard in Idaho to improve our driver education and training programs, but without a national standard telling us what we need to do and what students must know and what they must be able to do to successfully complete driver education and training, States are left on their own to establish or not establish content and delivery standards.

In 1995 when I was hired as the driver education specialist for this State, the curriculum guide that was in use at the time was developed in 1977. That's when we had a lot of federal support for driver education and funds were going to the States and it was used to develop our curriculum guide in Idaho. It was updated a little bit in 1990, and when I took over the job in 1995, I retired it.

Now existing teachers are trained and updated with what I consider to be one of the top driver education and training standards in the country. We're using the zone-control curriculum that was developed by the National Institute for Driver Behavior -- many of you know Fred Mottola -- and also, ADTSEA's and the National Institute for Driver Behavior's standards for in-car performance.

Idaho teachers are helping us to develop a model curriculum guide. It uses a lesson plan format, which they prefer to have, so that teachers can customize this

curriculum guide for their use. The NIDB and the ADTSEA standards are helping us develop a good foundation for educating and training teachers and our novice drivers.

You know, the traditional classroom lecture methods that we have used so long in our schools no longer work with teen drivers today. Our teens need to be visually, mentally, and physically stimulated and challenged. They need to be stimulated, excited, and turned on before they want to learn.

However, unfortunately, there are still some teachers in Idaho, and I'm sure across our country, which is very comfortably set in their ways to continue to teach traditionally with out-dated information and techniques, and there are those who do not teach our best practices. But Idaho teachers are improving their classroom instruction by replacing the lecture and video format with classroom activities that engage our students and makes learning interesting, fun, and relevant.

The behind-the-wheel laboratories are where our students demonstrate what they have learned in the classroom. The Skid Monster is used in two of our school districts. And we have two monsters in waiting for teacher training and placement.

We recently adopted new rules for Idaho public schools that have resulted in the development of 45 essential knowledge and skills that public school programs must include in their curriculum. Topic 7 of these 45 skills -- knowledge and skills -- will kind of give you an example of what our essential knowledge and skills are shaping up to be.

Commercial driving schools are not affected by the new rules, and teens are going through commercial driving schools that are not required to meet any minimum standards established by the State for passing or for failing.

My first recommendation. I believe we need national standards for what youthful drivers should learn during driver education and all public and commercial driving schools should meet training with assessments for passing that.

Forty years ago, the Idaho legislature established the Idaho Driver Education Program. The law created the Driver Education Program to be administered by the State Department of Education along with a full-time traffic safety professional, and I served in that capacity.

In 1963, driver education was part of the regular school day. And today, like so many other places across our country, it is primarily a before- and after-school programs and during the summertime.

Our 1963 standards: 30 hours of classroom. Sounds familiar, doesn't it? Six hours behind the wheel, six hours of observation, and six weeks or 42 days was the standard in 1963, and I'm sad to say it is the standard today. Nothing has changed, except for one thing. The new regulations that were adopted by law this year for the public schools, summer classes can be conducted in 30 days, but this is only during the summer.

The issues of course content, length, and delivery have been discussed and reported upon by researchers, traffic safety organizations, and federal agencies for many, many years. During a January 2001 Transportation Research Board (TRB) meeting, Dr. Allan Williams of IIHS, said there should not be an expectation that brief inputs like this will be able to change the attitudes and the motivation that are known to be so influential in shaping driving styles and crash involvement.

Secondly, teaching people how to drive necessarily takes priority over trying to instill safety motivation. And it is very likely that the audience is not very motivated to attend to admonitions concerning safe driving.

You know what? Many agree with Dr. Williams. We have been living with outdated, ineffective standards for way, way, way too long. We've all known that the traditional 30 hours of classroom, six hours behind the wheel over a short period of time is woefully inadequate to change the behavior or motivate safe driving behavior of our young teen drivers.

As a result, States are not motivated to improve driver education without a national effort directing that change.

I believe we must treat driver education and training as a national priority by establishing national standards and support for driver education and training.

Idaho's commercial school laws were created in 1988. It provides an alternative choice for young drivers through the public schools. Youthful drivers in the commercial driving environment must again meet 30 hours of classroom, six hours of behind the wheel, six hours of observation, again in six weeks of instruction.

However, I want to point out that the standards for the commercial schools as compared to public schools are very different. The State does not provide standards for adult students in a commercial driving school, nor is any information collected about commercial driving schools' adult training.

Since 1995, commercial schools have grown by 63 percent, from 13 to 35 schools, and their student enrollment has increased by 59 percent. Funding for the State's driver education program comes from driver licensing fees. With these fees we support the State program and the State reimburses the public school programs, and we do it this way.

For the public schools, we will reimburse up to $110 per student. And for your information, because I know we all like to know these facts, the average cost per student is $224, which is a lot less than it is in many other States. The average fee charged is $77.40. The average State reimbursement is $106, and the average instructor hourly rate is $15.93.

The commercial school fees range from anywhere from $199 to $395. The State reimbursement to the school districted makes driver education and training affordable for the majority who cannot afford the commercial school prices.

Driver education and training costs have increased significantly since 1963. Free loan vehicles are a thing of the past. You very rarely ever hear of anybody getting free loan vehicles from their local dealerships. However, in Idaho we still have two dealerships that provide these vehicles to the local school districts at no cost.

When schools are set with fixed budgets or reduced budgets, something's going to go. And in the case of driver education, out with the new cars. New cars with technology that we would certainly like to see our teachers and our teens in those cars. Out goes updated textbooks. Can't afford those when the budget is reduced or gone. And out goes the classroom technology. And you know what? Driver education and training cannot be dollar-driven.

By increasing public school funds, we would be required to go back through the legislature to have those funds raised. And you know what? In these times of economical challenges, it's just not going to happen. Not this year; maybe not next year.

We now have 400 public school teachers teaching driver education within our State. And we have 69 commercial schoolteachers. And there are many of the commercial schoolteachers that come from the public school programs.

During our fiscal year of 2003, we trained over 17,500 in driver education. That's about 86 percent of the eligible students took driver education. Twelve thousand eight hundred of these kids went through the public schools, which is about 73 percent, and 4700 went through the commercial schools, which is about 27 percent of the eligible students.

And unfortunately, today only six school districts offer driver education during the regular school day. It is predominantly a before and after school and a summertime program.

However, over the last two years, we have had two small rural school districts put driver education back into the regular school-day program. We only have one full-time driver education teacher within the public schools. Far cry from what it used to be.

By eliminating driver education from the regular school day, driver education has extended the school day for our teachers and our kids. And it's left this very critical, important program with less than desirable schedules.

During the school year, unfortunately, classes will start at 6 a.m. in the morning and go till 9:00 at night, or even later. We have fatigued students and we have very fatigued teachers. And you know what? That's not a good way -- it's not a conducive environment for learning.

I recommend, to improve the quality and delivery of driver education, driver education needs to be put back into the regular school-day program of instruction.

Driver education in the regular school-day program provides the opportunity to link transportation safety to other risk-related prevention efforts, such as substance abuse or violence prevention. The opportunities are there within the public schools for us to do a much, much better job than what we have been doing in driver education.

Kids in Idaho can be licensed at age 17, or earlier if they complete driver education. At age 15, they can complete driver education. We do have a GDL law, which I'll talk about more in a moment, which requires an additional four months of practice with a supervising driver, 50 hours of which 10 hours must be at night. And it is considered that this early licensure is essential for the mobility of our youthful drivers.

State driver licensing tests have often been used as the criteria for measuring the success of driver education. And you know what? If we don't know what a youthful driver should learn and what they should be able to do, how in the world can we ever know what to test them for?

Youthful drivers trained and licensed in Idaho, and I strongly believe this, should meet the same performance criteria that is required by every other State in the country. Driver licensing tests should be tightly linked to driver licensing skills assessments. I do believe that every State's youthful driver licensing test should measure what is taught in a comprehensive driver education program based upon national standards for the content and the delivery of driver education and training.

And it's my belief that the AAMVA should establish the standards for youthful driver testing for States' use in the United States. And I see some shaking of heads. I know that would be difficult to do.

We have teacher training standards in Idaho that are different whether you teach for the public schools or for the commercial driving schools. For the public schools, in order to teach driver education in the before- and the after-day program and those few instances where they are part of the regular school-day program, you must have a valid Idaho teaching certificate. The endorsement, unfortunately, only requires four semester credits to become endorsed in driver education. All other endorsements require 20 credits or more. Training is inadequate.

If you want to be a commercial driving school instructor, you don't have to have an Idaho teaching certificate. You can replace that with eight semester credits of training that is teaching-related, something that will help prepare you to be a teacher in the classroom and behind the wheel. In addition, a commercial driving school instructor must also have four semester credits in the same four credits that the public schools are required to have for driver education endorsement. We call it Driver Education I and Driver Education II.

Again, teaching is inadequate to prepare our commercial driving schools to be good driver education teachers because, again, it's only 12 semester credits. It doesn't even begin to meet the national standards that have been established by ADTSEA.

In addition, our law says that a commercial school can contract with a public school and offer the services of that commercial schoolteacher and replace the public school teacher. And yet, that commercial schoolteacher does not have to have the same higher standards required of the public school teacher.

Idaho's rural environment makes it very, very difficult to obtain the required course work to become a driver education teacher. To overcome this problem, some teachers have opted to take home correspondence for their teacher certification for driver education. Both public and commercial have done this. In fact, we have some commercial schools that have done all of their training, the eight hours of teacher training and four hours for behind-the-wheel and classroom instruction for a driver education teacher, through home correspondence.

I do believe that we need national standards establishing the minimum requirements for driver education teacher training, and we need much more diverse opportunities to obtain that training without sacrificing quality.

We have some strong strength, I believe, in Idaho's program. Fortunately, once our teachers are trained, we do have an opportunity to provide feedback and additional training, and we do this through our program reviews.

The Department of Education conducts reviews of both the public and the commercial schools. We observe in the classroom and behind the wheel. We identify the strengths and the weaknesses, and we do one-on-one feedback with the teacher, going over the evaluation form, exactly where their strengths are and where their weaknesses are and what we can do to help them to bone up on those weaknesses.

And then we also reinforce new technology and training methods during these reviews. And I think, if there's anything we could do that would improve our programs, it's the on-site review with our driver education teachers in the classroom and behind the wheel because it's only then that you're going to learn exactly what they're doing.

Then we do a comprehensive report back to the schools, whether public or commercial, outlining the strengths and weaknesses. And in some cases we may need to provide a system for them to come back into compliance with regulations.

I do believe that every State should have a required program for audits and assessments for public and commercial driving schools.

When we establish new rules in Idaho, it has to go through the rulemaking process, which is not a simple thing to do. First, we have to start with the State board, after we get agreement with the users; those are the people that are going to be impacted by the new rules. We go to the State board and get their approval. We go out for public

hearings if they are requested, come back and make our edits and our changes, and take it back to the State board. And then it has to go to the legislature for approval.

Public school standards are high. This year the legislature approved our new rules for public schools. They include the adoption of the essential knowledge and skills, which I spoke of earlier, 45 of them. A student passing a public school program must achieve a minimum of 80 percentile overall average to pass driver education.

Our teachers are now required to complete 15 hours of professional development every two years. Driver education must be concurrent and integrated. You can't do all classroom and then behind the wheel. It must be concurrent and integrated.

We also have established within the public schools policies for parental involvement. Lesson plans are required. It's no longer okay to open up the textbook and say, let's read Chapter 1, do the end-of-chapter quiz, do the workbook quiz, let's watch a video, and move on to the next chapter. Our driver education teachers in the public schools must have lesson plans.

New teachers coming into driver education must pass the knowledge and the skills test with a minimum of at least 80 percentile on the knowledge test and seven penalty points; you're allowed to miss 15 penalty points to get a license in Idaho, for our State skills test. So now we at least have an assessment of new teachers coming into Idaho.

Our behind-the-wheel teachers only must complete a Department of Transportation Commercial Driver License (CDL) physical.

We believe that our new rules give support where it's really needed, and that is to our teachers, our administrators, and our students.

Going along again with what I believe are our strengths are our teacher credentialing classes. We are fortunate to still have driver education teacher certification classes in Idaho. So many colleges and universities have dropped them. We have three universities, and through those three universities with adjunct professors, we train 30 to 40 new teachers every single year.

Idaho uses many resources for this training -- the standards established by ADTSEA and the NIDB and Mottola and Kline and Harvey, so many people that have helped us improve what we're doing in driver education and training in Idaho.

Another very strong strength that we have in Idaho is something that I know that doesn't go on in a whole lot of States, and that is our professional development. Our professional development is for public and the commercial schoolteachers. We use the State funds that are provided through our financial funding through driver licensing fees to support workshops and our conferences.

Idaho teachers are improving their classroom instruction by replacing that lecture-video format with classroom activities that engage our students and make learning interesting, fun, and relevant. Every year eight to nine regional workshops are conducted throughout the State, or a State conference is conducted.

Since 2000, we've had 310 teachers and administrators; public and commercial schools participate in these workshops or conferences where they can earn one semester credit or a Continuing Education Unit. They can also have their substitute teacher wages paid for in the public schools. Free meals and free lodging are given. How many States will actually pay for the lodging of their teachers when they come back for professional development? Through our State funding we are able to do that, and I think that's absolutely wonderful.

And they typically go home with hundreds of dollars' worth of free materials that we are able to gather from all of those wonderful providers out there that are creating such wonderful things in driver education and training.

Our workshop focuses on best practices and training techniques, and you know what? Not only are teachers learning but also the teachers are having fun as they're going through these workshops. Teachers return to their classroom motivated to make improvements in their instruction.

I do believe that continuing education focusing on instruction should be required of every driver education and training teacher, public or commercial. And what we need to do is support our teachers and administrators with extensive and affordable regional conferences and workshops so that they can keep their knowledge and their skills on the cutting edge. It's not sufficient to train them one time, turn them loose, and then they do the same thing over and over again for 30 years.

The support by so many organizations for graduated driver licensing has resulted in almost every State, if not every State at this point, adopting some form of graduate education driver licensing law. It just goes to show how a strong coalition of advocates can create change.

Idaho's graduated driver licensing law went into effect January 1st, 2001. It affected all drivers under the age of 17. It increased the eligible age to enroll in driver education to age 14 and a half from age 14. Some of them can barely see over the dashboard.

One of the greatest things about our graduated driver licensing law is we now have parental involvement because Idaho has one of those laws that says, during driver education, the kids cannot drive with anybody but their driver education teacher. So for our six weeks of instruction, the parents have been shut out of their driver education experience with their young teen drivers. So now at least we have the opportunity to work with the parent, but again, they're still not allowed to drive with them during the course of instruction for driver education.

I know you'd be interested in what happened with our collision statistics from our Office of Highway Safety from our Department of Transportation. Fifteen-year-old driver collisions have dropped 77 percent. Fifteen-year-old licenses have been reduced 54 percent. Sixteen-year-old collisions have been reduced 20 percent. Sixteen-year-old licenses have been reduced 26 percent. And sixteen-year-old fatal and serious crash involvement rate has dropped from 2.3 to 1.3.

In support of the graduated driver licensing law and getting our parents involved with our young drivers and our teachers, we developed a practice guide, a supervising practicing guide, that parallels the good driving habits that we're teaching in Idaho. A task force of teachers, administrators, parents, driver licensing, Office of Highway Safety, and law enforcement helped guide us on what needs to be included in this practice guide. It includes the drive objectives, good driving habits, common errors to coach, and easy-to-follow diagrams.

Our "Road to Skilled Driving Practice Guide," we have distributed over 53,000 free since November of 2000 at no cost to any public or commercial driving school. This winter, we're going to conduct a study to see just how effective this guide is being used by our parents, our students, and our teachers.

We have many good commercial driving schools in Idaho, but we do have some problems. Commercial school accountability. We have some commercial schools that have not complied with the requirements for commercial school standards and State laws. The legal process to bring them into compliance requires the States' legal support. And some commercial schools have successfully delayed indefinitely or avoided completely any consequence of their action, and they do continue to operate.

With the improvements to our standards for the public schools, the intent was to create improved standards for public and commercial schools. We have a driver education steering committee that used to be comprised of public schools and commercial schools. And for a period of about three years, this committee was the driving force for developing new standards for public and commercial schools for teen driver education.

That committee took on the task of identifying what needed to be changed to raise those standards, and the intent all along with those standards was to ensure that the standards were the same for public and commercial schools.

When we were coming down to the wire and had started taking the proposed standards out to our driver education community, to our workshops, putting them on our website, all the things that you're required to do when you are going through a proposed rule-making, some commercial schools took exception to those proposed new standards and were successful in lobbying and stopping the rules from going forward for the commercial driving schools. However, the public school rules we continued with.

There are efforts underway now to draft new rules again for the commercial driving schools, and I would really want to reinforce how important it is from the State

perspective that our interest is not in how the commercial driving schools run their business, because they are a business, but it's how they're delivering the content of driver education because we want the highest quality, the best standards possible for Idaho's young teen drivers.

And unfortunately, because we now have two distinct, different standards for public and commercial schools, I believe that it has weakened Idaho's driver education program.

I believe we need national standards for the content and delivery of driver education and training by public and commercial driving schools.

The question has been asked -- I've been hearing this a lot and where are we going? It was once said, "The significant problems that we face cannot be solved at the same rate of thinking we were at when we created them." Albert Einstein.

During the National Summit for Improved Youthful Driver Performance that was held in Crystal City, Virginia, September 16th through the 17th in 1996, major stakeholders recognized the need to improve youthful driver performance through educational efforts. It was often referred to as the "miracle in Crystal City." And I know there are many of you in this room that were probably there.

The major stakeholders recognized the need to improve youthful driver performance through educational efforts. It was hoped that this powerful alliance would make the difference. And you know what? The miracle didn't survive.

So where are we and where are we going? We're all familiar with transportation safety that has traditionally worked for better communication and cooperation, and we look at them as being the three E's: engineering, enforcement, and education. And most recently, emergency medical services have been adopted as the fourth element.

However, over the years, research studies have been used to knock driver education out of this equation, and I think it's past time to reestablish educating youthful drivers back into this cooperative effort.

We know that driver skill development must be in place before youthful drivers can understand and appreciate the higher-level decision-making driving task. However, we're not going to change any 15- or 16-year-old driver to think more about safety than the thrill of driving an automobile. Yet, research study after research study has incorrectly, in my estimation, stated that the principal goal of driver education is to reduce crashes, injuries, and fatalities.

Why has driver education been measured so differently than any other standard for fatalities? In its current state, the definition of what driver education is expected to accomplish is not realistic. I believe we need a realistic measurement of what a quality driver education program should be. And the question is asked, when and what should we teach?

At a Transportation Research Board meeting that was held in 2001, Mike Smith said this: "To be successful, driver education must start before the age of licensure and last throughout the driving years. There should be training standards developed and resources made available to prepare, market, and maintain programs and materials." And Mike Smith, you were right on target.

Driver education cannot be a one-shot effort over a few weeks of instruction. We need agreement on what knowledge and skills must be included in driver education and training programs.

I believe that risk management education and training needs to be an ongoing, integrated, public school, K through 12 programs. We need standards and we need the resources to make it happen.

The question has been asked, who's got the best delivery system? I sure can't answer that. But you know what? I can tell you from working on the State level just State standards alone are not going to work. We have got to have national standards for driver education and training.

We need partnerships with our parents, law enforcement, driver licensing, government, and other highway safety partners. And our public and commercial driving schools need to work cooperatively, seeking the highest of standards and quality instruction, rather than seeing each other as competition for student enrollment.

Idaho has had a driver education and training program for 40 years. We've made improvements in our curriculum and our training and our standards, but boy, so much more needs to be done.

Public and commercial driving schools. Both have a role, but they both need to be more effective. National standards are needed for the content and delivery of driver education and training. And both need to be at the table when these standards are determined.

The strong coalition that emerged in the support of graduated driver licensing laws needs to occur for driver education and training for our youthful drivers. Enforcement and engineering alone is not going to fix this problem. And education is the missing link.

My sincere thanks to the National Transportation Safety Board and Gary Van Etten for inviting me to participate on this panel. It needs to culminate with action and not be just another report that's going to gather dust on our bookshelves.

Thank you so very much for this time with you.

(Applause)

Presentation by Greg Lantzy

MR. VAN ETTEN: Our next presenter is Mr. Greg Lantzy. Mr. Lantzy is currently the supervisor for People Transportation, Driver, and Rider Safety Program. He oversees people transportation and driver education programs in the State of Michigan.

Mr. Lantzy has a bachelor of science and a master of arts degree in education from Michigan State University, and has been in driver education since about 1987.

His work experience includes teaching and coordinating driver education at various public schools in the Lansing area. He taught driver education full-time in the Lansing school district for five years. He owned a driver training school for a short period of time. He's hired been hired as a consultant for traffic safety for the Department of Education in January of 2000.

He is also president of the Association of State Supervisors of Safety and Driver Education (ASSSDE), the Michigan Department of Education representative to the Governor's Traffic Safety Advisory Commission, as well as the chairperson of the Driver Education and Licensing Action Team in Michigan.

Mr. Lantzy.

MR. LANTZY: Thank you, Gary.

That's a tough act to follow. I'm exhausted just listening to her. But you know, the enthusiasm that she (Elizabeth Weaver) showed and that Dave (Huff) and John (Harvey) and Barry (Ford) and all the rest of those that are involved, whether it's administering programs for the State or teaching, it just shows the passion that's out there for those that are involved with traffic safety and teaching our youthful drivers.

Unfortunately or fortunately, I do not have a PowerPoint presentation. I learned a painful lesson relying on my hard drive to be there every morning. So I will not be using a PowerPoint.

I will make some references to a GDL program; laws, rules and regulations in Michigan and Michigan's performance objectives. Those are all available online at our Michigan.gov website. So if you don't want to take a lot of notes, you can just visit that website some time and be able to download all the references that I'm making. So it's www.michigan.gov/mde for Michigan Department of Education, and then search for "driver education" or "driver training," and you'll be able to get to our home page.

In Michigan, as well as the rest of the country, driver education is at a crossroad, and we need to decide which road we are willing to take. I am pleased that the National Transportation Safety Board has convened this forum to take a look at driver education in the United States, although the circumstances surrounding the reason were unfortunate.

One outcome of this meeting may be to recognize that the status quo may not be working, and if so, now is the time for all involved in traffic safety to step up to the plate and get involved with the education of our youthful drivers.

In 1955, in a special session of the legislature, Michigan became the first State to require driver education prior to licensing young adults under the age of 18 -- that was mentioned this morning -- and also the first State to mandate driver education be offered in all public schools.

Drivers up to the age of 18 were and are currently required to satisfactorily complete a Michigan Department of Education-approved driver education program. The purpose of this legislation was to educate novice drivers and thereby reduce accidents through a safety-oriented course of instruction.

In 1996, Michigan again led the way by becoming the first State to pass a comprehensive graduated driver licensing law which included two segments of driver education and three levels of licensure. I'll give you a quick outline of how the whole GDL system is set up.

Students who have attained the age of 14 years and eight months may enroll in driver education. There is a vision and health screening prior to their behind-the-wheel experience. The classroom contains 24 hours, two hours maximum per day. They must span at least three weeks.

The behind the wheel is a minimum of six hours, and in Michigan we do allow up to, on a one-on-one basis, three hours of range driving to account for three hours of on-the-road. So at least they will have at least a minimum of three hours on the street.

The only required assessment for a student to complete driver education successfully is a 100-question written test, multiple choices.

Once a student has received their Segment 1 certificate, they must apply for a Level 1 license to be allowed to drive on the streets of Michigan. They can do that at age 14-9.

There's a vision exam that's given at the Department of State when they go down to apply for the license, and they must meet health standards there as well.

Written approval is required of parents, and once a student has obtained the Level 1 license, they may drive only with a licensed parent or legal guardian or someone who the parent has designated age 21 or older to give that young person driving time.

At this point, they are now preparing to take Segment 2 of driver education, which you found out, is not been offered by other States. Hopefully States will be looking at it, but Michigan is one of I believe the only State that has a Segment 2 driver education program.

That consists of six hours of classroom; maximum two hours a day, so minimum of three days. There is no behind-the-wheel experience required. However, there are some programs that do incorporate into their Segment 2 some behind-the-wheel.

Also, in order to get into Segment 2, there must be at least three months since the end of Segment 1, and the student must have completed or received at least 30 hours of driving time with a parent or designee, and a minimum of two hours of nighttime driving.

Once a student has completed Segment 2, they must finish up now the mandatory 50 total hours of driving with at least 10 hours of nighttime driving in order to apply for a Level 2 license. To get a Level 2 license, obviously Segment 1 and Segment 2 has to have been completed and the student must complete a road test. Private third-party examiners who are licensed by the Department of State administer the road test. And once a student verifies 50 hours, Segment 1, Segment 2, and they've been on a Level 1 license for six months, they may be allowed to take the road test.

To get a Level 2 license, they have to have been on a Level 1 for at least six months or have attained the age of 16. You have to be at least 16 and on Level 1 for six months. They have to be 90 days crash -- at-fault-, crash-, or violation-free prior to applying for a Level 2 license. And with a Level 2 license, they may drive on their own except between the hours of midnight and 5 a.m. unless they are driving to and/or from employment. And of course, they still may drive with their parent or a designee between those hours as well.

So the restrictions are gradually being lessened. However, we're still hoping that the parents will still be involved somewhat in their driving.

Once a student has attained the age of 17 years of age, been on a Level 2 license for six months, and has 12 months -- 12 consecutive months of violation- and crash-free driving prior to applying for a Level 3 license, they can apply for that. And basically, now they are on an unrestricted license.

Once someone has attained the age of 18, wherever they're at in the graduated license process, they are out of it and they have a full, unrestricted license.

Michigan's public school driver education programs. As previously noted, public schools were required to offer driver education. However, a year after GDL went in effect in 1998, that requirement was eliminated. As of April 1st, 1998, public schools could opt out of offering driver education and they were also allowed to charge a fee at that time for driver education. Prior to that, they had to offer it at no cost.

The thought at the time was that many public schools would just drop driver's education, reasons being they couldn't afford it; they didn't want to be a part of it, etc. However, this year right now, there is still approximately 80 percent of the public schools in Michigan still offer driver education, whether it's through themselves or with a consortium of other public schools.

Unfortunately, there are only a few districts left that offer driver education as part of the regular school day. As mentioned, I taught in the Lansing School District for a number of years. And actually, prior to coming with the State, that's where my stint was. And as of this past August, Lansing School District dropped driver's education.

As Allen Robinson had mentioned earlier, we're not doing a real good job in offering driver education to special needs. The nice thing about our program was we had two hours in the afternoon where we actually had two classes of special needs students intermixed with the regular education students, and we were able to give the special needs students some one-on-one instruction. Now, since the school doesn't offer it, as in most after-school and summer programs, what are these students to do?

We had counselors and special education instructors on staff during the day to help these students out. Now we're basically just throwing them to the wolves. It's unfortunate.

Just for comparison between public schools and driver training schools, I'll be using fiscal year 2001. In that year, 460 public schools offered driver education, Segment 1 and Segment 2, and the breakdown was about, of the total students taking it during that year, about 64 percent of the students took driver education through the public schools for Segment 1, and approximately 58 percent for Segment 2. So even as recent as two years ago most schools still offered it and most students still did receive driver education through the public schools. Those numbers are gradually leveling out, with more schools dropping driver education and more driver training schools coming into place.

There's a funding mechanism in place, just as Beth (Weaver) had mentioned for Idaho, in Michigan, and $4 for each driver license fee goes into a driver education fund to help support driver education. In fiscal year 2001, that fund totaled just under 7.6 million, of which public schools received on average about $96 per student.

The problem, similar to Idaho, is that the average cost for a public school driver education program per student was about $250. So about a third, a little over a third of the cost for the program the State helped fund. The rest of it was passed on to the students, or could be. A lot of the schools in that time did not charge; but again, with the way the economy is, a lot of schools are now passing those costs on. Fees on average range anywhere from $15 for a textbook up to $300.

As mentioned, driver training schools are out there in Michigan. In fiscal 2001, 36 percent and 42 percent of the students, Segment 1 and Segment 2 respectively, took driver education through the driver training school setting.

When I refer to driver training school, you can use that interchangeably with commercial schools. In Michigan, a commercial driving school is a truck driving school. We don't have too many teens taking truck driver lessons, so in Michigan we try to handle that by calling them driver training schools. So if you hear "driving training school," "commercial school," it's the same thing.

When I started in the department in 2000, there were about 110 driver training schools. Currently there are 154 driver training schools offering teen driver education programs. The average cost, $250 to $300.

In terms of a curriculum, Michigan's driver education program is divided, like I said, into two segments, the first being 24 hours of classroom and six hours of behind the wheel. When I received my approval to teach driver education in 1987, at that time, actually, in Michigan there was a competency-based program where a student who showed a satisfactory level of achievement could receive a certificate after 10 hours of classroom and two hours of driving. One week, in and out. Again, those were only those students who comped out, so to speak. If they did not, then they had to be given the full 30 and six before the determination was made if they would pass or fail.

Currently, there is no standard curriculum required or provided for either classroom or behind the wheel in Segment 1. There are, however, 100 classroom and 27 behind-the-wheel performance objectives that students must demonstrate achievement at a satisfactory level to acquire a certificate of completion. And again, these are available on our website. They're probably pretty standard across the nation. However, we do not have at this time a curriculum that we can give Segment 1 instructors to use.

The goal of the department is to adopt a national curriculum adapted to fit Michigan's needs and make that available to driver education programs. Segment 2 of driver education again consists of six hours of classroom, and we do provide a Segment 2 curriculum for that. When GDL first came into play, Segment 2 was looked at, and with the help of ADTSEA and Terry Kline authoring it; Michigan was able to provide to every program a Segment 2 curriculum.

As Allen Robinson had talked about earlier, the reason behind Segment 2 is the students have gotten out on the roads and have done some driving. You bring them back in and now, hopefully, you don't talk about too many of the bad experiences they've had on the road, but you'll have a learning experience opportunity to work off of the things that they have actually experienced. It's safe driving practices, defensive driving, risk awareness, acceptance, perceptual awareness, to again get the students back into a controlled setting, talk about things, and then send them back out on the road again.

To teach driver education in Michigan, there are a few requirements. You must be at least 21 years old, have a driving record with no more than six points current on your driving record or have a four-point operating while impaired, and you must have completed eight semester or the equivalent of eight semester credits at either a university or college that offers the teacher preparation courses.

From there, we diverge a little bit. For public school teachers, they must also possess a Michigan teaching certificate. For those that teach in the driver training school setting, they don't need a Michigan teaching certificate, but they must receive a license from the Department of State. And there they have a few other requirements in terms of continuing their license every five years a background check and a medical report every two years.

Currently, there are three universities in Michigan that offer the teacher preparation course work. In addition, Bethel College in Indiana, that course work is recognized by Michigan, and the National Teacher Credentialing course work is recognized. So if someone came from another State and had taken that course work, they would be automatically eligible to be approved to teach in Michigan.

Strengths of Michigan's program. Again, Michigan has been at the forefront of driver education reform, from mandating driver education in public schools in 1955 to passing the GDL law in 1996. As research shows, GDL in Michigan has had a substantial impact on lowering crash rates of teen drivers. In an initial study conducted by the University of Michigan Transportation Research Institute in 2001, it showed that crashes involving 16-year-olds dropped 25 percent from 1996, the year before the licensure changed, and 1999, the first year all 16-year-olds would have been through the new licensing requirement.

An updated study, I believe, just this past year has also confirmed those numbers. So GDL is working in Michigan.

Currently, there are about 1800 instructors qualified to teach in the public school setting and about 500 instructors teaching in the driver training school setting. Many of these instructors are both active in State and national organizations, and Michigan is proud to boast that they had the first ADTSEA Teacher of the Year Award recipient.

Another strength that I feel is the requirement for eight semester credits. It just shows the commitment that the State has to education.

Michigan's needs. Right now we need a strong Segment 1 curriculum that will assist providers in Michigan to offer consistent and statewide presentation of driver education throughout the State. That is one endeavor that we have embarked on this past year. Like I mentioned, it's to get a Segment 1 curriculum and make it available to the programs.

Many of the current driver education instructors are nearing the age of retirement. There is a need for younger, dedicated individuals to enter the profession. We've heard that. We need to emphasize the virtues of being a driver education instructor.

I recall back in the early '80s when I was going through my teacher preparation courses just to become a Michigan certified teacher that one of the questions that we were asked is: What are you going to do during your summers. And one individual spoke up and says, I'm going to be doing some traveling. I'm not going to waste my time during the summer teaching driver education. Well, when I got my say, he heard from me.

In the past, many looked at teaching driver education as a necessity to supplement their meager teaching wages. However, with teacher's salaries coming up, I think we're not getting a lot of the young professionals out there because they don't see the advantages of teaching driver education.

We need to ensure that newly approved instructors are being given the tools to become effective teachers through the instructor preparation courses and support from both the State and national levels.

Innovative funding sources need to be located to possibly provide grant dollars to help schools upgrade their programs. You look at some driver education programs that don't use a textbook or some that, if you look at the driver education cars on the road, you shudder. We need to make sure that all students are being provided the best learning environment.

Sure, schools could just raise their fees, but if the fees get too high and low-income students can't afford it, well, we know what they're going to do. They're either not going to drive until 18 or they're just going to drive without a license. Is that what we want to happen?

There is currently no continuing education requirement for driver education instructors. For someone who was approved in 1970, they can start teaching tomorrow after 30 years and have gone through no continuing education. Once approved – they are basically approved for life.

With the profession ever changing, new technology and teaching techniques, we need to address this issue on how to keep instructors up-to-date, and that's one thing we'll also look at when we're opening up our laws and rules and regulations. We need to get that in there, continuing education so that teachers can be updated.

We need to take a closer look at K-12 education -- that has been mentioned a few times already -- and to ensure that a traffic safety component is supported throughout the curriculum. We need to ensure that there is a local support for safe means of transportation for students to and from school.

Just this past school year -- I live in a district where a student was killed walking home from school. She had to cross a busy four-lane highway and was struck and killed. Now the district and school local leaders are all stepping up to brainstorm how to make students safer. Ironically, this is one of the districts that dropped driver's education as soon as they had the option.

So we need school districts to focus on student safety, whether it's driver education or pedestrian safety.

We need to take a look at the funding mechanism for driver education to assure that all eligible teens have the opportunity to receive a quality driver education program. Just recently, beginning this month, the fee for driver licenses went from $12 to $25. How much of that went into the driver education fund? Nothing. The State is $1.9 billion in debt. I guess they had to find some way to raise a few dollars.

Parent participation needs to be increased. Parent meetings prior to or during driver education are not mandated by legislation. However, every effort should be made to require parents to become more aware and participate in the learning process.

And we need legislators who are willing to support strong traffic safety legislation. The one component in Michigan that's lacking right now is passenger restrictions. However, there has been a bill that's gone through committee and is on the house floor that would limit passengers -- non-family member passengers to one. Hopefully, that'll pass. A lot of States have gone that way, and as we know, research shows, raise the number of passengers, risk goes up, too.

So an important question we need to address as traffic safety advocates is, are we satisfied with the current state of driver education programs that do a fairly good job of preparing youngsters for licensure, or should we aspire and strive to provide those same youngsters with the background that may show positive results in truly reducing teenage traffic collisions, injuries, and fatalities.

They have been a part of a system for many years already, the education system. And hopefully, that education system they have experienced over the last 10 or 15 years has prepared them to become a more active participant when they get behind the wheel. Driver education should not be simply a three-week course during the summer during which time we have to probably expect a major attitude overhaul from all the bad habits that they have learned over the past 10 years. As findings show, it probably will not happen.

Traffic safety education, on the other hand, should be a lifelong learning process, which starts in the early years. And since it is a lifelong learning process, we should not only be looking at teaching two-, three-, four-, five-year-olds but their parents as well because, as we know, those are the ones that the habits will be identified with.

The Centers for Disease Control (CDC) reported that in 1999 the category of "Unintentional Motor Vehicle Traffic Crashes" was the number one cause of injury death for individuals ages one through 64. Those under the age of one and over the age of 64, it was number two. As with any learning, parents need to support the education process by modeling proper behavior and reinforcing their children's good habits.

Yesterday's *USA Today* on the front page showed that for children age's three to five, 61 percent in two-parent households and 48 percent in one- or no-parent households are read to every day. Every day the parents are reinforcing their kids reading habits. You know, I always spend time at home reading to my children, working with their math. But then, what happens when those kids leave that home? Do they go out and ride their bikes without helmets, not look where they're going?

Reading and math are reinforced from early on, but what about traffic safety, something everyone needs as soon as they step out of their house?

Just a quick story. I remember when I was teaching driver education. Right near the Lansing School District where I taught, Lansing Everett, I think it was the student's first drive. We came up to a four-way stop. Being near the school, you need the enter section to stand out so they had a flashing red light. So we were the fourth car there. I did not know who was one, two, or three, but I knew that we were going to be the fourth car.

So Car No. 1 goes. Car No. 2 goes. At that point I know it's that car and then us. So that car goes. And then that one. And then that one. And we're sitting here after three or four cars go. And I asked the student, what are we waiting for? That student's response, we're waiting for the light to turn green. That's kind of scary coming from a 15-year-old.

Two weeks ago, as we're driving down the road, I'm trying to explain to my son the meaning of the point of no return, having gone through a yellow light, that there's a certain point you need to keep going. He's seven.

So here's a seven-year-old who's trying to learn the rules of the road, and if you teach him at an early age, by the time they get to be 15 that should already be ingrained in them and, hopefully, that'll have prepared them to be safe highway users.

Encourage a youngster to wear a helmet when riding a bike. Look both ways when crossing the street. Respectful on a school bus. These will all go a long way to creating a positive attitude.

Are the current widely accepted standards of 30 hours classroom and six hours behind the wheel working? It appears not. Recommendations have been made to expand driver education to 45 hours or more of classroom, 10 hours or more behind the wheel. Divide those hours proportionately between both Segment 1 and Segment 2. Give them classroom; give them behind the wheel; let them practice; bring them back in both classroom and behind-the-wheel to reinforce. And to lengthen the time between the two segments up to a year or more.

If driver education is expected to produce safe drivers, it is the format that first must change, not the content or curriculum or teaching methods. Those will fall into place.

When discussing traffic safety, there's often the reference to the three Es, and Beth had mentioned it: enforcement, engineering, and education. I've often noticed advancements in engineering, road construction, intersection layouts, car design, and a push for enforcement, i.e. the Click It and Ticket.

Now, these are all good, but are they not responses to driver attitudes or shortcomings? Education seems to be far behind in receiving support, especially education for youth.

Driver education in Michigan is producing fairly good drivers, but we can do more. Graduated driver licensing is working, but it can be enhanced as well. Now is the

time to take a serious look at the educational part of the process. As reported in the "Traffic Tech," the NHTSA publication, in May 1999, a large majority of Americans, 89 percent, consider driver education courses to be very important in training new drivers to operate on the roads. Do we? If so, what are we going to do about it?

In the March 2003 issue of *Good Housekeeping* entitled "Driver's Education Gets an F," safety experts identified key steps to take to improve driver education: certify teachers and then certify them again, and spread out the learning process. Instructors need to keep up on new safety techniques, and cramming doesn't work any better for driver education than it does for English literature.

To those who question the effectiveness of driver education I ask, if driver education isn't working, do we accept the current statistics or do we overhaul the system so that newly licensed teens are better prepared to become motorists in the highway transportation system.

I see the potential for good things to come out of this two-day forum, and Michigan driver education professionals and traffic safety advocates are ready to help make them happen.

Thank you.

(Applause)

Presentation by David Huff

MR. VAN ETTEN: Our next presenter is Mr. David Huff. Mr. Huff is direct the traffic education programs for the State of Montana through the Montana Office of Public Instruction. In the fall of 2001, he completed his master of science in education from Montana State University at Northern with an emphasis on learning development and a focus on traffic safety education.

In 1992, he became the pupil transportation director for the State of Montana, and in 1995, he co chaired the Special Needs School Bus Committee for the 12th National Conference on School Transportation.

Mr. Huff is presently the past president of the Association of State Supervisors of Safety and Driver Education, and has a progressive 20-year history of leadership in State and national roles, including published articles on pupil transportation and driver education.

MR. HUFF: I'm very happy and pleased to have been invited here to participate in this forum. I'm very happy and pleased to see the National Transportation Safety Board convene a forum such as this.

I'm saddened that this kind of national attention had to wait until a tragedy occurred, and it was in my State on my watch that the tragedy occurred. So I have a strong vested interest in what occurs here, hoping and believing that this tragedy will result in something good for all of the children in the United States who are learning to drive and will become in some way a befitting memorial for those whose lives were lost.

Their names have not yet been mentioned. I would like to mention their names and take a moment of silence to remember them. It is because of them that we are here.

Would you stand with me as I read their names?

(Pause)

MR. HUFF: Eric Eekhoff, age 14. Matthew Lucht, age 14. Alex VanEgmond, age 15. Bob Selles, instructor, and age 49.

(Moment of silence)

MR. HUFF: Thank you so much. Not to diminish the importance, the anxiety, the fear, the threat of anything that is going on in Iraq, I find it very interesting that we spend a lot of national attention and focus on dealing with the loss of one or two lives on a daily basis in Iraq when, if we were to bring them home, we would see approximately 10 lives a day lost on our highways if they were our teenagers.

A very important question we need to ask ourselves: does United States society prefer a driving culture characterized by survival of the fittest or a driving culture marked by civil adherence to agreed norms?

Driving is a very complex social, cultural system. As such, solutions must span, excuse me, and span the matrix of the system. Senge has said, "It should come as no surprise that the unhealthiness of our world today is in direct proportion to our inability to see it as a whole." Where does driver education fit into this whole?

Driver education and training is the foundation upon which a safe driving culture and crash reduction interventions are built. How can crash reduction efforts be successful if individuals do not know what is expected nor possess the skills needed to perform the expected behavior? And if the beginning driver has been immersed in a less-than-desirable driving culture since the time he or she was aware, how can it be expected to quickly overcome that individual's predisposition to an inferior culture?

The Insurance Institute for Highway Safety in 1999 printed that kids drive like their parents. The National Research Council in a book on how people learn, a compendium of research, basically says because learning involves transfer from previous experiences, one's existing knowledge can also make it difficult to learn new information. Is that not what we're hoping to do?

Therefore, solutions for the necessary educational foundation must address both driver education for teens and it must address lifelong education for the parents and the neighbors who define and perpetuate the culture. Most importantly, effective education efforts cannot be engineered and delivered until we as a society agree upon the desired knowledge, skills, and behaviors. In other words, what's the model driver?

And further, building a new foundation for a safe driving culture through education and training is a long-term commitment for and with a long-term solution. Up to this point, most highway safety measures have focused on relatively short-term but quick return fixes, like installing air bags or straightening out corners.

Montana is one of the few States that still invest in foundation building through driver education in the public school system. While newer materials and techniques have been developed for building stronger foundations, the Montana program still remains somewhat tied to older technology. The program has changed little since 1968 when it first began providing financial assistance to public schools for driver education.

The one major deviation has been the unfortunate migration from in-school instruction to after-school and summer programs. Tighter school schedules, increased costs, and reduced funding are the primary reasons for this shift. In many cases, wages for after-school instruction are less than during the school day.

In order to focus on what I think are the most important points of this presentation, I'm going to summarize briefly the driver education program in Montana. A more detailed description of the program can be found in the text of the prepared report and its appendices, or you can go to Montana's home page, which is www.opi.State.mt.us, and the reports of Montana's program are on there.

In Montana, students can get a license at age 16 without driver education, but with driver education they can get a permit as early as age 14 and a half and a license as early as age 15.

I think it's important to note that this was not a reduction in age with driver education; it was an extension of age without driver education when it was implemented.

Approximately 78 percent of eligible students in Montana take an approved driver education class. I think that's probably one of the highest percentages in the country.

An approved program consists of at least 60 hours. You've been hearing 30 and six. Now you listen, 60. Sixty hours of education and training, six hours of which must be behind-the-wheel in-traffic instruction. The program must occur over at least 25 student contact days, and behind the wheel must occur over no less than six student contact days.

Also in that 60 hours, they can have up to 12 hours of observation as a passenger in the car, and 12 hours of simulation can substitute for two hours of the six hours of behind the wheel. Again, it's a minimum of 60 hours, any combination however, they set it up.

Montana State reimburses public school programs for each student. The reimbursement and the program administration are funded through a percent of the driver license fee. Reimbursement in 2003 was $73.66 per student, approximately 26 percent of the average statewide cost, which was $290.29 per student. Schools make up the difference by charging parents.

Some of Montana's program strengths include established standards for programs and teachers. There is State staff to administer the program. Some States don't have any State staff. There is active and viable professional development going on for the teachers. There is a positive professional culture amongst teachers and other traffic safety professionals, including law enforcement, Department of Transportation, and other safety advocacy groups.

There is a cooperative driver-testing program whereby Montana driver education teachers act as authorized agents of the Driver License Bureau to administer the skill test and the written test.

Unfortunately, there are also many weaknesses. Reimbursement is now only 26 percent of the cost, down from 50 to 60 percent of the cost only 10 years ago. This translates into higher costs to parents, up to $340. When costs are this high, some parents, and this is an important thing to grab, some parents expect their children to pass even when they are not ready to drive. They view it as buying a license.

Our higher education training institutions -- another weakness. Our higher education training institutions rely on adjunct staff for training. Long-term vision and leadership comes from outside teacher preparation institutions. Driver education research and development is missing.

The driver license is issued based on an exam that is inadequate to measure driver readiness. This is a big point of my presentation, and I'll be talking about that more lately. We need to deal with determining when a student is ready to drive.

Our youth can get a license at too young an age in Montana, and the driving culture does not appreciate the value of proven crash reduction interventions. We have yet to adopt a graduated driver license. For the experienced driver, there is insufficient opportunity and little incentive for lifelong learning.

Compared to other States, Montana is in pretty good shape. Missouri is one of several States that has no State direction driver education staff and hence no State administration of programs and collection of data. Are there driver education programs in these States? It's understood there are, but beyond that, no one knows much.

With so much disparity in State programs and with huge lapses in data collection, it is nearly impossible to gather sufficient information to develop a comprehensive national picture of driver education, let alone try to understand what it's doing and what value it has to research.

I am on record as stating that driver education in the United States is deplorable. A copy of that paper is found in the appendix to the report I gave to NTSB. If you're interested in seeing a copy of that paper, let me know and I'll be glad to get you a copy of it.

We usually focus on the unacceptable teen crashes when we talk about driver education, but the issue of this forum is driver education. Is it all it can be? The answer is "no," not in any State.

The question that I keep asking myself about this discipline is, what will it take for individual States to adequately address the novice driver safety challenges? The answer to this question is the same answer that it will take for Montana to adopt a graduated driver license program consistent with the recommendations of the NTSB.

So I want to look at the national picture, understanding that Montana's future is tied to the same answer. There are a couple obstacles I'd like to look at before we go to answering that question. I've identified two. The first one is, we don't admit to or understand the problem.

We underestimate the significance of those things with which we are most familiar. Most Americans drive. Most drivers think they are fairly good drivers. At Montana's Advanced Driving School, I consistently hear from seasoned, experienced drivers that they had no idea that they had so many bad habits.

This translates to State legislatures that fail to provide the support, policy, and resources needed to provide the educational foundation, especially when dollars are tight, as we have seen in recent years. Effective and credible advocacy ceases in the absence of educated, informed driver education leadership in all States.

And the second obstacle. The normal refining dynamics of free enterprise are absent. This is an important, important concept to grasp. It's my observation that the driver education training business suffers from a lack of timely and healthy feedback.

First, customers are not very knowledgeable consumers when it comes to driver education; and second, driver education as it is today is not a return business venture. Hence, driving schools do not experience dissatisfied customers taking their business elsewhere. This is true for public and private schools. Public schools, however, are more accustomed to submitting to standards as a means of improvement.

But when standards and necessary monitoring are lacking, the same deleterious effects prevail for both venues. Without standards and monitoring, the only real feedback is the driver license test and teaching to this inadequate assessment of driver readiness has become the norm of success for the driving schools.

Sean McLaurin said the States must come and let them know that we want help. I'm from Montana. I'm not speaking for the governor, but I'm saying we need help.

To overcome and improve educational efforts, there must exist -- and I'm drawing heavily here upon the National Research Council's book on how people learn for these recommendations -- there must exist a definition of model driver in terms of knowledge, skill, behavior, and habits. We have to know what we're shooting for.

There must exist a learner-centered curriculum that pays careful attention to the knowledge, the skills, the attitudes, and beliefs that learners bring to the educational setting, and is designed and aligned with the expectations of a model driver.

It must address content, methods, and formative student assessments congruent with learning goals. There must exist standards for teacher preparation programs that fully prepare instructors to model and teach the knowledge, skills, and behavior and habits needed, and which includes requirements for ongoing professional development.

I'm quoting the National Research Council here. "Both subject matter knowledge and pedagogical knowledge are important for expert teaching because," according to the National Research Council, "knowledge domains have unique structures and methods of inquiry associated with them." In other words, we've got to understand what's going on with driver education to teach driver education, and we've got to have pedagogical knowledge, which is how to teach effectively, in order to get it across.

There must exist a licensing process that measures driver readiness as defined by the model driver and which employs a process that facilitates the safest means to merge the learning driver into mainstream driving, such as the graduated driver license and a defined and appropriate parent component.

There must exist program standards that apply to every driver education-training program, school, whatever you call it. And there must exist State oversight and management standards.

There must also exist accountability measures and standards. In other words, a feedback loop. Since it doesn't exist for this business, we've got to create one. A feedback loop that encourages quality, requires adherence to standards, and answers the questions, are teachers prepared to teach what is needed; do they teach it; and did the students get it? And finally, this accountability must employ appropriate corrective measures and/or consequences if standards are not met.

And I can't stress this next one enough. There must also exist lifelong learning opportunities for adult drivers with periodic assessments of driver knowledge, skill, behavior, and habits as defined by the model driver. We will never change the culture if we don't change the parents and the neighbors who define and perpetuate that culture.

There are also other good education-based measures that contribute to reducing injury and death on the highways, and these must also exist.

My last point in this section is the answer to the question I posed earlier, what will it take. This is very essential.

Sean (McLaurin), I hope you're listening.

There must exist federal policy and fiscal support that ensures that every State participates and facilitates approved standardized programs for every eligible teen and assures the eligible teens complete the program before they are fully licensed.

Well, how do we do that? I have an idea for you. In order to implement the above, there needs to be a completely new model to license drivers. Some things are so broken they cannot be fixed and need to be replaced.

For this model, the author -- that's me -- proposes the present commercial driver license model be improved and expanded to all drivers. Any driver who wants to have a license that is valid in States other than his own State of residence must obtain an interstate license. For those who do not want or need to cross State lines, they can obtain an intrastate license. Federal policy will govern the standards for the interstate license, and State policy will govern the intrastate license.

In this model, if a new driver wishes to acquire an interstate license, he or she must meet age requirements set by the national standard. He or she must pass an approved driver education class that meets national standards of best practices. He or she must participate in a graduated driver license process that meets national standards of best practices, and he or she must pass a rigorous comprehensive driver readiness assessment based on the model driver.

In addition, if an existing driver or an experienced driver, whatever you want to call him, wishes to keep his or her existing interstate license, he or she must submit to a periodic reassessment of their knowledge and skills. The periodic cycle should be appropriate and determined by the frequency needed to update drivers on changes in vehicles and the highway transportation system and to assure adequate retention of desired driving knowledge, skills, and behaviors.

What's that frequency? Some people say as frequently as three years. Others say five years. I'm not saying I know the answer, but I'm saying we've got to do it.

This periodic reassessment is critical in assuring appropriate lifelong learning. These assessments must be based on the model driver and be age-appropriate. The test must assess driver scenarios and conditions found in every State, assess knowledge, safe driving habits, and skills. In other words, for Montana, my assessment is going to test me on whether I can survive in New York City driving or Texas hot weather driving or plains-boring driving, you know, straight highways. Whatever happens? If I'm going to go across the State line, I'm going to have some idea that I'm prepared to deal with what I might find there.

Such a periodic assessment will stimulate opportunities for lifelong learning which will build a more appropriate knowledge and skill foundation for the whole population, and this is the important point, and will thereby fuel a shift toward a safer driving culture.

Much interest has emerged relative to the abilities of aging drivers. The need to deal with this issue continues to increase as the baby boom generation enters their silver years. If an appropriate driver readiness test is developed, it can be used to determine whether a senior has sufficient skills for the many various driving conditions experienced in the many States. If the skills are deficient, the assessment will guide the States in deciding whether an intrastate license with restrictions is appropriate.

An interstate license can also help with identity issues associated with homeland security. And there can be a lot talked about on that, but that's all I'm going to mention on that.

Now, the key to making this all work is the assessment tool. It has to be a comprehensive assessment tool that looks at the system-wide thing, not just driver education.

The reason most States provide license renewals without periodic assessments is the cost associated with reassessing the entire driving population during the period of the renewal cycle. This cost hurdle must be overcome.

It is therefore proposed that this assessment be computer-simulator based and administered at approved third-party licensed test stations. Many professions and trades depend upon this third-party assessment process now. The results of the assessment can be transmitted electronically to the State driver license bureau.

The Defense Advanced Research Project Agency (DARPA) the one who gave us the Internet, are working on a system built from off-the-shelf computer components that will train judgment under stress. Very interesting. Maybe it'll judge my stress up here so I can know ahead of time whether I'll be an effective public speaker.

Personal computer-based simulators have come of age, and their present capabilities are ready for the assessment challenge this model proposes. Simulators designed to provide assessment of driver readiness can assess knowledge, skill in all levels and kinds of driving conditions, eye movements to ensure appropriate vision skills, adherence to defensive driving principles, and just about anything determined to be an appropriate component of the model driver.

And if it is determined that different aged drivers have different driving challenges, the computer can provide an age-appropriate assessment. In real time it can adjust the questions based on the skill level of the person being tested to provide a more precise measurement of their abilities and, if remediation is required, it can provide a list of needed improvements.

Basing these in approved third-party testing facilities will keep the resource burden at the driver license office minimal. In other words, we don't necessarily need to overly inflate the driver license-testing budget to do this.

Conclusions. Montana's driver education program is a commendable program when viewed against many State programs. However, present-day American society is capable of so much more. Most of the research studies done to date are assessing a driver education system that is archaic and rife with inconsistencies.

These studies must not be the basis of determining the value of education in the complex matrix of highway safety. Indeed, it is futile to expect significant crash reductions on our highways without a knowledgeable, skilled, and safety-committed driving populace.

It takes key leaders who have the keen sense and vision to understand this important fundamental concept. It takes key leaders like the National Transportation Safety Board to stimulate the revolution needed to shape a civil and safe driving culture. That culture is only possible with the right foundation, and that foundation is a knowledge and skill base obtained through education and training.

The proposed interstate licensing model will provide the platform to establish uniform standards for driver education and training, a rigorous, comprehensive assessment of driver readiness, and the tools needed in this era to build that foundation.

Those are my points. I feel strongly about it. I felt strongly about it before four Montanans gave up their lives. It's been distressing to me. I'm relatively novice to the driver education leadership. I took over the position in 1998. Before that time, my experience was in training school bus drivers. The moment I became a part of this discipline, I knew something was wrong. I just felt it; I could see it everywhere I went.

We have to come together on this. There are many different personalities involved in this. There are many different institutions with a long history with a lot of mass and a lot of inertia, and that's why I say this thing has to be changed. We cannot fix the old system.

We need to come together and do something for our kids. It's a tragedy our kids are dying in the war in Iraq. It's a greater tragedy that we turn a blind eye to the greater numbers that are dying on our highways here.

Education alone is not going to fix it, but it's a key component in a system that must address a change in a culture. It begins with education. We've made a big stride in the seat belt usage. We've made big strides in infant seat use seats. We can shift some of the cultures and ideas about our driving skills if we just put our mind to it as a nation.

Thank you for your time.

(Applause)

Presentation by John Harvey

MR. VAN ETTEN: Our next presenter is Mr. John Harvey. Mr. John Harvey is presently the program manager of driver education in the Transportation Safety Division (TSD) of the Oregon Department of Transportation (ODOT). He holds a bachelor of arts degree in health education with a minor in driver and traffic safety education from Slippery Rock State University and a masters of arts degree in safety from Central Missouri State University.

He has been a driver's education instructor. He was an instructor in driver's education for eight years, and he was also preparing to teach instructors to be driver educators. In 1979, he became a driver and safety education consultant for the Vermont Department of Education, and in 1990 he joined the Washington State Office Superintendent of Public Education and was the editor of the Washington Traffic Safety Education quarterly journal.

He has served as the president of the American Driver and Traffic Safety Education Association, and currently serves on the executive committee of the Association of State Supervisors of Safety and Driver Education, and is the president of that organization.

We had one of our panelists who was unable to make it today, Mr. Barry Ford from Vermont. And Mr. Harvey has graciously volunteered to take his presentation, so he'll be doing a couple of them here back to back.

MR. HARVEY: Thank you. And thank you, David (Huff), for that enlightening presentation of the big change of restructuring driver education.

I'm pleased to be here, especially with my esteemed colleagues. When you think about the issues that we're faced with, David (Huff) discussed those issues; the fact is we lack standards. We also lack driver behavior curricula and teacher competencies. We also lack State supervision and leadership and lack of funding to support quality driver and traffic safety education. These are all of the themes my colleagues have described, and it's no different in Oregon.

I'd like to build on three areas, in the Oregon overview. One area is things look different in Oregon. I'm not from the Department of Education. I'm with the Transportation Safety Division, which is the Governor's Highway Safety Office for the State of Oregon. And another area I'm going to share is the Oregon's driver education -- the future is bright there -- and the final area is to share with you that we need to have the vision, "the vision for reaching more," more students, more parents, better curricula, and making sure that we're promoting lifelong driver learning.

So the expectation in Oregon, it's under the magnifying glass. And do we have the pot of gold? I don't know if we have the right pot of gold in Oregon, but certainly,

NTSB, with their guidance, can provide the leadership and support to really restructure what really needs to be done to improve driver education in this country.

But in Oregon, our theme is that "transportation safety is the way to go," and you know, our mission, no different, we want the safest transportation system in the world for our State.

And what we really need is the public support, that public support the driver education as a public policy. So we must prepare our students to compete, contribute, and cope in a high-tech society, and that's what David was alluding to.

What are our goals and objectives relative to driver and traffic safety education? We've got to have preparation for lifelong learning. We've got to have survival skills, the ability to cope, and the social sensitivities. That's certainly goals of a driver and traffic safety education program not only in Oregon but also throughout the country.

So when you look at the highway transportation system, driver education in Oregon, you know, we're with the Oregon Department of Transportation, Transportation Safety. And so when we think about competent and responsible users of our transportation system, we also have to think about this systems partnership, just as my three panelists discussed the importance of the systems approach, and you look at education. And certainly, that's where driver education has been and focused. And when you think about driver education, it is that shared partnership.

And when you look at the systems approach, we look at motor vehicle crashes. And if 93 percent of our crash causation factors are the driver, we really need to take a look at driver performance improvements.

And so what improvements do we need to make? We need to look at this inexperience issue. We want to reduce the representation of inexperienced young drivers involved in crashes. And so in Oregon, it's no different than anywhere else. We definitely feel that driver education is important and should be mandatory.

We also look at a performance-based outcome of driver education. We support the fact that graduated driver licensing is a key, and parent-guided practice as well.

So the economic costs. When we look at motor vehicle crashes in Oregon, $1.08 billion. That's too costly. We've got to do something about that. So, our Oregon driver education program, things look differently here. You bet, because, as a part of our GDL law, what had occurred was that the leadership and the statewide administration was transferred from the Department of Education to the Transportation Safety Division.

And so as a part of that transfer, we created this action plan for change. And so for the last four years, we have really worked hard at looking at what is this action plan and what do we need to do to support it. Then we also created a dedicated funding source for driver education.

So none of these solutions to the problem are going to be very effective unless we have the resources capable of implementing those solutions.

Before 1999 if you wanted to be a driver education teacher in our public school system, one had to be a certified teacher, and you didn't have to go through any formalized training. That's pretty scary. When driver education was transferred to the Transportation Safety Division, we established a partnership with ADTSEA and Western Oregon University, and we created a Trainer of Trainers program. Things are different because we went to the national model, that being ADTSEA, and created a trainer of trainers system for all Oregon driver educators.

One of the other things that we did, too, that was a little bit different, we conduct a public opinion poll. And for the last four years, we've asked several questions on driver education. We're getting public input relative to what we need to do to make changes that will be effective.

One of the questions we had asked was on the traffic safety requirements. Do you believe that driver education should be required in all of our public schools? The public opinion survey indicated that 92 percent of Oregonians say, yes, driver education is really important.

Other questions we asked. How much involvement should that student be, how much time? Is it 30 and six, or 60, or what? And the mean average of the question was saying, John Q. Public in the State of Oregon says that that driver education program should provide at least 70 hours of instruction.

And here's another question. Now, before '99, if you wanted to be a classroom teacher in the State of Oregon, the only requirement was to have teaching credentials and no formalized driver education training. And so we asked the question: how much training do you believe should be required of driver education instructors?

Between 200 and 400 hours. Forty-seven percent of the people surveyed said that to be a trainer of young people, preparing them for lifelong driver learning, you should have between 200 and 400 hours of preparation. So certainly, things look different here in Oregon.

We do most everything in our Transportation Safety Division by looking at Oregon's data-driven issues. We wanted to take a look at Oregon's youth traffic safety. And so we were the second State in the country to go through the NHTSA Youth Assessment.

And one of those things that we are looking at is the effectiveness of various traffic safety countermeasures, and one was graduated driver licensing and its elements and components. And it's so exciting that that became one of the top 10 priorities of this youth assessment.

ODOT-TSD has various advisory groups providing support, review, and recommendations. These are just three of those, that being the Driver Education Advisory Committee. And there is a group of individuals that provide support specifically to the driver education program, but to the Transportation Safety Division there's a support agency as well as the Oregon Department of Transportation has also an advisory group. So here we're getting support and input in the direction of what we need to do.

One other thing also is pretty earth shattering, that we don't have driver education as a requirement to obtain a license in the State of Oregon. And so one of the things that we did was say that if people are going to obtain a driver's license without formalized driver education, we need to provide them with the tools necessary. And we do that through our DMV, and it's a "Tuning Up Manual" that our division pays for helping parents gain some competence as it relates to, preparing their son or daughter to learn how to drive.

As you can see here, things look differently in Oregon.

One of the things that we did was an analysis of crashes before GDL and after GDL. In 1998 we had 1196 16-year-olds who were involved in serious or fatal crashes. And look at the success that we're having, a 24 percent reduction in the first year. In the second year, a 32 percent. And just recently, we reviewed the stats. Since our graduated driver licensing, and this deals specifically with 16-year-olds only, concerning their crash rates and involvement, we have a 36.3 percent lower injury and fatality rate as a result of graduated driver licensing.

That lends itself to the fact that we've got close to 46,000 drivers and only 16,000 going through formalized driver education.

So what do we need to do? The future is bright in Oregon for driver education. We do have dedicated funds, and that's licensing money, $6 per renewal, this financial support will carry us through 2008. We also have a performance plan, and I, along with other program chairs in my agency, submit a performance plan that has and reviews the driver education performance measures with specific strategies. So there are specific strategies that we're trying to look at and make improvements in.

And one of the things is that since we didn't have any formalized training for teachers we said we've got to do that. And so our agency is helping defer the expense of some 750 teachers to meet a deadline that we created as a part of administrative rules. That's exciting, but that's also challenging because people don't want to be asked to go back and get retraining because they already know how to drive.

And the other thing is, as we are looking at data-driven issues, two research projects are being conducted in the State of Oregon relative to graduated driver licensing, and specifically, elements of the graduated driver licensing dealing with driver education. There is a NHTSA study underway, as well as the AAA Foundation and TIRF company, looking at Virginia, Ontario, and Oregon. So we're going to be under the magnifying glass to say, what's working or what isn't working.

So a couple of the other things the future is bright. We're saying that we need to engage parents. And I think everybody on this panel said, yes, we've got to do a better job of that.

And so one of the things that we did was partner with the Oregon Traffic Safety Education Association. We created a parent involvement resource guide to support driver education programs in helping and engaging and communication with parents. And some that particular model resource guide we will be reviewing as a part of the two research studies that we're participating in.

So the future is bright. We've helped individual programs by creating a specific assessment tool. We also are saying that we need lifelong learning as a priority. And so when you look at the teacher competencies of a role model, planning instruction, student-teacher interaction, administration, evaluation, professional development, we do have a new standard that's going into effect that will say that teachers need professional development and they have to do that every two years.

One of the things that we're also proud of is that we will be hosting the National American Driver and Traffic Safety Education Conference next July. And so some of you here that are participants, we'd love to have you there. We're certainly going to open up the doors and have you have a wonderful experience in the great State of Oregon.

Now, the other good news is -- the NIDB Driver Risk Prevention Curriculum. As a part of our goal of restructuring and supporting driver education, what is it that we want students to know, feel, or be able to do? We not only are using the ADTSEA model but the National Institute for Driver Behavior.

So our graduated driver licensing, what's the difference between a formalized driver education program and this parent-taught program? For a person under the age of 18, if they go through a formalized driver education program, they are required to obtain 50 hours of parent-guided practice as well as formalized driver education.

One of the problems is we don't have a similar standardized program with our commercial schools and our public schools. But one of the things is if you don't go through a formalized driver education program, the parent has to certify and sign a DMV form that they've provided their son or daughter with 100 hours of instruction.

Wow. That's over a six-month period of time. You know, that's 17 hours a month. Now, how many of our 30,000 parents in the State of Oregon are using the magic pen and just saying that they're doing it, as compared to monitoring their performance? That's one of our challenges.

One of the things that when we changed the rule, we said, we've got to partner with our education community and say, you've got to be enrolled in school to be able to obtain a license. So that's one of the new administrative rules.

In our Oregon Performance Plan, that's what we set up to measure. Our goal is to standardize and require driver education for all Oregonians. And so if that's the case, we've got change the role of driver education. We need lifelong learning for lifetime of risk management.

This action plan certainly created a variety of issues to support this vision for reaching more. We had task forces, we had town hall meetings, and we've had administrative rule changes, legislative emergency board rules, and other impacting legislation.

When you come right down to driver and traffic safety education, what do we need? We need some standards. We need a curriculum that's student-centered. We need graduated driver licensing and parents. We need quality teacher training. We need ongoing professional development. We need program standards, training standards, as well as that partnership with the professional associations.

It ultimately comes down to when you look at driver education, if we want students to change, guess what we have to do? We've got to train those teachers. And so that's what we're attempting to do to reach that 750 teachers and providing them the guidance necessary.

We've come up with a process through an action plan that provided recommendations, and what we do we have are three courses based upon the national model of ADTSEA. And we've got the foundations, the classroom, and behind the wheel. So you can take either two or three courses. So if you're going to teach both classroom and behind the wheel, you have to take the foundations, the behind the wheel, and the classroom course.

And these standards are taking place next year. So they aren't in fact in rule yet. I mean, they're in rule, but they aren't effective as of September 1st, '04. And so how many teachers have gone through this training out of 750? It's about 300. So we're on the fast track with those 30 trainers of trainers.

Same standards for driving school as it is for public school. So it's no different.

So when we look at improvements what model of improvement are we looking at? What are we trying to accomplish? What's the current knowledge, and how do we plan, act, study, and finally do? So when you look at that standpoint, it's got to go to have a development. David (Huff) said that we need knowledge and skills; we need attitudes or that motivation. And so when you combine those two, certainly that is habit formation.

And so what we have done is, as a part of our teacher training program, is looked at the National Institute for Driver Behavior that provides the guidance because it has a philosophy that's student-centered, it has specific goals and objectives, it has a scope and sequence for habit development of these key driving behaviors. And as a part of that curriculum, it provides instructional activities as well as teaching strategies, resources, a

student and a program evaluation. So as a part of what we're looking at to assist those teachers, is we provided them with that particular model.

The good news -- it's certainly absolutely marvelous news that we have reduced 16-year-old fatal and injury crashes by 36.3 percent. And then when you look at it comparing our 15- to 19-year-old fatality rate, we're 51 percent lower. Now, that's pretty incredible. But that's what we're attempting to do. We're moving in this change process, you know. We're leaving the old; we're entering the new. We've got the resources. We're studying.

We have the administrative support; I have the Governor's Highway Safety Office manager that is in fact supporting what we need to do. I would hope that all of the other 49 States have that same type of commitment. We have peer support. We're doing teacher training. And so we're into that change process.

But in reality, I'm in the transportation area as compared to the educational area. And so how do I fit in when we talk about leaving no child behind? I really believe that as we restructure we've got to look at characteristics of high-performing schools, and use those same characteristics of high-performing schools with driver education. And so what are they? A clear and shared focus. And we're coming to a clear and shared focus at this event today.

We also have got to have some high standards and expectations. And we've got to raise the bar. We have to raise the bar.

In addition to that, we have to have effective leadership. Where is it going to come from? The NTSB, NHTSA, ADTSEA, Governor's Highway Safety Association?

We've got to have high levels of collaboration and communication, and sometimes we don't do either. We don't collaborate; we don't communicate; it's my way or the highway.

We also have to have these curriculum standards and assessments aligned with those standards. So, we've got to say, this is what is a model driver should be. And certainly, the National Institute has created a model, as well as ADTSEA. We need to really make sure that, what's the agreement between planned and actual. I've got this wonderful curriculum, but am what you're actually doing? So planning instruction is so critical.

We've got to monitor teaching and learning. And if there's one failure of driver education, it's we don't monitor what we're teaching and what the student is learning because if we're using the sole example of the driving test as the end-all, we're missing the boat. I don't think that we should be financially supporting just preparing a person to pass the minimum competency of a DMV test.

We really need to look at monitoring how we're administrating programs, and what is that student -- what does he or she know, feel, or be able to do.

We've got to have a focus on professional development. We've got to really change what we're doing. We've got to support the learning environment. Support the parents, and try to bring them along. And so community awareness and saying, yes, driver education is important, but we're all involved in competitive education and convince me that driver education is important as compared to other areas.

And ultimately, when we think nationally, driver education needs leadership and funding. That's what really needs to happen. We need teacher training and credentialing. We need program administration. We need curriculum standards, technology and methods of instruction, and then ultimately the evaluation of what we want individuals to know and be able to do. And parents have got to be an integral link.

As we look at the issue, and I'd like to close, we're here in the wonderful country that provides leadership and guidance. And I look at the State capital of Oregon, and we have on top of the Oregon capital the gold guy. He's a pioneer, a true pioneer. And I think of us in we're looking at paradigms and shifting. Most of you are aware that paradigms are patterns of behavior, of rules and regulations used to construct those patterns.

David (Huff) wants to change the paradigm. And I support him. And we in Oregon support that and look at it this way, that when we look at the Oregon paradigm pioneer, it's intuition. And when you look at intuition, it's the ability to make good decisions with incomplete information. Is that we? You bet, all right.

Courage. We're taking a risk. We're all taking a risk, but we know that there's an issue out there and commitment for the long haul. I believe that my 30-some years in supporting quality driver and traffic safety education. I've been there. The intuition, courage, and commitment for the long haul.

So that's a little bit of perspective of the Oregon driver education program. Things look different here. The vision is to reach more, and driver education in Oregon, the future Is bright.

Thank you very much.

(Applause)

MR. HARVEY: Now, this was kind of like an "oops, Harv (John Harvey), will you help out?" I got a phone call this morning at 5:00 a.m. from Barry Ford. Now, Barry Ford is a colleague of mine who is the State supervisor of driver education in the Vermont Department of Education. He's been trying to get here since yesterday as well as today. And he doesn't arrive until 5:30 p.m. tonight. I have not seen what Barry (Ford) prepared, except for about five minutes ago. And so I just quickly glanced over it and I'd like to pinch hit.

MR. HARVEY: Let me tell you about Vermont. Vermont is really unique, and I had the great opportunity from 1979 to 1990 to provide leadership in driver and traffic

safety education with the Vermont Department of Education. And some of the things that really -- and I'm just ad-libbing and I'm not reviewing specifically what he has as a part of his paper, but his title was, "What's Right with Vermont's Driver and Traffic Safety Education; What's Needed to Improve it."

What's right relative to driver education in Vermont is their teacher preparation program. They require six (three graduate, three-credit) college courses, and so that's over 270 hours of preparation to be able to teach in Vermont now.

Let me just give you some facts and figures. There are 75 public high schools in the State. One hundred two active licensed driver educators; 40 are full-time. Forty full-time because Vermont is unique in the fact that it requires driver education to be offered as a part of their free public education. That's the only State that requires driver education as a part of the Department of Education's mission, requiring it to be not taken but available.

Sixty-two hundred students in those 75 schools. Commercial schools complete about 1000 students. Public school teachers teach in at least 13 of the commercial schools.

John's here, and Freddy (in the audience). He's smiling because he's one of those individuals who not only works and teaches in Vermont but also works in New Hampshire as a commercial school operator and owner.

Driver education in Vermont is free. Free. Pretty incredible.

Teacher preparation. Their strength. They have relicensing requirements; they have undergrad activities, graduate activities; and these are the requirements for teacher preparation. Only public school-licensed teachers may teach in the public school.

One of the things that Vermont prides itself is driver education relicensing requirements. You have to complete 9 credits every seven years go through continuing education. And as you can see here, three of those have to be specifically in driver education.

When graduated licensing passed in Vermont, additional revenues of about a quarter of a million dollars. And so there have just been a variety of activities occurring in a classroom. We have teacher training, digital photography, and web-based instruction.

One of the things is that they've purchased a skid monster, and it goes around to the 75 schools and actively supports the curriculum that the State has adopted, which is the National Institute for Driver Behavior. As a part of a curriculum process, they reviewed a variety of curricula and supported that process through Fred Mottola and the National Institute.

But as a part of their training, dealing with mentors. It's unique in the fact that we have teachers coming back into the summer program that help these new beginning teachers, a model that I'm not too aware of for the rest of the country.

Student teaching. We do have teacher preparation activities in the United States that don't have any classroom or behind-the-wheel instruction but just theory.

Let me just mention the curriculum, which supports the Vermont framework and standards and vital results. It's an electronic format, and a variety of training has occurred in those 75 schools.

The curriculum folder. There are student assignments, teacher content, and it's mirrored. The scope and sequence is based upon classroom and in-car. It's integrated and correlated, and there's both entry and exit quizzes, student-centered activities based upon in-car performance.

As a part of that curriculum, there's transparency, supportive activities, model car roadways, in-car vehicle activities, all supporting the curriculum.

As a part of the curriculum specifically for the individual student, he or she is provided an overview, what is expected, an in-vehicle performance set, supporting content, as well as student-centered activities. And probably the most important is the key behavioral patterns as a part of that student resource.

As a part of the teacher training, that being its strength, they've provided a variety of audio/visual supports. They create route plans that are based upon what has the student experienced in the classroom, and it's the changing role of the learner in the fact that they need to demonstrate what that student needs to be able to perform.

As a part of the requirement, like I said, all schools have to offer driver -- make it available. It is the 30 and six basic program. And then the alcohol and drug component identified.

Here are the money issues. You've heard everybody else talk about money and how much it costs. The State is reimbursing in Vermont $71. That's the same as 1966. Eighty-seven percent of the school costs in 1996. It's only 21 percent of the actual cost in 2000. I think that's exactly what Montana is.

Their parent involvement really supports the NIDB curriculum. They've got student-centered activities where students actually prepare lessons.

And some of the things relative to measuring the in-car effectiveness of their program. You can see some of the things that are there.

I think planning for driver development. I think it's critical that you look at route plans to support what the student should be demonstrating.

There's a collaborative effort-taking place. All of these agencies work together. There are all kinds of partnerships.

And Barry did some reviewing of the Swiss study and their literature review and how closely what they are doing supports the quality elements that we heard earlier, and that's using the NIDB activities, and that information is not based upon, as you see this last element, on the license exam. But it is, what are those knowledge, skills, and behaviors for lifelong learning.

Many programs in Vermont require the 20 to 40 hours of parent involvement. That's a part of their graduated driver licensing.

Where do we go from here? How many times do we have to say that or hear it? National standards for curriculum and teacher. Making commercial schools accountable; public schools lose funding; private schools often cut corners to increase profits.

Increase teacher-credentialing requirements nationally for public and commercial schools. Mandate teacher professional development. So I think that all five of us have said the same thing.

National standards for content and delivery for both public and commercial. Increase standards of instructional time, both classroom and in-vehicle.

Establish a national definition of driver education. The other issue in Barry's (Ford) paper, he says, put an emphasis on K-12 curriculum. At fifteen- and 16-year-olds, it may be too late to change risk-taking behavior.

Saving lives is a national priority as compared to issuing a license. Make resources available and saving teens' lives are more of a priority than financial benefits of instructors and owners.

And I believe in closing he identified the magnitude of the crash problem.

Thank you.

(Applause)

Question and Answer Session

MR. VAN ETTEN: If anybody has any questions for Mr. Ford, he will be here tomorrow morning, so we will give him an opportunity to come and make a few comments tomorrow.

We have heard of the problems or the needs of driver education nationally and we've seen through some of the presentations today the reduction of driver education's status reflected in reduced requirements and funding and the removal of driver education

requirements for obtaining a driver's license. What does each of you see that are the major obstacles to improving driver education in the arena of public policy? In other words, what is government in general -- what are the problems that we see with that?

Ms. Weaver, we'll start with you, and I think we'll just go right down the line.

MS. WEAVER: When it comes to public policy, I think we need to do a better job of communicating with our legislators regarding the need for driver education and training. I believe we need to do a better job of working with the policymakers within our States so that they will see the value of driver education and training.

Without having national standards and having a way in which we can say we have the content and delivery identified, and we all are striving to work toward that, it makes it very difficult at a State level to establish those standards because it's so easy to brush it underneath the seat and say it's not important. Something else always is much more important.

MR. LANTZY: I agree with Beth (Weaver) with the communication. All too often when we go before legislators with best practice for driver education, we do have to understand that legislators are voted in by their constituents, and if their constituents don't agree, it's hard to get that passed through.

With this new bill on the passenger restrictions, one thing that came to light or that was proposed was to, yes, have passenger restrictions of no more than one non-family member but not to have that in place for travel to and from school, of which we know that's when the highest risk-taking is. However, fortunately, the legislature did understand the driver education end of it and the licensing, and that was taken out. So the bill as introduced did survive, but understanding that, obviously, legislators may understand what is right but politically that could be another story.

MR. HUFF: One word: narcissism. We all seem to think in terms of how it will affect me. And in Montana, we have a pretty "leave me alone" culture. If my kids die, that's my business. They don't look beyond that and see that if their kid dies, they may be taking somebody else out on the highway while they're in it.

Politics. I think our nation as a whole, and Montana is no exception, is suffering from lack of Statesmen who will stand up for what's right. It's become partisan politics, and it's getting worse and worse. It's very frustrating.

And that's why I say that what we need to have is a national policy that overrides all that. How we get that established, whether we can sell that to the national leaders is a big challenge, but it goes back to the statement I made in my speech. We don't understand or admit to the problem.

We will continue -- in fact, in that paper I alluded to I made a very strong statement and I stand by it. Novice driver education and how we deal with it is like a dysfunctional alcoholic family. We continue to abuse our kids on a regular basis and

don't admit we have a problem and won't do anything about it because we don't see that it's a problem. Yet we can look around and see other situations where fewer lives are at risk and we do something about it right away. It's okay for us to abuse our own people, and that's what we do.

MR. HARVEY: I think, when you look at the characteristics of effective schools, I think that's the same thing that we have to do relative to public policy relative to driver education. Timing is everything, and it needs to be data-driven. And that's the one thing that, in my last 13 months with the Oregon Department of Transportation, I've seen as compared to, just pouring my heart out and saying, oh yes, we need driver education.

It has to be data-driven, number one, and number two, we've got to support and communicate the magnitude of the motor vehicle crash problem. Because motor vehicle crashes are the number one unintentional injury factor of our young people, and people don't perceive that. We're in competitive education as a public policy issue. And motor vehicle crashes become a concern only when it comes close to home and it becomes personal.

MR. VAN ETTEN: This question comes from our audience, and this is for anybody that would like to answer the question. It says, "In some States, or maybe in most States, driver's education falls within the Department of Education, yet the Federal Department of Education has no role in driver's education. Do you think that they should?"

In other words, do you think that the Federal Department of Education should have a role in driver's education, "or is this role sufficient within the Department of Transportation? Or should driver's education be within the State Departments of Transportation as it is in Oregon?"

So, where does this driver education belong, within the education realm or within the Department of Transportation realm?

MR. HARVEY: When you look at the highway transportation, we've got to develop competent, responsible users of the system. And how do you do that without education? So it's this partnership that has to take place.

Now, what is the role? I think that when you model good behavior and understand teaching and learning, driver education fits there because we're looking at teaching and learning. However, Leave No Child Behind, but where is driver education as it relates to a priority?

When you look at we're testing at the second, third, fourth, fifth, sixth, seventh, eighth, ninth, and tenth, and then giving a certificate of mastery. Let's do that with being a responsible user of our transportation system as a pedestrian, as a passenger, as a vehicle operator, you know. Let's look at those competencies and measure them.

MR. HUFF: I think if we're going to assume that driver education should be a part of a child's basic education, and there has been some advocacy for that, and mobility certainly is a basic issue related to our society, then I think it would benefit from a stronger partnership with the Department of Education.

One of my concerns of this forum is that there would be a recommendation that would come out of here saying that we need to reenergize our schools to provide driver education, and this is like how we would like to do it. And those who control education would then say, but, but, but we've got enough to deal with this No Child Left Behind, because they do have their hands full.

So we could come up with a good idea here and education may be closed to it. This also happened with -- with the school bus industry. The school bus industry and driver education, these agencies all used to be a part of the school system and they were under the umbrella of the national administration groups back in the 1960s and 1970s. And those who actually run the schools, the superintendents and those groups, they wanted to focus more in on the basic issues of education. So they helped the school bus industry spawns off and has its own association. The driver education folks did that. And then it was off the table; it was not an issue anymore.

I think that's part of the problem. If we want to have it funded by education, then they need to be involved. But I certainly think that the other partners have to be a part of it because the CDC's charged with the health of our nation and the Department of Transportation and NHTSA is charged with the highways and the safety.

So it's a system. We've got to think in terms of systems-wide or, as Senge says, we're going to continue to have ill in our society.

MR. VAN ETTEN: I have three questions here for Mr. Huff. All three are addressing your point on the interstate/intrastate CDL type of driver's license. So maybe I can combine all of these questions into one question with three parts.

Would your interstate driver's license replace the intrastate driver's license? In your proposal of the interstate license, who will provide the reassessment services, which will provide the tune-ups that the licenses can be renewed? And the big question is, who pays for all of this?

MR. HUFF: All good questions. All issues that have to be dealt with. If you take my model and look at it with a critical eye at this point, the obstacles to achieving it are so overwhelming we would be tempted to lay it aside without even considering it. But the solutions are there. The ability to overcome can be done.

It would not replace the intrastate license. You would only be required to have one, as with a commercial license now. In Montana, for instance, if I can't pass the interstate license physical, I can still get an intrastate commercial license and I'm limited to mobility within the State of Montana. The same would occur with the intra- and interstate regular license.

So the model is already in place. The database that holds all of these is already in place. There are problems associated with it. I have learned that one of the problems with the commercial driver's license database now is that citations in one State don't match up with citations in another State. So a lot of them where there's no direct correlation between these violations, they drop them. They don't even get entered in the database. So those kinds of things still need to be solved.

The question about tune-up, who pays for it, who pays for the teacher's license? The teacher does. Who pays for the barber license? The barber does. Who pays for the lawyer's license? The lawyer does. Well, the customers. Thank you, John (Harvey).

(Laughter)

MR. HUFF: We have to pay for our own license. Mobility is important. We'll pay. How much do we pay for a Super Bowl ticket? It's all a matter of understanding the priority. It goes back to my point. We don't understand or appreciate the problem. If we understand I would be willing to pay a couple hundred dollars every five years for a license if I knew that I'm dealing with a shift in the safety culture, and I think most of what John Harvey said about the parents and how strongly they feel about that being a part of their education supports public opinion.

But we've become so gun-shy about this kind of thing that we back away from it in the areas we should not be backing away from it. This is one of the areas we should not be backing away from it. The idea that the tune-up, the assessment, would be third-party testing in Montana, for instance, now an eight-year license for a commercial driver's license is about $80. So it's $10 a year.

I envision if I were to go to, say, like Sylvan Learning Systems to take a computerized assessment of my driving skills every four or five years, it would probably cost me another 50, 60 bucks just to go in and take the test, plus my license. So I'm going to be increasing cost to me. But that's nothing compared to what we pay in increases in our home taxes or what we pay -- I mean, how many of you are paying that much a month for cable TV?

I mean, come on, and let's get real about this. Let's look at the priorities in terms of what's important in our lives. How important is your kid to you? How important is your neighbor's kid to you? It's certainly worth the extra cost. It'll be borne by me. It'll be borne by you in this model that I propose.

MR. VAN ETTEN: The next question we have is for Ms. Weaver. How many of the 113 school districts and schools are you able to audit per year, and where do you get the money to do it?

MS. WEAVER: It's 110 school districts that offer driver education. The other three school districts are elementary school districts.

The funding for auditing reviews comes from the driver licensing fees. That pays for the driver education program. We do not use any public funds for public education.

And of the public schools, we try to review about one-third of them every year. So about every three years we try to get to the public schools. And with the commercial schools, we're now at 35. We attempt to get to every commercial school every two years. And when there is a problem or an issue in either, an initial problem with either one, we do go to those schools.

MR. VAN ETTEN: This next question is also for you, Ms. Weaver. You mentioned the skid monster, but earlier speakers said the skid pad experiences increases crashes. Why do you use the skid monster and what have your results been?

MS. WEAVER: Well, we have the auto control skid monster in one particular school that actually is in the regular school day. That teacher teaches driver education all day long. The teacher says that is the best way in which to teach initial skills of vision control, to teach the ability to target.

The very first drive will take you less time in an auto control monster, if you will, or the skid monster, than it does to actually take them out on the street and try and teach them the same skill.

Again, the funds come from the State driver licensing fees. And the results; we don't actually have any results. We've never actually gone in and tested them. It would be wonderful to be able to do that.

MR. VAN ETTEN: The next question is for Mr. Lantzy. You mentioned vision and health screening required for licensing. What does health-screening entail?

MR. LANTZY: Basically, when one goes into a secretary of State branch office to get their license, whether it's an adult or a teen, they must pass a vision screening, which is, I believe, 20/40 corrected in one eye. And then in our secretary of State branch offices there's basically just a health form that you fill out that you indicate that you do not have any health concerns that would affect your driving.

In driver education programs, we do require that the student does show that they do meet the vision requirements and also that the school somehow verify. And it may just be a statement from the parent that, you know, the student does meet the secretary of State requirements to operate a motor vehicle. So in order to get in the behind-the-wheel phase, they must show that they do meet the same requirements as they would when they go to the secretary of State's office to actually get a license.

MR. VAN ETTEN: Our next question is for Mr. Harvey. A $6 licensing renewal fee funds driver education in Oregon. How difficult was it to pass this funding mechanism?

MR. HARVEY: I was not there when the law was passed. I was in the State of Washington.

But, Troy Costales, do you want to just stand up and make a comment how difficult it was to pass?

MR. COSTALES: As memory serves, the vote in the chamber was 85 ayes and five nos.

MR. HARVEY: Data-driven support.

MR. VAN ETTEN: This is for any or all of the panelists. I heard you all agree on a national standard for driver education. How will this standard be evaluated; who will evaluate it; and again, the big question is, who will pay for it?

MS. WEAVER: I think that's the problem. We don't know what driver education is or should be. We don't know what kids should be learning and what the outcome should be. So I think we need some good solid research to point us in that direction. The delivery system needs to be evaluated as the best way in which to deliver it.

When I talk about delivery, I don't talk about, is it going to be public schools or commercial schools? I'm talking about the delivery of the teachers, the quality of the teachers, and the training of the teachers. I'm talking about the delivery over time. How much time does it take for these teen drivers to learn the skills and the knowledge that we want them to learn, and especially, changing their attitudes.

I think the researchers are the ones that need to help us in this regard.

MR. HARVEY: One of the items in the performance plan was looking at the National Institute for Driver Behavior and taking the three different types of program providers that we have in Oregon, and that being commercial schools, community colleges, educational service districts and the public schools. And we wanted to take a look specifically at these different providers, and I'm hoping that when we try to promote quality driver education as a mandate that we will have the same outcomes because we have the same delivery because we've standardized the program.

Once that has occurred, once we agree upon the standard of performance, then we could take a look at, who are we going to pay for driver education and how are we going to continue to monitor this program. That's a challenge. And do we look at private partnerships; do we look at the federal government; do we look at the State government and saying, yes. Because you've heard five different models here, and we're similar but different.

MR. HUFF: My proposal probably has the greatest dollar associated with it, and so it's only fair that I address that issue.

We do what we want to do. That's the bottom line. As a nation, we do what we want to do. Until we have a threat against our kids, we seem to take it for granted because we underestimate things that we're most familiar with, and we're familiar with our kids. We're familiar with that car. So we don't think it should take a whole lot of money to do it.

But we set up we make decisions to pay for things as a nation, and we do it. When we understand the need, we do it. And I'm thinking that this has to be funded nationally. And my proposal said there has to be policy and fiscal support to make this happen. It's going to take an educational effort just to sell our population that we need to do this. It's going to take time. I don't see it happening overnight.

Who would evaluate? There are different kinds of evaluation models. I would see it being done basically at the State level with some monitoring by the federal policy to make sure that, if my model were adopted, we had an interstate license. The models for monitoring are already in place with all kinds of federal programs where the states actually perform the leg work but assurances that those things are being met are required by the federal government as part of the grants that go to fund that.

I think part of the cost is borne by you and me in the increased cost of the license, but I think there has to be some federal support that goes along with it. I think we saw a lot of innovation take place when the federal government was involved with this back in the 1960s and 1970s. When that money dried up, the innovation and the growth dried up. So it takes some seed money. And I envision that needing to take place.

One thing that was asked earlier, how do we do the tune-ups. Part of that model would stimulate all kinds of business because if I'm going to go in on a regular basis to take a simulator assessment of my knowledge and skills, I'm going to want a refresher, whether that's delivered over the web, whether I go down to a local driving school, wherever I go. There's going to be business stimulated. There would be residual revenue streams for driving schools, which would create more of that self-correcting kind of commercial enterprise where if they don't do a good job, I don't go to them next time because if there is a rigorous assessment that I have to pass, I'm going to select the school that's going to give me the ability to pass that test.

So there's some really interesting dynamics here that will come to play that'll help with this. There'll be support because there'll be some private businesses being generated out of it, too. It won't just be all tax-driven.

MR. VAN ETTEN: I'd like to thank our panelists for very informative and very challenging, very stimulating presentations. And I'd ask you to give the folks a hand in appreciation for what they've done.

(Applause)

Presentation by Barry Ford

MS. BISHOP: The first thing we're going to do today (Wednesday), I'd like to invite Barry Ford up here. He is from Vermont and was unable to make it here yesterday afternoon. John Harvey did a great job of giving his presentation, but he wants to make sure to touch on a few points.

Mr. Ford is a driver and traffic safety education consultant with the Vermont Department of Education. He is a member of the Association of State Supervisors of Safety and Driver Education Board, Vermont Governor's Highway Safety Policy Council, and he is president-elect of the New England Traffic Safety Education Association.

Welcome, Mr. Ford.

MR. FORD: Thank you.

First off, I'd like to thank the National Transportation Safety Board for allowing John Harvey to fill in for me yesterday. I can't think of an individual that could do a better job than John Harvey, who through the 1980s probably laid the foundation for what is Vermont's program right now. And I'd like to thank John (Harvey) for filling in.

In my PowerPoint presentation yesterday, I touched upon many of the highlights for the State of Vermont, including teacher preparation, which involves 270 hours of preparation before any of our instructors actually get into the field. That would both the public school instruction and the commercial instruction.

I also touched on the professional development that is involved for our public school educators in the State of Vermont. They are required to have the same professional development as any other discipline.

I also wanted to highlight the fact that over 90 percent of our driver education students that complete programs in the State of Vermont are done free of charge in the State public school system with public school educators.

I believe this is because Vermont is a small State, but what I like to refer to as is a large community. And for that reason, we are able to do a great many things that I know the higher-populated States across the country are not able to do. We've been able to standardize the curriculum; we've been able to deal with the workshops and presentations across the State of Vermont in a Driver Education Association that is extremely strong.

I only have 102 licensed driver educators in the State of Vermont, both public and commercial. Over 90 percent of those teachers are full-time, active members of the Driver Education Association, and very supportive.

In the presentation I also mentioned a lot about the partnerships that go on in driver education in the State of Vermont, those being the Department of Motor Vehicles,

the Vermont Rider Program with motorcycles, the Truck and Bus Association, and it goes on and on through all of the areas of law enforcement.

So being, as I said, the large community in Vermont, I feel that we have a very strong program. It has a long way to go, and I think that we can improve upon it.

Without taking any further time from your presenters today, I just would like to thank again the opportunity to say a few things this morning. If you have questions specifically about Vermont's presentation yesterday, pass the cards in and we can address that at a later time. Thank you very much.

(Applause)

MS. BISHOP: All right. We'll go ahead and start with the program. And our first session today is some teacher and student perspectives on driver education. The moderator is Mr. Peter Kotowski from the Office of Highway Safety.

Driver Education Teacher and Student Perspectives

MR. KOTOWSKI: Good morning. Today's morning panel, we're going to discuss teaching standards, techniques, and the use of simulators, and a perspective on the program effectiveness from recent graduates of the driver's education program. Dealing with teachers and students, this is the point where -- in the driver's education program where the rubber meets the road.

Presentation by Debbie Cottonware

MR. KOTOWSKI: This morning we're going to begin the presentations with Ms. Debbie Cottonware, a driver education instructor. Ms. Cottonware has received numerous traffic safety awards, including the American Driver and Traffic Safety Education Association, ADTSEA's, 2003 Teacher of the Year, and the Washington Traffic Safety Education Association's 2002 Teacher of the Year.

Currently, she is a teacher in the State of Montana, and she is an adjunct faculty staff member of the Montana State University, Northern, and the Central Washington University as a driver education teacher trainer. Recently, she has been selected as a reviewer for the newest edition of "Driver's Education Manual."

At this time, I'd like to introduce Ms. Cottonware.

MS. COTTONWARE: Good morning. I'm excited to be here today because I get to speak for teachers. And one of the things I do when I talk about driver education is I speak from my heart, and you'll probably notice that this morning.

Car crashes, the number one killer of teens. Seven thousand teens die as a result of automobile crashes every year. That's twice the number that was killed as a result of the attacks on 9/11. Our country went to war over 9/11. What are we doing about driver education and about teens involved in car crashes? One element that's already in place yet needs improvement is driver education.

Driving is considered a privilege. However, in today's society with all the talk of school-to-work transition, driving is an essential privilege. For this reason alone, driver training should be a part of basic education.

Driving is a social task, and new drivers must be given skills to interact appropriately and safely within the highway transportation system. Lowering high-risk behaviors and good habit development is what quality traffic safety education programs are all about.

As ADTSEA Teacher of the Year, I have the privilege of speaking to you on behalf of teachers all across the country. I have a unique perspective, having taught in two States with teens and training teachers, that of Washington and Montana.

In Montana, although the crash last winter involving a teacher and his students is very disturbing, the driver education program is going strong. Dedicated teachers continue to offer quality programs.

In the Washington State program, it's been a model for States all across the nation. Their curriculum, their parent involvement guide which came along about six or eight years ago, a guide to help parents, which was one of the topics that came up yesterday. We have one of those that we've shared with many States, along with our supplemental materials. They've been used and duplicated in several States. Teachers from Washington, myself included, have presented at workshops and conferences all over the country.

In tough economic times, the legislature in Washington is slowly dismantling the public school driver education program, in part because the perception of what we do and the reality of what we do are so misunderstood. Thus comes one of the challenges that we face as driver education teachers that I'd like to share with you: the misperception of what driver education is and should be.

Parents want mobility. They want it cheap, they want it convenient, and they want it fast. The public perception of driver education is that our purpose is to prepare teens to pass the written and driving test at the Department of Licensing. And if they get a few safety tips along the way, that's okay, too.

However, where public school driver education training programs exist, that's where the teens are going to get their training because parents know and trust their schools. A quality program attempts to do much more than simply prepare teens for the licensing exam.

I want to go into teacher mode for a moment and demonstrate, and that's what these questions are all about.

For every session that I do with teens, I hold a parent's information night. And at that parent information night, I ask the parents these four questions.

What color is a "yield" sign? I'd like for you to answer that question silently to yourself.

What is the correct hand position on the steering wheel, and why do we put our hands there? Even five years ago, how would you have answered the question? What did you learn in your driver education program?

What is a reference point, and how and why is it used?

And if the ABS light comes on in your car while you're driving, what does it mean?

Parents are going to make the same mistakes that you will.

The State driver's guide will tell you about yield signs, but there are still signs out there that are the wrong color. How many of you answered in your mind "yellow"? Teens need to be prepared for those signs that are the wrong color and know what to do.

Some, but not all, State driver's guides will talk about hand position, but the information is not consistent nor is it always correct. They do not go into the reasons why certain hand positions are used on the steering wheel.

There is no information in the State driver's guide regarding reference points, yet it's a practical application that has tremendous effect if taught and used correctly.

Take note where the center of the hood is in relation to that curb line. Very visual skill that we can give the students. It shows the students where that car is in relation to the curb. And the selling point that I give parents is that it saves on the sidewalls of their tires.

And the information regarding antilock braking systems (ABS) will be found in the owner's manual of any car, but parents more often than not don't know the answer, nor do the salesmen that sell the car. The answer is not consistent from make to make or even from model to model.

From these few examples, you can see that driver education is much more comprehensive than basic car control. You can also see that the adults that are practicing with the teenager probably need a little refresher themselves.

Another serious challenge that we as driver educators face is time. We have a tremendous amount of material to cover in an incredibly short amount of time.

In Montana, students are to receive 60 hours of structured learning time. Six of those hours are behind-the-wheel instruction. Simulation can be included as a part of those 60 hours as well.

In Washington State, the minimum standard is 30 hours of classroom instruction and four hours of behind the wheel. Until just recently, most public school programs went way beyond the minimum requirement. In Washington State in 2001 before the implementation of GDL, the fatality rate for the 16- to 20-year-old age group was 42.8 percent below the national average. We need to ask why was this true. Were the cars in Washington any different than they are anywhere else in the country? The laws? Enforcement of those laws? Were our roadways any different? Were any of those things significantly different than anywhere else in the country? No, they weren't, but our training program was.

Learning takes place when behaviors change. How many gold medal ice skaters or world champion Little League pitchers or even National Basketball Association (NBA) All Stars were created with only six hours of practice and instruction? Yet driving is a lifetime skill.

Precision driving skills and good habit development are essential. We cannot effectively accomplish that in only six hours of instruction. This is the reason why research shows that driver education doesn't work, because behavior is not changed over the long term.

The main reason why we're seeing the success we are with graduated licensing is not because of the extra driving time kids are putting in. It's because it's a longer period of time before they can be involved in those high-risk behaviors, like driving with their friends and driving at night, that get them into trouble.

This does not mean that the additional practice and additional experience are developing good driving habits. Forty thousand people in this country die every year in car crashes. The number one cause of crashes is driver error. Those errors are often a result of poor habit development.

Perfect practice makes perfect skill. In our current way of doing things, the perfect practice needed is not taking place. These facts not only tell us that teens need more time to learn, but again, that the adults, the ones that are doing those additional hours of practice, need a periodic refresher as well.

We spend millions of dollars educating children. What is the point if all of that is squandered away in a moment when a child is killed in a car crash?

Another weakness in driver education is the lack of consistent standards for content and delivery. You've heard this before. Yesterday every one of the State directors told you we need consistent national standards for content and delivery. It can be different from school to school, from teacher to teacher. Generally speaking, public school programs have much higher expectations for their students than do the commercial for-profit programs. Consequently, a national standard must be developed, implemented, and expected for all new drivers.

To be truly effective, a comprehensive program must be developed, of which driver education is only a part. Automobile collisions are the nation's most serious health problem, especially where teens are concerned. For this reason, this comprehensive curriculum needs to be K-12 and it must become a part of basic education.

Then, a challenge for teachers is evaluation for the purpose of improving instruction. In our current structure, there is a lack of monitoring and therefore a lack of meaningful evaluation of curriculum and instruction. I have 24 years of teaching experience. Even I as a veteran teacher in a new school district have been assigned a mentor to guide and assist me through the year. That does not exist for traffic safety education teachers.

Administrators are required to evaluate teachers on an annual basis. This does not happen in driver education, justified by the idea that it's either part-time or extracurricular. Truth be known, the majority of administrators don't have any idea about this specialized field of instruction and so they're unable to effectively evaluate.

So now we come to the State staff, which are the experts. In 1990 when Washington State was serving 244 schools and approximately 48,000 students a year, there were seven State staff to administer this program. They had the time and resources to go out to schools, evaluate curriculum and instruction, and help implement improvements.

Today, with the loss of funding, we still have 200 school districts offering driver education, but we only have one State staff assigned half-time to administer that program.

Montana is primarily a rural State. We serve 147 school districts, and there are approximately 303 teachers serving the teens of Montana. David Huff that you heard from yesterday is also a one-man show.

Public school driver education teachers are clamoring for professional development and meaningful evaluation of their programs and instruction. Lack of personnel and limited resources affect the ability of State staff, the experts, to provide these valuable tools to teachers.

I've covered the idea of mentors for new teachers. I've also talked about the fact that we need meaningful evaluations that we clamor for professional development opportunities that are few and far between and adequate funding is also an issue. But notice I put that at the bottom of the list.

We spend millions of dollars on education in this country. Millions of dollars are spent on research to determine what works in education. Driver educators already use and believe in many of those proven theories. Let's designate some of those research dollars to find out what does work, what does work, in terms of learning and therefore changing behavior regarding driving.

We have a captive audience in the schools. A research project done recently at Washington State University showed that students attending public school driver education programs showed less participation in high-risk behaviors, not just driving behaviors but activities such as smoking and drugs as well. This is another indicator that public education in our public schools works. It's doing the job. It's indeed valuable and effective. We must work together to maintain and improve our driver education programs.

There are many stakeholders. Public health organizations, insurance companies, law enforcement agencies, judicial bodies, and highway administrations as well as educational agencies that should have and have a vested interest in seeing the improvement of not the elimination of driver education in schools.

Again, car crashes are a serious public health concern. The private interest is in mobility. However, the public interest must be in safety.

As a teacher who's been recognized as one of the best -- and I feel really nervous up here. And there aren't very many of you so it shouldn't be scary, but it still is. Someone told me, though, that if I lost my edge, I needed to get out of education. So I think I'm okay.

I would like to leave you, though, with this thought. Good teachers. Good teachers seek out ways to increase their knowledge and improve their instruction. Good teachers do not fight regulation that will truly improve instruction. A good teacher needs to be paid what they're worth, but a good teacher is not doing it for the money. They do it because it's good for kids. And driver education teachers are no different.

Thank you for your time today.

(Applause)

Presentation by Steve Cebulka

MR. KOTOWSKI: And now I'd like to introduce Mr. Steve Cebulka, a driver education instructor for the Colonial School District in New Castle County, Delaware. Mr. Cebulka has a B.S. in social studies with a driver's education certificate from Millersville University in Pennsylvania and a masters of education from the University of Delaware.

He has been a driver education instructor since 1972 and a department chair with the Colonial School District in New Castle County, Delaware, since 1978. He has been involved in the development of the curriculum standards for driver's education in the State of Delaware.

MR. CEBULKA: Thank you for being here and giving myself an opportunity to tell the Delaware story, and more specifically, my story teaching driver education at William Penn High School with a heavy emphasis on simulation.

I'm a teacher in the Colonial School District, and we are the largest school district in the State in terms of landmass. And I want to go over a few things on the history of Delaware.

In 1934, Delaware driver education was created with the Delaware Safety Counsel starting a program teaching class work only. And in 1935, they added road instruction after school hours. In 1937, the first full-time driver education teacher in the State of Delaware that taught the program during school hours was Gladys Hall at a small high school north of Wilmington.

Delaware driver's education has enjoyed a strong support by the State legislature from the very beginning. In 1944, a law was passed allowing driver education students to drive with their instructor without a permit. Before then, they had to have a permit. In 1947, the legislature granted special reimbursement funding to high schools, which provided driver education to their students.

And everything stayed the same until 1967, when the State legislature passed the mandatory driver education law requiring everybody under the age of 18 to successfully complete a high school-only driver education program, prohibiting commercial schools from teaching people under the age of 18 and setting the limits of teacher load at 140 students for every driver education teacher with a 30-hour classroom and six-hour instruction behind the wheel.

And that went along till 1987 with the 16-, 17-year-old accident involvement rate in the low- to mid-20 percent range for Delaware. Now Congressman Castle, who was then governor, convened a task force, which I was a member of, to look at and examine how effective driver education was in the State.

As a result of that task force, former Governor Castle signed legislation to lower the student-teacher ratio to 125 students to every teacher, increase the behind-the-wheel time to seven hours of instruction, and he established the first what we would like to consider a mini graduated driver's license that required every new driver to drive with their parents for the first 60 days.

This new law reduced our accident involvement rate between 16- and 17-year-old licensed drivers from mid-20 percent in the 1980s, so when the new laws went into effect in 1992, our accident involvement rate for the 16- and 17-year-olds dropped to 16 percent. The next two years it dropped further to 15 percent each year.

During the mid 1990s, driver education was examined more closely because of the school accountability laws that were emerging across the country. The Delaware Department of Education increased the number of credits a student needed to have to graduate, and the Department of Education considered moving the program to out-of-school hours.

And at a series of public hearings, the Delaware Driver and Safety Education Association presented arguments about the low crash rates for Delaware's 16- and 17-year-olds. Instead of moving driver education out of the school day, the State legislature unanimously passed a graduated driver's license, which mandated that driving during the first six months a new driver could only drive with their parents at any time. The second six months, they're allowed to drive without supervision during the day from 6:00 in the morning to 9:00 at night. And they're allowed to have two passengers in the car.

However, there is an exemption during the second six months, that when the new driver is going from work, school, or a church-related activity on a direct line between that activity and the driver's home, he's allowed to drive without supervision, but they're not allowed to have any other passengers in the car with them.

Also, in 2001, the State legislature passed a law saying that in order for a student to get into our program, they had to have passed five credits, two of which had to be math, science, English, the major course subjects, before they were allowed to take the program, and they must move on to the 10th grade year. And then, once they were in the program, they had to pass five more credits in order to get their license. So even if they pass our course, if they don't have the five credits they're not allowed to have their license. And the State only gives them until the conclusion of the next marking period to obtain those five credits. If they don't receive those credits, they have to wait until they're 18 to get their license.

The driver education program in Delaware has several highlights. The State provides the program free of charge to 100 percent of the 10th grade students no matter where they attend school. We have several small schools in Delaware, and the State will provide each school with one-fifth of a teacher that teaches the entire driver education curriculum until the course is done for every 25 students the school has. And of course, a full-time teacher in the larger schools for every 125 students.

We also have a thing called Inflation Index Funds that have been provided by the State for the teacher to obtain and maintain their driver education car and purchase supplies and other driver education-related items.

In addition, for the last 36 years, the driver education teacher, not a one-time tester at DMV, determines whether a student is ready for their license.

The first question I ask my students for discussion the first day is: "Is your driver license in the State of Delaware a privilege or a constitutional right?" And from that moment, I start working on their behavior and why they need to be a solid driver working with everybody else on the highways.

On my road test, it is a fairly simple test. It's 20 minutes long. My two rules that I tell them beforehand is that if they do anything that would result in points on their driving record or if I have to take control of the car, they're going to get a retest. My test covers city driving, parallel parking with real cars, driving on a major urban street, and getting on and getting off expressway ramps, or I tell them the direction they need to go and then they have to evaluate that request and determine the proper exit. And if they can't go to the proper exit, they're retested again. I like to think that my comprehension test results in lower accident rates.

In Delaware, the percentage of 16-year-old drivers involved in accidents is much better than the national average. The green chart shows the accident involvement rates for all licensed drivers in America. You'll notice that it's a low of 10 percent in 1999 to a high of 16 percent in 2002.

The purple chart represents all 16-year-old drivers in the United States, and you'll notice that goes from a low of 34 percent to a high of 58 percent in the year 2000. 2000 was the first year that Delaware's graduated driver's license was in full effect, and there was a lot of publicity: billboards, pamphlets to the parents, special meetings. The blue chart shows the accident involvement rate for 16-year-old drivers in the State of Delaware. As you can see, in the first year of the graduated driver's license, our accident involvement rates for our 16-year-olds was 8 percent.

But I like to think in the attitudes and behavior that we stress in our classroom is carried out to our 17-year-olds. Again, with the green you see the accident involvement rate for all drivers in the country. And with the purple, the accident involvement rate for all 17-year-old drivers in the country.

And you can see that for our 17-year-olds, we had a high of 19 percent accident involvement rate in 1998 and a low of 15 percent last year.

So with our strong State support from the legislature, in fact every major driver education piece of legislation that was passed in Delaware has been passed unanimously, that we like to think that we have a world-class driver education program and we're quite proud of it.

Specifically, at William Penn High School, although our program is similar to those across the State, I want to share with you some of the specifics about the William Penn program.

We have five full-time driver education teachers serving approximately 650 to 700 students each year in our day, our evening program for adults after hours, and our summer school program. In fact, in a nationwide study conducted by Dr. Darrell Jones from Texas A & M University in 1992, we were selected as one of the eight exemplary driver education programs in the country.

Our program consists of 36 hours of classroom instruction, 12 hours of simulation instruction, and with me, at least four and a half hours behind the wheel and four and a half hours of observation time.

I emphasize many techniques in my class, with two major areas consisting of alcohol education unit, which the State legislature has mandated that I provide at least five hours of alcohol education, and the class project.

The class project is approximately a 20-page paper. One time my students had to write a position essay on being a member of a jury that has to decide the outcome of a civil case where alcohol was involved by a young driver. In another essay there was a judge of an alcohol case in a criminal trial where another teenager killed eight people. The last essay or position they have to take is, why do I think I'm going to be a safe driver. And that needs to be 350 words or more.

We've used simulation at William Penn High School for 28 years. This is our third set of simulators. We started out with the old Link simulators that were bought with federal grants back in the late '60s. And then in 1988 we upgraded those. And today we have the simulator system from Doron that's on display in the back. Not the virtual reality one, the other one.

Simulators save time and money. In Delaware, we can substitute four hours of simulation instruction for one hour of behind-the-wheel instruction. Because of our simulators, students are only rotated out of each of their academic classes twice for behind-the-wheel instruction. With all the academic accountability, we have worked out a rotating schedule that allows students to meet all their requirements besides driver education.

They also help us reduce fuel costs and maintenance costs of our driver education cars and allows us to give extra road time to students who need it.

With the credit requirement and other factors, if a student is not meeting our minimum standards, they are not allowed to drive. And obviously, there are a small percentage of students who don't have the credits. And the time that they would have had to drive, we give to students who need the extra time.

Emphasis of our instructors. We like to think they're an integral part of our simulator system. We use a comprehensive curriculum to provide solid driving concepts in a safe, controlled environment with measurable results that we can get instant read-outs as the students are going along. We can monitor what the students are doing individually and all together. So if we come across a scene in the sequence that everybody got wrong, the instructor can stop and repeat the scene over until the students understand it.

But the one thing about our simulators that I really appreciate is the wide screen undistorted view so the students can master scanning techniques easier because everything is the same size exactly like they would see it in real life.

Simulator training provides our novice drivers with the knowledge, attitude, and opportunity to become safer drivers as they develop an increased awareness and enhanced skills that can be better applied when they're behind the wheel.

Perceptual skills are critical and must be applied in order for students to become safer drivers. Our novice drivers are required to make sure their intended path is clear before changing lanes. We use real footage with actual traffic images used for the blind spot check. This is something that we emphasize a great deal, about looking over your shoulder before you move out of your lane, and it's repetition, repetition, repetition.

Our simulators also have the capability that if we want to set up right turns, we can use bar coding to go over right turn after right turn after right turn. So when they get out behind the wheel, they've seen that situation several times.

The simulator permits the instructor to develop decision-making skills by teaching proper scanning along the driver's line of sight and path of travel so that students can recognize and deal with potential hazards before they become immediate threats.

Yesterday I was talking to Pete (Kotowski), and his daughter just completed our program and this month received her Level 1 learner's permit under the graduated driver's license. And he was telling me how pleased he was that as he sat in the back seat the first time that she drove with the mother in the front seat that she constantly used her mirrors, looked to her side, and scanned with her eyes to both sides of the car and behind the car and in front of the car looking for hazards. As a teacher, that makes me feel very proud that our system works.

But another thing about our simulation is as much as every driver education teacher would like to give each student experience in all driving situations, we all know this is impossible in real life. We use our simulator to give our novice drivers experience in these types of conditions. In fact, four hours of our simulation instruction is devoted to accident avoidance. And I feel this is very important because it puts our students in various situations where we can stop the program, explain it, and explain where they went wrong and how to correct it. Then we can re-run it.

But the jewel of our simulation system is the driver analyzer. This is the part that all our students show the most interest in. It's a system of measuring your recognition distance, your reaction distance, and your braking distance.

The instructor can demonstrate the effects of various adverse roadway and weather conditions, including rain, snow, ice, and their effect on students' ability to stop a vehicle. It is also part of our alcohol program where we can dial in times and distances by various levels of alcohol involvement, and it leads to lively discussions in class.

Our simulators, or the analyzers, give instant feedback. On the right, you'll see a number of 241, and on the left 437. The right number tells the student what they would have done in this situation of stopping their car under a normal condition. The left is what it took the driver to stop the car under whatever the condition was. I think in this case it was rain.

And then we can talk among ourselves about who got lower scores and why did they get lower scores. The number on the right in the bottom picture is 196, and on the left 342.

And we talk about why it's important to recognize something, because the sooner you can recognize it, the sooner you can avoid it.

I have been teaching driver education in my area for 32 years, which has a varied driving environment. I'm very fortunate that within eight miles of my school I can show my students urban driving. We take them through the second-worst intersection in the State of Delaware. Dupont Highway, which is one mile from the school, is the busiest road in the State outside the interstates.

I also have my students practicing getting on and getting off expressway ramps in front of the Delaware Memorial Bridge, one of the busiest bridges across the Delaware River.

I take them into downtown Wilmington. And for a change of pace, I take them on country roads, which happens to be the worst type of driving for a Delaware student because they're not used to no cars on the road and narrow roads. They're all used to very urban driving.

We also take them down the lane that William Penn first stepped on when he came to America. And one of the drives we have, because in Delaware it's a rite of passage, the day that that new driver is allowed to drive to the beach by himself or herself.

So our goal of safe and competent teenage drivers has been worked on for the last 70 years. Right now with the parent involvement we have, the Delaware's comprehensive driver education program, we think that we can maintain the low accident rates and maybe even improve upon them in future years.

Thank you.

(Applause)

Presentation by Kayla Craddick

MR. KOTOWSKI: Now I'd like to introduce Kayla Craddick. Kayla Craddick's senior year of high school she served as the South Central representative for the National Student Safety Program, which is a youth group of ADTSEA. She presented a workshop to talk about the youth summit at an anti-alcohol/drug program that she put on for her high school. She is now attending college and in the future plans to pursue a career in public relations.

MS. CRADDICK: Hello. How are you guys doing today?

First of all, I just want to say I'm so thankful to be here. It was an awesome experience getting to come and be a part of this forum. I was asked to give a student's perspective on driver's education, and that's what I plan to do today.

I would say my driver's education experience was probably not the norm, not the usual. It seemed like I'm focusing more on my negative, but I think looking at what went wrong in driver's education you know how to fix it and which areas lacked in my part.

My first driving experience was sitting on my dad's lap in his 1965 Chevy truck helping him steer down the road. I live out in the country in west Texas, so what that meant for me was that Kayla got to run up to the store and go get ice for Mom or do anything before I actually had my actual driver's license. I did have a little experience before I was probably supposed to. It actually did help out later on just knowing -- having Mom in the car driving up to the store. It was always so exciting to get to do that.

It was kind of ironic. This weekend I went on another trip up in the mountains and I was with another teen driver, a girl. And I almost lost my life three times. This girl was a horrible driver. I had never been with someone that was so horrible. And it was kind of ironic that I was planning for this session here, you know, and thinking, well, driver's education is needed. After being in that car, I truly realize it is needed, so let's begin.

As a student, I think the purpose of driver's education is to teach an individual to become a defensive driver, to inform and educate the student on laws, skills, and prepare them for the test and the license. It seems like everything in the State of Texas, to me, is tested. You do this to get tested; you read this, and it all equals out to a test. So to me, entering driver's education was, I'm going to go to this class to pass the test so I can drive, and that's what amounted to my first response.

My experience with driver's education was quite unique, like I've already said. It was fun to me. The instructor was very humorous, and I enjoyed going. We had it every

morning at 6:00 in the morning, six to eight. And then we had our driving time after school.

And also, since I was in track and basketball, we drove to the extra meets, like to the track meets, to the basketball games. So we got our extra time in there. So if you're an athlete, it was kind of an advantage to you because he was a coach, he had to go anyway, so we took the driver's education car and just went.

He was a funny guy. He would sing songs every morning and just real humorous. He was always singing, "Shake the sugar off the honey bun" and just funny things that, I mean, you enjoyed going. You had to be there at 6:00 in the morning anyways; you might as well enjoy yourself.

I passed that test with an 85, and that isn't a great score for a straight-A student that does well in academics. But you know what? It got the job done, and that was my thing. I wasn't disappointed that I got a B on my driver's education test, but it probably should have been a little bit higher.

I took the class through my high school. It was offered at my high school. I was talking to some people before I came finding out how their kids took it or other teens in my classes, how their kind of their experience on it. And a lot of the classes in Lubbock aren't offered at their high schools anymore. Mine, a smaller high school, about 600 kids. And so they still do it there. But mainly it goes through the community. You go and you pay and you take your kids into town and do it that way.

It cost $190 for me, and it was kind of nice. It was very convenient. Mom just had to get up early. You just had to make it there in time, didn't get counted off, and be there for your required time after school.

I know this might sound horrible to you guys, but I was not required to do all my driving time. I think we were required six hours, and I lacked an hour. And so I don't know if his logs were wrong or if he was just sick of me by the time it was done and over, but he signed me off to go and get my license. So I lacked probably close to an hour of my driving time.

I didn't have my permit on my first driving experience. He threatened us and scared us in the first class and said, I'm going to check for permits when you all get in the car. I'm going to do this; I'm going to do that. But not being a very intelligent teen at the time I hadn't had it yet, but I went ahead and drove and he never checked. So that was one thing that would probably be frowned upon by you guys, I must certainly say.

I learned more about the teacher than the curriculum some days. Like I said, he was a funny guy. Lots of hilarious personal stories, lots of hilarious stories about former students driving, almost getting him killed, which was funny to know, great to be there, but, hey, I'm here to learn to drive. I was at first kind of like, hey, this is good, I don't have to sit through and hear this stuff. Sometimes it was a little rush for us because he spent most of the class telling the story and then he had to get to the materials.

Was it effective for me? Yes and no. I did pass the test, like I said, with an 85. Not a great score, but it did the job. I haven't gotten a wreck, and I must say that is a plus. I have not gotten a ticket or even pulled over.

I have used several things from the course. I've driven in several weather conditions, like my first time driving when we first went out was in fog. It was so foggy you couldn't see anything. And I barely passed the eye exam test, so that didn't make it any easier at all, either.

So we're driving. I've used it several times with weather. He really focused on weather, and I thought that was a really good job because in Lubbock it does ice over a lot and I'm petrified to drive on icy roads because I do have to commute 30 minutes to school sometimes. So he did focus on that and I did get to use that.

If you pay attention, you also have a better understanding of things you didn't have before. Like I said, doing a bare minimum of reading the material and just looking over and paying attention, I think most students could go in and pass that test. It wasn't very hard. And like I said, you don't have to do too well, but you still can pass.

The hands-on was very effective. The actual driving was what you might ask any student. I asked around and they said how would driver's education be more effective for you when you guys took it. Well, I probably would have preferred more driving time, more driving time, more driving time. All the students said that I asked. They wanted to become more familiar with the road helped.

I've never come in contact with a simulator before and I'm real anxious to try this one out here, but that wasn't an option for me. It was only hands-on driving, like I said, after school to track meets and what not.

Was driver's education effective for me? No, in some ways it wasn't. I had to learn a lot of stuff through experience and through scaring people half to death because I was doing something wrong. Mainly I was in the car alone and just had to fix it myself. Had to learn the basics later.

Parking wasn't so great for me. I couldn't quite get in that parking spot so straight. Probably took up a couple a couple of times just because I was too frustrated to try again.

I'm ashamed to admit this. I still do not know how to parallel park. We worked on it in driving time, but like again, he did get frustrated with me and said, "we'll try again later," but we never did. So I guess that's one thing I'll have to go home and work on.

Braking was horrible. Braking was absolutely horrible for me. The first time I was driving, I was the first one to pull out in that fog, and I guess my seat was too far back because I was pressing that gas and slamming on the brake because it just did not feel right.

I've always had a little bit of trouble like if you're not familiar with a car, once you get familiar with your own car, it's a lot easier, but the pressure, the brake, and the gas, I had trouble with that. So that's one thing he did help me focus on, but I probably did need a little bit more help than what I did get.

Like I said, some areas were covered quickly and they were assumed that they were already known in the instructional part. We kind of ran through the sign and what color is a yield sign. At first it was yellow, no, it's red. So we ran through that part kind of quickly, I thought he assumed that we would already know. We had driven with our parents, you know, so many times; we've been in the car; we know our city. Well, I still get lost, and my town is 200,000 people.

We never actually went out on the busy highways, which is very important. In my town, there is a loop and then an interstate that runs off of it. And so we went a couple of times. Nothing major; merging or anything like that. I mean, Lubbock doesn't have a whole lot of traffic, but we never went straight where we had to go, not on and off type practicing.

And then my mom was also very scared to take me on the heavy trafficked areas. There is a road I go to work every day on the same road, and it's one of the roads in Lubbock that has the worst traffic fatalities on it. It's an intersection with a lot of traffic. And I rode with my mom on it one time and she about passed out because it is very busy. And we never actually went to that during driver's education.

We traveled around where he went to high school. We went and saw the stadium, went and saw who was playing football, practicing on the field that day. He wanted to see Lubbock High, who was practicing out that day and what not. So we ran his errands. We went to his house, picked up his dry cleaning. So we take care of our coach in driver's education; we sure did.

How could driver's education be more effective? More driving time required with parents and/or instructor. In Texas, there isn't a certain amount of time after you get your license that you have to drive with your parents. You get your permit; you drive with driver's education; you drive with an instructor. You complete that; he signs the form off; you get your Texas Education Agency (TEA) Form which is saying you're passing classes; and you go and take the test. And then you have your license. You're free to go; you're free to drive; you're free to explore with all your heart's desire.

Well, I would definitely say I would have probably been better off if my mom was with me a couple of times, if she had a certain amount of hours she had to drive with me. Definitely, definitely would have been more effective. Even though you scare your parents half to death, it would have been more effective for me.

Another thing is, if a child is having trouble in driver's education, I think it would be very important to contact the parent and let them know what is going on, let them know Kayla's having trouble in braking. She's not doing too well in that; do you think whenever you guys drive that you might let her work on that.

Even though I know a lot of families are working nowadays and it's hard for the parents to be there and it's hard for kids to do it, but if that kid gets in a wreck and if that kid gets hurt, it's back on the parent. The consequences do go back to the parent.

My little brother has just finished driver's education, but he was driving with just his permit. He didn't have his license yet. And he got in a wreck, and he called me and said, Kayla, I've gotten in a wreck. And I was at home. My mom hadn't come home yet. And I was like, well, do you need me to come? What do you need me to do? He was like, no, I don't think they're going to call the cops. I was like; don't let them call the cops. I was like, don't do it. But that was just my first response. I was so scared to death for him because I had never been in a wreck, and he had rear-ended someone.

So we got home, and I told my mom. And of course she's freaking out. We had just got done with my sister's wedding. She's so stressed out. And so we go up there and the cop is there. And so we're standing there, and Kirk is just like, it was an accident, it was an accident. And my mom was like, why were you driving? He had already had his truck beforehand. But he got two tickets that night, and they went to court the next week. And the only thing that happened to my little brother was he had to pay $191 for the ticket and nothing went on his record. And the insurance paid for the wreck.

He's my little brother. Of course I didn't want him to get in trouble, but does that sound like maybe he should have gone through a class? Maybe he should have had something, besides driver's education. There should have been something else there to help him out. I mean, money solves things, obviously, but I mean, I definitely learned from the experience, but I do think something past just paying that money. He should have been able to go to a class and helped him out.

I think it would actually be helpful if kids were tested on actual situations. We can't have the simulators. Not all of us, like Dr. Robinson said, have the money for the stimulators. And just recognizing that there are situations that are going to come out, written on paper. "A dog runs in front of you; what do you do?" "This wreck has happened; you're right behind it." You know, different things like that. If you can put out some areas in your mind and answer them how you might think, maybe when you're actually in that situation you will go back to that and think, maybe this is how I can solve it, maybe this is what I'll do.

I think you must pass with a higher score. I've focused on this whole time, if the score was raised higher for passing and kids actually knew they had to work harder and pay attention more in their driver's education class, they might able to work at this a little bit more; I have to get a job; I have to help my family; I have to do this or I have to do that, you know. And they realize that this isn't playing around. I actually have to get this, or I need to get this. I have to get home from football practice.

Make it clear that driving is a privilege and easily be taken away. They did a fine job about talking about this, but it is a privilege and we really don't realize that it is. And back on No. 3 there dealing with the weather and what not. I wanted to go back to that. I missed something.

I wanted to tell you all about two friends who were driving. They were both 16 years old. And they were coming home. Alcohol was a factor. They had both been drinking and they were about one mile away from Kelsey's house. Well, Kelsey was hanging out the window throwing up. She had gotten sick she had drunk so much.

And Nicole was reaching back over to pull her in the window when she overcorrected, went this way, overcorrected, went back this way, and then flipped the car. So Kelsey was killed in that crash, and Nicole survived. She -- she's alive.

And at first I was thinking, oh, drinking, kids drinking and driving. But when I actually started thinking about it, and a couple of teachers made the comment that she probably wasn't the safest driver. Had she ever been taught about overcorrecting? She was in an SUV, a Blazer that is more likely to roll when overcorrecting.

And we never actually covered that in my class. I mean, she was actually in my class, Nicole. And I mean, it's sad to say. Of course, alcohol was a factor, but when covering something like that, it's so important. I mean, you can't cover every situation, like you said. You can't cover sometimes when things are going this way or when things are going that way, but I think that is one thing to actually implement and put in their head and just keep at it that, you know, driving is very dangerous. You have to be alert. You have to be able to know where you're at, what's going on, know what's going on around you.

And I think a lot of teens today have their music pumped up. They're rolling. They're going. They're cruising. They're changing their CDs. They're putting on their makeup in the rearview mirror. It's not a good situation. If you actually tell the stories -- down on the bottom I have that you -- real-life videos, real-life scenarios, real-life stories.

Actually, I can remember that only one video was shown to me, but it was actually about victims and drunk drivers, showing their stories together. And I can think back and remember those stories and think it's a longer lasting impression to me than what Coach Soliz talked about that day in class.

I know there are a lot of materials out there. Whether it's open to us or not, I'm not sure, depending on which State you're from, depending where the funding is. But I think videos and actual life stories. Kids are most likely going to listen to their peers more than they would an adult. You put a kid on the video saying, I'm made a mistake, I messed up, but you know, learn from me, learn from my mistakes, I will -- you can do a better job. You know, encouraging them. I definitely think it would keep a lasting impression on the kids.

I definitely think the instructors need to be made more accountable. Like she said, they're surveyed and what not, but whenever I was in driver's education, no one ever came into my class. The principal, the policeman on campus never came in the class, observed, or what not. Never came and talked to us about new laws or what was going on. I definitely think that something like that needs to be done. People in there accountable to other people and what not.

The instructors have an extremely important job to teach kids this stuff, and of course, every teacher is most likely to get off on the little rampage and they can do that every now and then. You're good if you got the teacher off subject today because we don't have to learn what we're supposed to. But when made accountable to the principal or whoever is above them and make sure the curriculum is being taught and what needs to get across that day would be very beneficial to driver's education.

And we already talked about the certain amount of time driving with a guardian.

And this is just a few ideas from my perspective. It might be different than others kids and what they actually went through. I had a great time in driver's education and though it might not have been the best experience that a kid could have had, I believe I am a safe driver and I do what I'm supposed to and I follow the laws of the land. But there are certain circumstances that kids will be in and things will happen.

But I just want to thank you guys for hearing my side of the story today, and I appreciate you all letting me be here. Thank you.

(Applause)

Presentation by Brad Wells

MR. KOTOWSKI: Now I'd like to introduce Mr. Brad Wells, a student. Mr. Brad Wells is a student at Brigham Young University in Provo, Utah. He has served as the northwest regional representative and then the president of the NSSP, a youth affiliation group with ADTSEA, and he still continues to help out his NSSP chapter even after moving on to college.

MR. WELLS: Hello, everybody. Glad to be here this morning. It's a great opportunity to be here and to be able to kind of give you a perspective on my views of driver's education and what I experienced.

First of all, I'd like to start off today by giving my perspective. Its kind of what I've seen. I was kind of in a different format. My high school was 800 kids, or 800 students, ninth grade through 12th grade, we're in a rural community.

So to start off, I had been driving probably since I was about eight between driving tractors and farm -- we could always get away with it by saying it was farm use. I had just had that much experience. And sometimes that was good, sometimes that was bad. But I had a very early start, you could say.

I want to start off, actually, by talking about my overall experiences in driver education. When I went into driver education, I went in there for one thing. I knew this from the start. I went in there to get my license. I was 16. I was going to get my license. I kind of took that as I that was what I was going to do.

My license was my life, my goal, and I think, from what I saw in school, that was everybody's goal, was that they wanted the license because they could drive. That was their sign that's what they were going to do and that's what they had to do.

When I know that I could drive, I had a couple things come into play. I had to learn the laws. I learned the skills. I had practical experience. I got my license. And I think the part that's most important about this is what I take from driver's education I'm going to use for the rest of my life because this is something I'm going to do for the rest of my life.

Everything that is in driver's education is whether you just drive around town because you're just going to the grocery store, that's the only driving you do, or whether you drive around the lot.

Now I'm going to go into what I liked about my driver's education, what I thought was good about it.

I got my license. That was an over exempted point, but I think that's still in high school. They go to driver's education because they want their license. They could really care less about the laws and that. I can see that firsthand from some of the friends I've had. They don't care what happens just as long as they can drive that car. So be it.

I had fun. Yes, driver's education was a fun class. It's not like it won't put you to sleep quite like math and English. It's a plus to listen to it. I learned a lot of information. I took that all in.

But now the question is, I'm starting to get on to college and into life, where did that information go? As I'm doing things, I don't remember everything that I learned. Where did all this go? Did it just go back somewhere and then go other places, or what happened?

Now, what I didn't like. It seemed to me that the book and the material were out of date. It couldn't quite relate to what was happening. It seemed like an '80s-type book that was like you could read one thing but something seemed different.

And also to this point, the things that were presented in an easy format so we could comprehend them, but for some reason they seemed so easy for something so important.

And I also didn't like the way the material was presented by the teacher. I know my teacher had a hard time because we had a short amount of time for so much material to get through, and it doesn't help when you're -- I took driver's education through high school as a class. It was a class on the schedule. So she had things to compete with such as assemblies and everything else going on in the school, and it was so hard for her to get through all this information.

The thing I missed the most was I would have liked to have seen more of a question-and-answer thing where she could have gone through kind of getting an in-depth perception of what we liked and what our knowledge was so far. She just kind of had to take some assumptions and go from there and get through it so she could get through the curriculum.

Now, this is what I went through in high school and now through college, this is kind of what I've seen as different things. Students will actually try in this class, unlike math. At my school, most of the kids, they went to class. That was it; they didn't want to do their homework, they didn't want to try, they just went to class because basically their parents made them come to school. Driver's education, they came, they did the homework mainly for the fact that they got their licensed, and that was the only thing.

This class was popular to attend. We had -- in school a lot of kids slept. They don't get caught, they get caught. Oh well. This class they actually wanted to come just because of the license factor, once again.

The next most important thing is that what happens when Mom and Dad aren't watching what they're doing. In the State of Utah, you start off during your driver's education you have a learner's permit, and that has you drive with your parents. And also what's happening there is you have to have 20 out-of-class driving hours with your parents, 10 night and 10 day hours.

It's a pretty good program. I like it because it's kind of helping you get a feel for driving. But when Mom and Dad aren't watching what you're doing, what are you doing?

I noticed myself, as my parents would get in the car, I would do things differently. I've seen kids that I think this has a lot to do with drag racing, which was a pretty good problem. When Mom and Dad aren't watching, we're out hot-rodding our cars. We're out doing whatever we want. We don't really care.

Next goes with the GDL. What are our influences inside the car. We change how we drive when we have different people in the car. It's just like with Mom and Dad in the car. We're good drivers when Mom and Dad are in the car. We'll use caution, we don't speed, things like that. When we have our friends in the car, we want to be cool.

It's just like when you take a date out. What are you more interested in watching, the road or your date?

So it's a problem and as you've seen with most GDLs, during that phase where they're under those restrictions, it's helping. But once they're out of those restrictions, they're going back to these things and they're getting back to it.

And the last part on this slide, most of the kids that I've known that have been those drivers think they're immortal. It's never going to happen to them. They basically take the assumption that they're the good driver. Nothing's going to happen to them.

They do a good job. But I think what they fail to realize: what about those other drivers out there? Because just because you didn't cause the wreck, you were still in the wreck. And you have to -- that's part of driving, is watching out for those other things.

Another part is the lack of experience that the teens don't have. I know from the situations I've seen that what I would have known then what I learned from it, it wouldn't have happened. It's just like most of them sometimes it just takes the hard way to learn.

Then, back again to the "it will never happen to me" philosophy. I'm a good driver. I don't do this; I don't do that. It can't happen to me. It won't happen to me. They don't want to recognize it.

The impact that the parents have on them as model drivers. Ever since they start in a car, they're learning what driving is. They watch their parents drive. They watch their grandparents drive. They watch siblings drive if they have older siblings. And that kind of shapes what they comprehend about driving.

Just to say like they have a family that tends to get places faster than they should, chances are those students are going to do the same thing because they don't see any that's where their right and wrong come into play. They don't see that because that's how I've grown up, that's how I'm going to do it.

Now, the last part I've seen especially a lot, and that's some don't think the law should apply to them and they can get out of anything. Recently, I think it was in 2001, Utah applied their GDL, and also they had a seat belt law come into effect. Now, I was one month away from being enforced by that GDL, and everyone in my class was so enthused that they didn't have to do that and then laughed at all the other kids that did.

But also what happened is, on this seat belt law, we're in a rural community. Everyone knows everyone. Our seat belt usage is way down from where it should be. It has come up, but it's still down. And it's not really enforced. They'll enforce it on Labor Day campaigns and such, but you can drive around, you wave, and anyone seems like some kids fill up the back of their truck with kids and that because they know they can get away with it. They know their parents are going to go down to the courthouse, they're going to go talk to somebody, and they can get away with it.

Now, what I would like to see changed or what would have made it better is, I think now that we're getting into the 21st century, we're here, we have all this technology. All the kids grew up on the technology age. They know how to use it. They go home and they use the computer. Why not try to incorporate some of this, try to make them feel that it's better for them.

I'd also like to see parents more involved. They have such a tremendous impact on what they're doing and how they're shaping these things. It's just like how they discipline these things. If the student's getting tickets and they know they're an unsafe driver, are the parents still letting them drive? Because I think some are starting to realize

that this is their right. They have to give their kid this right to drive because somehow it seems so important in the school and social standings that they are able to drive. Just like with cars. Most kids think it's right for them to have a brand new car for them to drive around school and they don't have to do anything about it.

Parents need to be more involved in their students' driving, especially in the first 16 to 18 years when they have control, because when they go off to college -- I've seen this a lot. You have your kids that you can tell took the driver's education, but you did well and understood it and had their parents there basically telling them right and wrong. You can tell the kids that their parents gave them everything, they let them just go free will. And I think parents need to be more involved in this.

Also, I would like to see tighter enforcement of the law. When you first go into driver's education, they threaten you and they threaten you and they threaten you of what's going to happen. But when you actually get out there, it usually doesn't happen. So you're threatening them, you're wondering if this is teaching the kids that we'll threaten you but nothing's ever going to happen. So we're going to threaten you with some laws but nothing is ever going to happen. You're never going to be disciplined.

And it's just one of those things where you've got to take the bitter with the sweet, I think. Some had a pretty good driver's education experience. Like I said, I learned the laws. I took things. I consider myself a good driver on some points. In some ways I know where I can improve. I think there are always points where we all know we can improve. There are things that we can do better.

As we work on those things, we know that that's how we're going to change things, we've got to take them with a grain of salt. And some things we have to look at and say, these are working well; how can we make them better.

And a lot of times, things aren't the same around everywhere. Just like as Kayla (Craddick) and I've talked, we've touched some of the same points but we went different ways. And if we could make more of a universal setting to where everyone has the same curriculum and have to learn through, I think this could really work out for the better and hopefully do this.

And that's kind of where we've stood as an NSSP chapter. We would try to help with the seat belt laws and that. Our last project we did, we did a mock car crash. And I don't know who learned more, whether the students or me from planning it, just because of the way that it made me look at things. At the same time, it made me think about those students who don't look at this.

I know a lot of them. They came in. We had the helicopter out there. We had everything out there, and they just laughed it off. They said, oh, this isn't real. We know we're good drivers. But yet we'll go out to our car, we'll go start spinning doughnuts in the parking lot, we'll go speeding down the bus lane, this kind of thing. And it just makes you wonder how much this "it will never happen to me" philosophy fits into them.

And it's clear that something has got to change in them, whether it's their behavior and maturity that changes in them or whether they just have -- that's all it can be, but if they need to be influenced more about how this is going to affect them.

And I'd like to thank you guys for listening to me and for giving me the opportunity to come out here. This has been a great experience for me. Thank you.

(Applause)

Question and Answer Session

MR. KOTOWSKI: One question for Ms. Cottonware and to Mr. Cebulka is, your feelings or your experiences with the driving instruction of students in inclement weather conditions.

MR. CEBULKA: I know we're here today as part of the unfortunate accident in Montana with the students, but I live for bad weather. I love taking my students out in all conditions. I make sure that I go to places that do not put them in risk under those situations, but I feel that as much experience they can get in bad weather, the better they'll become.

MS. COTTONWARE: I have this experience in Washington State where it rains all the time that we do drive with kids in inclement weather when it comes to rain and -- and the concerns of hydroplaning and stuff. In the program that I taught in Washington, if there was ice on the road in any form or if it snowed, we didn't drive. And I can see the disadvantages to that, but in the program that we were in, they didn't want us out there.

But I can see how in a place like Montana that's very rural that driving in inclement weather is an important aspect. It can be done in a controlled environment, but it is something that needs to be covered. And in a place like Montana when they're teaching school-year programs, if they don't drive in inclement weather, they won't drive.

MR. KOTOWSKI: This question is for Mr. Cebulka. Has there ever been a problem in transferring training from simulators to behind-the-wheel type driving? And the follow-up would be what would you like to see included in the next generation of driving simulators?

MR. CEBULKA: Usually there is very little problem with transfer of the learning from simulation to the road simply because we go over so much repetition in the simulators that if the student who is driving has a problem with a certain situation, I pull the car over to the side of the road and we just discuss what went on in simulation. Then they remember it, and then we go back out and go through it on the road again.

What I would like to see in the next generation of simulation: better technology, cheaper price so more schools can afford it. The reason why we have it at William Penn is because of the Inflation Index Fund. What happened in 1967, the State decided that not only to make the course mandatory and that it could only be taught during the school day, they also gave us money to maintain the cars, get the cars, buy textbooks, buy technology.

As a matter of fact, this year my high school with the Inflation Index Fund will receive $30,000 from the State for our program. And typically, we will receive somewhere between $25 and $35,000 each year. We've used that money to buy our cars, textbooks, second-language textbooks, computers, the simulators themselves.

MR. KOTOWSKI: The next question is for Kayla. How should we make parents and instructors more accountable?

MS. CRADDICK: Like I talked about, I do think they need to be observed and probably rated on how they taught the class. That way they can hit on their points they were observed and didn't think they did so well. I think just observing and letting them know where their weaknesses are and where their strengths are would help tremendously.

MR. KOTOWSKI: And this follow-up question on that would be to the entire panel. When we're talking about greater accountability for instructors and for parents, are we considering or are we talking about accountability or a legal accountability in the instance that there is an accident?

MR. CEBULKA: In Delaware, cases have gone to court where in one case a new novice driver was on a permit. Their parent didn't read the instructions and allowed the student to go out and drive by himself or herself, and unfortunately, the student died in an accident. And the case went to court, and the driver education teacher had to testify and show records of what instruction that student had.

So we are accountable. Because we are the licensing agent, we sign our name on their certificate and we verify that they have successfully completed the course.

In fact, in Delaware, there is an attendance policy in the class. If you're not in class the minimum number of hours, you're not allowed to get your license.

MS. COTTONWARE: And as far as accountability, teachers can certainly protect themselves by having detailed lesson plans both in the classroom and behind the wheel and route plans because that documentation shows what the teachers taught, how they covered it, the environments that they covered it in. Whether you're liable or not, you can be drug into court, and the best way for teachers to protect themselves is to have those detailed lesson plans and route plans.

MR. KOTOWSKI: For Mr. Wells, how much time did you get behind the wheel, and was it a structured type training or just cruising around?

MR. WELLS: Behind the wheel as far as driver's education behind the wheel, I did my 20 hours of with the parent and we had four hours of behind-the-wheel with the instructor in the car. The instructor in the car was more of a drive-around. We did a couple tasks here and there, but it was mostly a get-a-feel.

As far as the concepts of with my parents, a lot of it was being from a rural part of Utah, we make trips into Salt Lake City quite often. That's where most of my hours came from, was doing that.

But I think that I learned more from driving with my parents just because I felt comfortable driving with them. They felt comfortable telling me what I needed to work on. That's where I learned to drive on the freeway, is from my dad. He would flat out tell me what I needed to do, where I needed to change, what were my problems. Being in the driver's education car, you just kind of drove around. And I mean, they would tell you once in a while, but I seriously learned more driving with my parents.

MR. KOTOWSKI: The next question is for Mr. Ford. Could you tell us more about student involvement in the driving education program in Vermont?

MR. FORD: The student involvement would definitely because of the public school atmosphere that we have in driver education, our teachers alluded to in the presentation yesterday that teachers have a great deal more exposure to the students than they might have in the commercial realm because they're academic teachers as well as driver education instructors.

The student involvement with the classroom phase includes a great deal more of habit development, behavior and risk management. We've gotten away from a lot of the just plain skill-related aspects of driving in the State of Vermont with our standardized curriculum.

Instead of dealing specifically, which was addressed here earlier, the idea of passing the Department of Motor Vehicles licensing exam, we try to prepare the students on a broader scale for a lifetime learning experience and risk behavior.

This also goes back not only to the student involvement but also the teacher involvement and parent involvement because we have provided the parents with supervising driving guides and distributed them to all driver education students in the State that take driver education.

So consequently, the student involvement continues on from the structured curriculum in the classroom with the trained driver education instructor and goes a step further into the parent involvement piece. In all, student involvement really is a part of the public school system. Most of our commercial instructors are also public school licensed teachers 13 out of 20 commercial schools are owned and taught by public school teachers.

So the involvement goes on and on and eventually ends up with the graduated driver licensing system of the State of Vermont.

MR. KOTOWSKI: Okay. I'd like to thank this panel for sharing with us their experiences and their beliefs, and once again, their contribution to this program. Thank you very much.

(Applause)

Associations Panel I

DR. MARSHALL: This next session is the first of two Associations Panels. We'll be discussing issues pertaining to the current state of driver's education and the initiatives underway to improve novice driver safety.

Presentation by Randy Thiel

DR. MARSHALL: Dr. Thiel is the president of the American Driver and Traffic Safety Education Association, ADTSEA, a professional association with over 1000 professional and corporate members representing traffic safety educators throughout the United States and abroad.

Dr. Thiel earned his Ph.D. in traffic safety from Texas A & M University, and currently works at the Wisconsin Department of Public Instruction as an alcohol traffic safety consultant.

DR. THIEL: Good morning. It's indeed an honor and a privilege to be here and being invited to attend this forum. And I'd like to thank the NTSB and all those responsible for this forum. And to all the participants that has taken part thus far and will take part that has been involved in this endeavor.

I certainly hope that after this forum that traffic safety education will be given a renewed and positive attention throughout our country.

In the invitation that I received, I was informed that as a representative of ADTSEA that I was to present on the issues pertaining to the current state of driver education and initiatives underway to improve novice driver education. Prior to getting into specific categories or specific issues, I first would like to provide some background about ADTSEA.

Many of our members are involved directly in public school driver education from higher education but also from commercial schools. Businesses and organizations are also a very important part of our organizations and the corporate members. They all have strong ties to traffic safety education.

There are approximately 33 State affiliations that have State traffic safety education associations that are also affiliated with ADTSEA.

There are many issues that pertain to the current state of driver education which ADTSEA is interested in, concerned about, and invests significant amounts of time, efforts, and resources. I decided to first present to you some major categories in which numerous issues might be grouped. As you can see, they are listed as curriculum, instruction, program support, and professional development, not in any particular order. But those are the four categories in which I'll probably focus most of my attention today.

Before going on, I think it would be valuable to appreciate the current status of driver education training, and to do this I'll share the following points that probably have already been made. And you'll notice that quite a few of the comments that I'm going to make today have already been made, and I think there are some very common themes and very obvious themes that are coming out of this forum.

One is that there's been a marked decline in federal and State level support for public driver education or driver education period as a priority traffic safety initiative even though no public outcry has really resulted to eliminate driver education.

There's been a decline in public school high school driver education over the past decade, or the past 20 years, whatever, compared to the early 1960s, the 1970s when there was huge growth. When you compare that time to now, there has been significant decline. A lot due to "Leave No School Left Behind," "Leave No Child Left Behind," "Leave No Child Untested," however you wish to refer to the mandates that have come down from the federal level in public school education. Priorities have been placed towards the areas where schools will be evaluated and assessed for improvement or needing improvement or whatever.

There also has been a major initiative in the country over the past several years on graduated driver licensing, and I think a major initiative of ADTSEA, and attention has been towards the articulation of driver education as a part of graduated driver licensing programs across the country.

In an effort to explore ways to improve driver's education to begin emphasizing the desire for States to adopt graduated driver licensing, NHTSA embarked upon a project that dated back to 1993, and ADTSEA became a part of that project. In the initial stage of this project, it was soon realized that driver education programs differed in what was expected of students, in the content, and in the amount of time that's dedicated to driver education. Attention and concern focused on the developing of curriculum standards, realizing that there's a need to move away from time-based standards to more student outcome performance standards.

ADTSEA took a lead in partnering with several other groups and organizations and coming up with a curriculum and a set of curriculum standards that were created and drafted in terms of what students should know and be able to do.

Then, to complement the standards, curriculum content was drafted for both classroom as well as in-car instruction. Emphasis was placed on topics and content directly related to the driving task. In review of what existing programs included,

ADTSEA went about creating a curriculum that focuses on content directly related to the safe and efficient operation of a motor vehicle and skills most closely associated to the driving task: visual perceptual skills and, of course, good decision-making skills.

So if you take a look at the ADTSEA curriculum that was developed -- this is the pocket-friendly version, by the way -- this is what was developed out of that initiative. This is also available on the web. You can download all these, along with transparencies and PowerPoint presentations for the teachers, whatever. We'll get more into that a little bit later.

If one were to view the sample curriculum, they may find that some topics that their States include in instruction are not included in the ADTSEA curriculum. Again, an emphasis was placed upon the tasks more related to the driving task. Not as many consumer-related topics are addressed in the ADTSEA curriculum that might be addressed in other States.

I can speak from a standpoint of my own State of Wisconsin. Although we do not currently have a State mandate curriculum, we do have a State legislature that has passed legislation that requires a few specific items that must be taught in all driver education programs. Therefore with some sarcasm, as well as humor, I often comment that all we have to do is wait a bit and maybe we will end up with a mandate curriculum.

One, for example, and the only one that they put a time constraint on, is that of the organ and tissue donation, of which I was quite amazed that they set a minimum of 30 minutes. I argued in a positive way to say that I would hope they would not put a time requirement on because there is many programs that were going beyond 30 minutes already and oftentimes minimums become the maximums. But that's just one example.

Another example is, as I call it, the Slow-Moving Animal Bill. Actually, it's the Farmer on the Road Bill in Wisconsin, where we must provide instruction on the hazards posed by farm equipment, large equipment, and slow-moving vehicles on the road, and animals along the side of our roadways. And I call it the Slow-Moving Animals Bill because we have a lot of carcasses of different shapes and forms.

We also have pending bills as we speak before us that would include some other topics that must be taught: road rage and how to cope with road rage, and use of cellular phone.

We have about five or six bills dealing with cellular phone use pending as we speak. One of those deals with restricting the use of cellular phones by those that have a learner permit or a probationary license. If I'm not mistaken, it was out of the recommendation by NTSB that that particular bill was taken up. The other four or five bills deal with restriction of cellular phone use by all drivers while driving. We'll see what happens.

Again, some of the topics that you see in your State curriculum may not be in the ADTSEA curriculum, but it might be because they might be more consumer-related.

Once the topics and contents were developed, then the next move was to go on to the amount of time that should be provided towards each of the topic areas. Once that was decided what the content was, then it could talk about how much time should be based upon the given topics.

Summation of some key issues around curriculum instruction would include that the ADTSEA curriculum helped create some standards, what is driver education, by defining content; the standards that are more outcome performance-based than they are time-based; development of a sample curriculum that could be used and incorporated by any State, any local program that so desires; and then how to articulate driver education into graduated driver licensing.

ADTSEA created a document that actually has a two-stage program that was probably developed more around the national standards and the guidelines and national recommendations for graduated driver licensing that State driver licensing agencies were provided by AAMVA, if I'm not mistaken, as well as NHTSA. They proposed that.

With regards to instruction, there are several issues and concerns that are directly related to the secondary category that I had talked about before, curriculum instruction type things. Those that I would like to briefly highlight and discuss deal with instructor preparation, including standards and certification requirements, availability of programs, delivery, and quality of programs.

One concern around instructor preparation would deal with the standards or requirements that exist to become a licensed teacher. Different States have different teacher certification requirements. It's not uncommon to find that different delivery systems within a State have different certification requirements. Wouldn't a more uniform program of instructor preparation be an admirable goal?

ADTSEA believes in that goal and has been involved with several partners in both trying to redefine what driver education should be and what should be included in instructor preparation programs as well. It did create a model certification program and credentialing program.

In addition, attention was given to establishing the instructor prep program that could accommodate instructor candidates from all types of novice driver education program delivery systems, public, private, commercial, post-secondary institutions that offer driver education, whatever. The effort was to create a system that could be used by multiple providers.

The availability of quality instructor preparation programs is also an issue that's impacting driver education around our country. Over the years there have been a significant decline in the number of instructor preparation programs available to individuals interested in working towards certification, especially at our institutions of higher education. For many years, there were several organizations that were able to create safety centers or instructor prep programs around their university system.

We in Wisconsin had 13 instructor preparation programs at one time at all of what's now the University of Wisconsin system. But prior to being the University of Wisconsin System, there were a total of 13 prep programs in Wisconsin between the University of Wisconsin and the Wisconsin State University System.

Over the years there's obviously been a decline in the number of instructor prep programs available to individuals and there's been an effort to try to consolidate programs across university campuses, due to fiscal reasons. Reduction of duplication of services has been one. By doing that in Wisconsin, two universities have it. The issue then becomes of how to assess it.

Summation of instruction. There's lack of uniform instructor certification requirements, a decline in the numbers and availabilities of instructor prep programs across the country, and then there's a maintaining quality issue within our instructor preparation programs across our nation.

ADTSEA has been involved in these efforts. It helped developed the teacher model program, and it could be used for certification of any instructor regardless of the delivery system in which they're involved.

Professional development is another major concern of ADTSEA, our national association. In all the professional fields that I can think of, individuals licensed in those areas are required to periodically obtain or take part in professional development activities, workshops, conferences, courses, et cetera, related to that particular area of professionalism in order to renew or update and stay current.

ADTSEA believes in requiring professionals to maintain an ongoing professional development plan, and it understands that one of the major roles is to help in planning, conducting, and supporting such programs.

One example of the ongoing involvement efforts of ADTSEA to help improve professional development opportunities for traffic safety educators is its annual conference. I believe yesterday we heard John Harvey mention that the State of Oregon is hosting our 2004 conference coming up, and we'd love to see a lot of you come to that conference. And a year from this July and August, we'll be in our lovely State of Hawaii. So we're looking forward to that. But more important is the Portland 2004. Love to have you all come.

Special efforts and attention is always given to providing quality sessions and speakers that address and target the goal of trying to provide experiences for the attendees that will help improve their curriculum, their instruction, and the learning experiences that they provide to their students.

ADTSEA is also active in hosting and facilitating various workshops. As an example, pre-conference workshops have become very popular over the years before our ADTSEA conference. And in those pre-conference workshops, we've had the distinct pleasure of having some of the most renowned individuals in traffic safety education and

innovative teaching techniques and methods and content provided. Fred Mottola is one example. Dr. Terry Kline, another, just to mention two.

ADTSEA is also willing to step up to the plate and help State organizations in the planning of their State conferences and trying to provide the best possible State conference or regional conferences that are possible to reach as many professionals interested in professional development opportunities that can be.

ADTSEA has never turned down from standing up to the plate and taking a chance to help somebody when in help and continues to be at that plate.

Each year the association plans and coordinates its national conference, as I said. Our national association is divided into six or seven regions. And our rule of thumb is, let's share the wealth amongst the regions. And so for diversity we have a different region trying to host a conference every year. And so far, in the last several attempts, we've been very successful in having each region step up to the plate and provide that opportunity to host a conference.

ADTSEA believes that ongoing professional development should be a requirement for all individuals who wish to maintain a license to teach driver education.

I'm going to now talk about some other examples of concerns that ADTSEA has. And I'm not going to spend lots of time on these, but these are general areas of interest and issues that we believe traffic safety education has to deal with and that they are here, they're present, and they must be dealt with in a very professional manner.

Recently, in many States home schooling and parent-taught driver education has become an issue. There are some States that allow parents to teach high school driver education. There are other States that do not have provisions currently. Those will be issues in the future, how we deal with those.

And I like to deal in two different ways. There's one that is home schooling that is geared around the parents that are already officially home schooling their children in all subject areas, and then there is the parent-taught driver education component. Though related, I think they are two distinctly different issues.

We have independent study programs, different delivery. And it's not for me to judge the quality of any of these at this moment, but it's to talk about the issues at hand that will come up as each State deals with the different ways they deal with the delivery of their programs.

Is independent study an alternative? Is web-based interactive? An individual's capacity, meaning the technology capacity, may not be up to par with some of the capabilities that delivery systems have. So there's a difference of what's available and what people can handle depending upon what equipment they have and what access to technology. But technology truly is becoming more and more a factor in education of all different types.

The home school programs are programs, as I said, taught entirely the parents and others that are taught through a parent-allowed version. Texas is probably one of the most unique States that were passing a home school bill. And if I'm not mistaken -- I can be corrected, obviously -- at the last second, a Texas legislator got up and said, now wait a minute, you all, we're about to vote on a bill here that will allow home schooled parents the ability to teach driver education. That's right. Well, why not all parents? If I'm not mistaken, it was turned so all parents are able to in Texas.

Advanced driving skills become another issue. It's not a new issue to high school driver education or to ADTSEA. There have been advanced driving programs and workshops put on for years. General Motors (GM) was one of the leaders. Liberty Mutual was one of the early pioneers in that area to help driver educators.

Fred Mottola has the skid monster. Some significant differences in between using the skid monster versus Emergency Vehicle Operators Course (EVOC) course or skid pad or whatever.

The questions, I think, that are important are, with advanced driving skills, when to offer. Should novice, or should there be some experience under their belt?

What to offer. Not all programs have the facilities or the equipment to provide all the experiences.

Costs and investments to provide. Can all the programs currently handle this, or will this be a secondary or third level of driver education?

And another major issue, I think, is public relations. This has come up several times in presentations yesterday. There are misconceptions about driver education. There have been biases about driver education, be it in the public, the private, and the post-secondary level. There are biases that are out there, and oftentimes the biases are from misinformation and perceptions. We need to improve the public awareness of driver education. That's definitely lacking.

At this time, I would otherwise open up to questions, but that's not the format that we're using. But again, I want to thank the NTSB, Rafael (Marshall), everybody involved, for having us out here. It's a great opportunity.

Are we preaching to the choir? Who are we speaking to, I heard somebody say. It's kind of interesting. Hopefully, it will not go just to the choir but will go to other individuals as well, and through the channel of NTSB maybe there's that possibility.

Thank you, and again, an honor to be here and appreciate it.

(Applause)

DR. MARSHALL: Thank you very much, Dr. Thiel.

Presentation by D. Keith Russell

DR. MARSHALL: Our next speaker is Mr. Keith Russell. Mr. Russell is the executive director of the Driving School Association of the Americas, an association that represents more than 4000 driver education and traffic safety companies in North America. He is also the president of a driving school with locations in North Carolina, Kentucky, and Indiana that offer courses in driver education, defensive driving, and driver improvements to teenagers and adults.

Mr. Russell has served on the boards of the North Carolina Association of Professional Driving Schools, the Electronic Stability Control (ESC) Coalition Board, the National Road Safety Coalition Board, and the Driving School Association of the Americas. He is the recipient of regional, national, and international awards.

MR. RUSSELL: Good morning. It's my great pleasure to be here, and it's been a pleasure now for two days listening to what I feel are some extremely passionate and dedicated people in this industry.

Make no mistake about it. We are in a war. If you don't think we're in a war, compare the numbers of people who have died defending our freedom and trying to grant us the independence that we have in this country and the number of people who have died on our roadways. It's very much a war. And it's a battle where we're trying to save lives, and that is not going to change overnight.

However, this initiative is a great beginning to what we can achieve. We've heard, and I'm happy to say, both proudly and sadly this morning the good, the bad, and the ugly of what now exists. There are problems within both the public school and private school formats, as they now exist. And let me assure you that that's something that we all as professionals in this audience know that we are addressing and we're not going to tolerate.

First of all, I want to talk about who we are as an association to give you a little better information and idea of what we are and what we try to accomplish. And then I'm going to talk about some problems as we perceive them, what we really believe as an association, and some solutions we think that are out there that can be achieved and are already in the process of being achieved.

First of all, we're a totally non-profit and charitable association. We were founded in 1973. We actually have roots dating back to 1958. We were founded on four cornerstones of commitment, and these, in alphabetical order, are business, education, ethics, and professionalism. Our primary mission is to organize all driving schools for the purpose of establishing the highest possible standard educationally while promoting traffic safety on all our roadways and reducing the carnage that now exists.

Educational opportunities are provided by us through international conferences that we have on an annual basis; regional seminars that we have throughout North

America, both in the U.S. and Canada, obviously; and our "Dual News Magazine," which you may have picked up a copy of in the last day or two. And you'll notice a strong educational content in that publication.

We also provide certification and accreditation for specific programs and/or purposes. The DSAA has an accredited school and student certification system, which is centrally operated, and it operates on a nations-wide basis for driving schools and program accreditation and student certification comprised of individual, State, and provincial subsystems. And this is something that we'll be expanding as we go along.

I think, first of all, and this has been stated numerous times over the last couple of days, but we all have to drive this point home not just with us in this room we all understand this but out there with the general public, and that is that understanding driver education is but a starting point. It's a beginning to a lifetime of practice, of education and reeducation in order to be the safest possible driver you can be.

We need to also understand that the problem begins with the fact that we're looking at only 50 percent of eligible novice teenage drivers that either have a requirement for or currently take driver education. There are 23 States I'm aware of right now that have no form of driver education. And in some of the States that do, they are pathetic.

I mentioned to Randy just a few moments ago, in the State where I live, in Kentucky, I happen to live in Louisville, we enacted legislation here just a few years ago that finally had some driver education in it. And sadly, it's now only four hours of classroom and it's post-licensing.

There have been numerous printed articles regarding that program and its establishment and the fact that there's been dramatic improvement in the fatality rate in the State. Kentucky was number one in the nation per capita for five years running. They're now number five. I don't think that's progress.

Major problems exist on all our roadways with novice teen drivers and also with, we've recently heard, senior drivers. DSAA strives to deal with all of these issues. We think, as someone very aptly mentioned yesterday, there is a huge gap between the novice and the senior driver, and it's something we've got to address also.

Our European friends, who very eloquently spoke for us yesterday as to what's going on there, have understood this for many decades. Driver education doesn't stop just because you turn a magical age of 16 or 17 or 18. Their driver education is required regardless of age. If you're beginning to drive and use and share the roadways of a particular country, you're required to take driver education. We know that this is necessary. Nothing stops.

Parental involvement is an essential component once driver education is completed and even as a part of driver education, as we'll describe shortly. GDL has

helped and been a catalyst to some reduction in fatalities. However, there's no consistency in GDL and/or no real accountability.

A recent study, as someone mentioned in a question yesterday, in California by the legislature found that only 17 percent of parents were actively doing the required driving with their students in that State. That's a problem.

Now, how did they react to that? Well, to me, they reacted in a very negative fashion. They said, well, if they're not going to do it, we're going to go back and reduce the amount of time a teenager can have a permit and that'll curb the problem. That didn't curb the problem at all. All you did was remove the time that that teenager had to gain experience under a controlled environment in order to become a safe driver.

So there's a problem. There are a lot of problems out there with GDL. We need a consistent standard. There's nothing different. While the typography may be different, there's nothing really different about Kentucky or North Carolina or New York or California or Texas or Montana or any other place you live because some time or some point in our lifetime all of us will travel by vehicle in one or another State.

Road testing standards. And I thanked Mr. Huff yesterday for bringing up the interstate license, which I'm going to address in a little bit. But road-testing standards vary greatly. Road tests in and of themselves are not going to save lives. However, a specific standardized road test utilized in each and every State, we are one nation -- can make a difference in at least determining a specific skill level as someone is issued a license, which is a privilege, as we heard this morning.

We believe in road test standards. We believe in more significant standards than what you now see. One State requires a parallel park; one State doesn't. One State requires K-turns; the other one doesn't. It varies greatly. One wants you to back in a straight line; one wants you to actually take the car out on the road. One wants lane changes; one doesn't. We need a standardized, consistent test throughout this country.

We believe there's been too great a focus on passive restraints versus active technologies in vehicles. And that's not to say we've achieved the lasting results that we want with safety harnesses or belts in our vehicles at this point. We need to focus more on that. And I think we can take a good example from my former State, North Carolina, which enacted legislation, a $50 fine, and a two-point penalty if anyone within that vehicle did not have their safety harness on at the time they're driving. That worked. And the driver's the one that has the penalty; and why shouldn't they? They are the captain of that vehicle as the pilot is the captain and in charge of his plane when they fly.

Active technologies are the future.

What do we believe in? We believe in driver education, and I'll break that down into specifics in a little bit.

We believe in post-driver education training. We know it's necessary. It doesn't stop when they walk out our doors with that minuscule amount of time that they've spent with us.

DSAA believes in active technologies mandated on all vehicles. We believe in a national standard for road testing. The interstate license that was mentioned yesterday is a tremendous positive idea, which we would wholeheartedly support. That, combined with consistent standards with every State, would be very beneficial.

We believe in parental involvement in a number of ways. We think parental involvement should start in the classroom when you have the students. We want sessions with our parents either just before or just after teenagers has completed their driver education course, to bring Mom or Dad in, or a guardian or an uncle and an aunt, whatever the case might be, to talk about specifics. What happens now; they don't know. They don't know.

We keep talking about parental involvement as though Mom and Dad driving out there know exactly what they're doing. We want them involved, but we've got to train them first. We don't want to bring them in and reeducate them as to every little aspect that we've covered with their students. What we want to do is tell them what happens next. What sort of insurance requirements are out there; how do you proceed with licensing; how do you proceed with your practice; what are the sorts of things you should be looking for with your student as you have them behind the wheel; what a great virtue patience is. Try to put them at ease. Go through these things with them in detail.

And we think we have a great tool for this, TeenSmart. TeenSmart is research-based and data-driven. Isn't that what we've been saying for the last two days? I'm not going to go into that in detail, but you'll hear about it a little later.

We think this whole process, if you'll look at the little graphic I've got up there, is a puzzle. It's a very simple yet complex puzzle, each component fitting together in just the right manner to make all of this work.

I'm excited. I'm as excited and as charged as I've been in many years being here with all of you. The fact that we finally have an opportunity; some of the greatest stakeholders, and all of us are, in this industry that exist coming together singing as a choir in concert. That's what it's going to take in order to put this puzzle together and achieve lasting results that we desire.

What are we actually offering as a solution? First of all, we think the federal government needs to provide a national mandate for driver education. We think that national mandate needs to be for two-segment driver education. Segment 1 should focus on maneuvers and compliance, the basic skills and knowledge to start the driver on their lifetime of learning.

We think Segment 2 driver education and that should be done during that six-month window, and we think they need a little experience with their permit first before

they come back. Let them have a little more training, a little bit of rope, and then reel them back in.

We think that should focus on cognitive skills relating to risk recognition and collision avoidance combined with behavior modification, strategic driving skills, and advanced drug awareness and education and the effects that has on your driving. Because, as we saw in those statistics early yesterday morning, there is a problem at age 16, 17, and in that age bracket, but actually, as they go into the 19- and 20-year-old bracket is when alcohol and other drugs are a greater problem for them.

Again, we believe in that national standard, and we want a national mandate for consistent road tests. I know for a fact that AAMVA, the American Association for Motor Vehicle Administrators, would support this and has gone on record supporting it. And we need a national mandate for safer vehicles with active technologies as standard equipment.

Prior to the last year, and I'm sad to say, manufactured on their vehicles in this country, only 62 percent manufactured had ABS brakes. This past year, they've been removed. They're back to being an option on just about every vehicle, unless you go into the luxury line.

He mentioned earlier that I serve on the ESC Coalition board. I serve there out of gratefulness, out of belief that technologies are a way of the future to help reduce these fatalities.

Kayla mentioned a case this morning where her friend driving a sport utility vehicle (SUV) had a problem running off the road and overcorrecting to come back on the road. Electronic stability control could have stopped that from happening. We need that standard on our vehicles. It can prevent most rollovers.

There are great technologies out there beyond those. There are lane change check technologies. There are backing technologies. There are all sorts of things that already exist.

And by the way, ESC is 10 years old. Europe's adapting it on all vehicles now, and we still haven't. Only 15 percent this year.

But there are great technologies out there that we need to have on these vehicles. Proactive technologies which in the event of a collision situation that we have a chance to make an offensive move to avoid, a proactive gesture to avoid these situations. And the technologies are so brilliant they work for us in many cases.

Driver error is 95 percent of the problem, and as we've stated numerous times over the last two days, it continues far beyond the novice level. That is simply the beginning.

Direction plus commitment equals a positive result. That's what we're doing here. We're all here speaking, putting forth specific ideas or thoughts, and hoping for direction to come for that. We're all willing to give the commitment. We know that. There's not person in this room, I'm sure, that isn't willing to commit the time, energy, and effort that it takes to accomplish these things.

Uniformity in all driver standards. Every State needs the same standards, the same requirements, and the same commitment to what we're trying to achieve here. If we create a lasting solution by coming together to resolve this house health crisis and carnage that faces our youth, we'll have something that we can stand behind forever.

But it's going to start in a number of ways. One thing is that we have to have greater awareness, and you alluded to that just a moment ago, Randy (Thiel). We need public service announcements by the federal government agencies, as they were when we were children, some of us. We need those around the clock. We need to wake Mom and Dad up, wake the grandparents up, wake the kids up, and let them know there's a problem out there. Let them know the amount of people that die. Let them know the amount of people that are injured.

We're spending an ungodly amount of money on this problem each and every day. It's staggering. It's staggering what we could do to reduce the deficit of the budget of this nation if we simply curb this problem.

We think our program of accreditation and certification is going to go a long way towards helping in the private sector. It won't accomplish all the goals that we've set forth here and that I've mentioned this morning, but it will help. It has a consumer protection plan in it to protect the consumer, and we think that's necessary for horror stories like you've heard from the public sector this morning. They've happened in the private sector, too. But we want to eliminate them from both sides.

We will have accurate verifiable registry of all graduates under this program. This program will work. Others will help that we've described and discussed here. We're all major stakeholders here, and I want you to know that DSAA is more than willing to share its load and stand up and be represented and be a part of this effort.

Thank you very much.

(Applause)

DR. MARSHALL: Thank you very much, Mr. Russell.

Presentation by Wayne Tully

DR. MARSHALL: Our next presenter is Mr. Wayne Tully. Mr. Tully is the Chief Executive Officer (CEO) of the National Driver Training Institute and the author and

publisher of "Help for the Teenager Who Wants to Drive," and "Graduated Driver Licensing in the Home."

Currently, Mr. Tully works with leaders in almost every State to create legislation to mandate parents' involvement in the driver education process.

MR. TULLY: Well, by the introduction you now know that I'm very involved with parent-taught driver education.

Before I start, I do want to thank Mary Jones for the flight and the work she did on getting all of us speakers here. The transport that I was able to board from Peterson was a little -- no, I'm kidding. It was a good flight.

I don't know if you've ever flown up and down the Rockies entering Colorado or even Montana, but we do have the Continental Divide there. And we hit a lot of turbulence. Coming to or leaving Colorado, you're in for a little bit of a ride if there's any type of weather at all. And leaving Colorado, it was no exception.

I had the fortunate luck, if you will, of sitting next to an Olympic judge, a swimming judge that was visiting Colorado Springs. And for some reason, she was very, very nervous about the flight. And the flight was going up and down with the wakes and turbulence. And I was working on my presentation for here, and she had said, how can you possibly work on this with what's going on? I said, lady, if this plane hits the ground, I'm okay with that. But if it lands, I've got to have this presentation done.

(Laughter)

MR. TULLY: So with that, I'd like to start off -- I'm going to take a different angle than what everybody else has taken. We're going to end up back at the same point, and that is for change in our industry.

I'm a latecomer to this industry. I haven't been here very long about 10 years.

We spend a lot of time and fortunate today discovering who we are. We get colors to match our complexion on the outside, psychologists to psychoanalyze us on the inside. People try and go back and reconstruct their pasts in hope of overcoming personal barriers. Sometimes such activities actually may help. We long to know who we are, but could it be that who we are is largely determined by who we think we are?

It wasn't long ago my eight-year-old wanted a basketball uniform. Now, we're from Colorado. I'm not going to tell you right off what basketball uniform he wanted. Marketing plays a good part in today's society: what we need or what we think we need; what clothes we need to buy or what shoes we need to buy.

Now, I've got to tell you one tip. It wasn't the Nuggets. In fact, none of the kids on the Young Men's Christian Association (YMCA) wanted a Nuggets uniform. When I saw the price of the shorts, kids' shorts, and a tank top, $170 for these two items for an

eight-year-old, I almost fell off my chair. But I was very, very thankful in the last month because it was Shaq's and not Kobe's. So it was real important that the investment was solid and we didn't have to figure out how to remove that uniform from that little guy whom he dearly loves which, I just told you, it was the Lakers.

So here in Colorado, it's real important what we think of each other and what we do with each other.

There's a longstanding argument between those who think we're influenced most by our genetics and those who think that we're influenced most by our environment. I'm sure much of our upward potential is established by our genetics before we're ever born, but I'm equally sure that the environment is a very important factor. I believe that the environment is especially important in determining how we think of ourselves and what causes us to think of ourselves as the way we do.

Marketing is everything, and I can tell you today that it's very easy to get kids drawn into what you're doing and what you're building. You've got to stay in step with society and you've got to stay in step with the marketing processes that we're doing.

Driver education shouldn't be something that's dry and not user-friendly for teens. And there should be no limit to what a family needs.

You know, as we present bills around the country, one of the ones that continues to surface every time that I'm in this group of driver educators and professionals is what's happened in Texas. If you saw Senate Bill, which we were a part of, and what the DPS puts out there, you would see a conflict in what the senate approved. What's going on in Texas has nothing to do with home schooling or home schooling parents.

The gentleman before me mentioned that there are a couple of States that allow parent-taught driver education. I'm here to tell you it's allowed in every 50 States. There is no law for parents to participate in driver's education, and us educators need those parents to participate, and they need every single tool that they can get to keep their teens alive.

There is enough talent in this audience to save every single child from an accident. But yet, we all are restricted in not letting this information out. I'm going to show you just an example of some of those things that we can do.

But I also want to talk a little bit more about what we're facing and why is it that we're having such a hard time making this change.

One thing that shapes us, no doubt, is our behavior around us. A strange thing often happens in nature. It seems to happen most often to birds, like ducks and geese. Psychologists call this imprinting. The baby duck or goose thinks the first thing it sees living is its mother, and that usually works out great because usually the first thing it sees is indeed its mother. The baby is a duck, the mother is a duck, and that's the way things are supposed to work.

But what happens if the duck is raised by another species? I read recently once about a duck who hatched under the watchful eye of a collie dog. The duck took one look at the collie and decided that it too was a collie. It followed the duck around, ran to it for protection, spent the hot part of the day under the front porch. And when a car pulled into the driveway, the duck would explode from wherever it happened to be quacking viciously and pecking at the tires. After all, that's what its mother did.

The duck had an identity problem. It was still a duck and sometimes acted like a duck. But sometimes it acted a lot more like a dog than a duck.

The clearest way to see this identity problem in people is to study more than 50 documented cases of what are called the feral children of the wild. These are children or infants who are raised exclusively by wild animals during all or part of their formative years.

In the February 1987 edition of "Sierra Magazine," a story entitled "Uganda's Wild Child" told of a monkey child who was found in a jungle in Uganda and was believed to be living with the tribal monkeys for four or five years. The boy was estimated to be five or six years of age.

At the time, he was taken to an orphanage, where he grunted, squealed, jumped around with his hands clenched, and preferred to eat grass over food. He seemed to be afraid of people, and anybody that tried to approach him he would scratch.

Another example is a boy who somehow became part of an antelope herd in southern Morocco. Lived with the antelopes, ate grass with them, drank from ponds with them, and roamed the hillside with them. Several attempts were made to capture him, but to no avail. He was observed living in the wild over a period of years.

These are extreme cases. But less extreme cases which children had already learned their adopted wild parents' languages later were returned to human families. They were never able to communicate in words ever. One young girl learned 20 or 30 words, but she used them as signals and not for conversations.

While these are strange and bizarre cases, I wonder how much we all suffer from imprinting and how much we're living it because of our home or school or church we are raised in. Could it be true that we drive as we're driven? I've heard that twice here this week. Could it be true that we drive as we're driven?

For 15 years, teenagers have watched their parents drive through neighborhoods, cities, towns, and how they responded to other drivers who crossed their path of travel on the streets and highways. They naturally would react the same way their parents did because of imprinting.

Driver education instructors try to change the behavioral patterns of those students, which they learned from their parents, however the teenagers ultimately would

revert right back to the driving habits of their parents after a few short months. This imprinting of our young has cost us 12,000 novice drivers a year.

Now, that may not be exactly right and some of the numbers quoted here, but if you figure out the passengers, the drivers, somewhere about 12,000. I don't want to get hung up on numbers because so far I've heard everybody list a different set of numbers.

More importantly, these desired driving habits have cost us 30,000 mature drivers a year. Last year, a loss of 42,000-plus drivers were lost to fatal car crashes. They were added to our watch, those 42,000.

What can be done to change the trend that seems to be getting worse as each year passes? Are we imprinted for life like the duck or the wild children? Do driving educators and instructors across this country also suffer from imprinting? How about the professors and doctors who are certifying those instructors? Are they imprinted for life?

Fifty years ago we set the standards for driver's education and training. Today those standards remain almost static. We've heard that over and over here today. There's not even one person in this room today that thinks that we could teach our novice drivers to drive within 30 hours of classroom or six hours behind-the-wheel training. However, if you were to pick up a phone book in any city or any State, you will only find the standards set over 50 years ago for sale. Why is that? These are people we've trained.

You can't find a person that will tell a mom and dad, you can't learn how to drive in six hours. Worse than that, I'm going to give you a certificate saying the course is completed.

Maybe you'll find a company here and there that may have other offers to help customize a program for the common family, but even if change were a matter of life and death, our imprinting and environment around us has caused us to migrate right back to our comfortable traditional standards of teaching. Change is not going to be popular. Change is going to cost jobs, friendships, and a whole lot of pride.

To choose those of you here today who have participated in weight-loss programs and quit-smoking programs of one sort or another and have been successful, congratulations. I can testify to you that that is tough work. To those of you today who have not been as successful as you could have been, keep trying, you'll get there. Just don't give up. Why? Unlike that duckling, we humans have the ability of intuition to improve our standards of living.

We're here today for change in the direction of our driver education and training process. If we don't change the direction we're headed, we're going to end up where we're headed, we are masters of our profession and we need to recognize that we will be held accountable for not recognizing the imminent danger that our nation is facing.

I believe we can change this deadly direction of our industry but not by ourselves. We need to help each other. Let me explain what I mean by that.

Operation Lifesaver. Are you folks familiar with Operation Lifesaver? Operation Lifesaver deals with trains. We call them the train people. When I contacted Operation Lifesaver, I had asked for the curriculum for our many thousands of students. I think currently I have 70,000 kids enrolled in our program. And when I found out the cost, I asked her, why is this not on mine? And she said she couldn't afford it.

The National Driver Training Institute built her an entire program that's now online and available free to the whole world. That's what I'm talking about helping one another.

You folks have resources out there, and I'd like to tap into some of them. And I've got resources that I'd like to give you. There are a lot of kids out there that need help, and most importantly, they need our help.

I believe that we could change the direction of our industry but not by ourselves. We need to help each other. We need a plan to include the entire family, school, cities, counties, and States. We need to create driver education and training programs for the household reinforced by rules, backed up by school rules, enforced by city laws, allowing the county to oversee outside the city, and finally, State and federal legislation if needed.

We need a clear plan of objectives. We need a timeline attached to that plan. We need a clear evaluation of what is working to reduce crash fatalities in this country in order to determine what isn't working and bring an end to those training programs.

In just a minute, I want to go over a few things that we can make toward a great first start, but first I want to share with you what the National Driver Training Institute is doing for teenagers and families in four countries, including the United States.

Could imprinting be related to insanity? I think, yes, it could be. I'll answer that question once we get to the back of this PowerPoint presentation.

For over a half a century, our driver education has attempted to teach our teens to drive and certify their fitness to drive with only 30 hours of classroom and six hours behind the wheel.

Collision rates and death rates for teens have not decreased over the past several years. As a matter of fact, they've increased. The false sense of security assumed by the parents and the new teen driver after completing a driver education course can only lead to riskier driving and increased likelihood of collision.

For the past 10 years, the National Driver Training Institute has broken this mold with our customers and with home schoolers around the country and around the world. And we've spearheaded it toward a program called graduated licensing.

If you aren't familiar with our program, key in graduateddrivelicensing.com, and you'll go right to my company.

This is how our program works. The program was designed and modeled after flight school for the United States Air Force. Flight school interlaces classroom education with practical in-air training in a format known as concurrent training. The pilots spend time in the classroom and then practice what they learn in flight. The students master enough points in both classroom and in air and then they graduate to the next level. And then we always have a graduation ceremony.

The National Driver Training Institute introduced a concurrent model driver education and training program, and our company was one of the very first to publish a combined classroom and behind-the-wheel training. We were one of the first in the nation to place a minimum of 50 hours behind the wheel. I said one of the first. I know there are several of you that have been involved with similar programs and what we have built.

But what seemed to be the biggest mistake in the driver education industry is the concept that we could teach a new driver how to drive in six hours. In my opinion, it is absolutely absurd. And it's very difficult for me as a home schooling parent, that concept of saying we need more of something that doesn't work. And what we all need to do here is figure out, before we get more of something that doesn't work, let's fix what's broken and then let's get it back into the schools where it probably belongs with the most of the population of this country.

In 1949, the standards were set: 30 hours of classroom, six hours behind the wheel. I haven't seen any changes since 1949. I hear a lot of talk about changes, but I'm not seeing any changes. Road conditions and traffic density have changed, but the standard for driver education and training have remained static.

We combined the 30 hours of classroom with 50 hours behind the wheel training to make one comprehensive unit. Then we divided our 80-hour program into seven equal levels. Part 1 is always classroom and Part 2 is always behind-the-wheel. Our ratio is, give us one hour of classroom, we'll give you two hours behind the wheel. This is home schooling. This what we're doing with our teens.

And by the way, it's working. You can go to "research and development" on our website. We've got two universities now that have studied over 35,000 kids, and the results are amazing.

When a student accumulates enough points for both the classroom and the behind-the-wheel training, they graduate to the next level.

One of the interesting things that we have done is we have not put a limit on what we're going to send into the home. In addition to that, we went a step further. We said, it's going to stay in your home until the teen is 21 years of age or we get a mom and dad to say we need it there for longer. We provide our program on interactive CD-roms. There are over 2500 questions that continue to rotate with every child. Parents always say, are you nuts?

Legislators and driving educators would say, are you nuts? You're going to have the parents teach this program? You're going to have the seen the way they drive? Every time that is said, do you know what I say before the Senate and the House? Who taught the parents? Hello.

Anything we teach, we're going to become better at what we're teaching. I don't care if it's a Sunday school class or driver's education. Parents want to help, and home schooling moms and dads are not saying they don't want anything to do with you. They're saying that your six-hour program and 30-hour classroom doesn't work.

Give us something that works, and I will tell you, for the 1.3 million home schoolers in the United States, they will buy your product. We just want to help. We want to participate as a mom and dad. We've got the God-given right to make sure that our kids aren't getting out on the road and killing each other or killing themselves, more importantly.

And as parents, it's our job to make sure that when we release them from our house and our neighborhoods, they know how to drive and they know how to act as citizens of this country. That's what we're fighting for.

The behind-the-wheel training includes maneuvers and skill testing, demonstrations that build toward the next training level. Kind of what we do except we still segregated the 30-hour classroom from the behind the wheel. I've heard over and over by many leaders in this country at this forum that that's the one thing that we do need to fix.

In Level 1, Part 2, behind the wheel, parents or the instructor are given eight criteria to master. The parent or instructor demonstrates to the student how to perform the eight exercises, and then coaches the new driver through them.

The secret is how many times have we heard this today?

The new driver sees the correct way to perform the maneuver and attempts to perform the maneuver correctly. The instructor demonstrates and coaches until the desired result is achieved. Kind of similar to flight school.

One of the fundamental errors made by the driver education industry is the requirement of six hours or more of observation with the new driver. Let me explain why I say that. No other skills program uses novice trainees as examples. We prefer the old Navy adage -- I heard this once today said in different words -- perfect practice produces perfect performance.

That is true. Why would we have somebody watch somebody for six or seven or eight hours doing maneuvers when we should be showing them the right way to produce that?

Rather than having a new teen driver observe other new teen drivers, have them observe a competent adult who can explain what they're doing and why. Extensive repetition of the correct form and procedure and over 50 hours of training will produce the safe driving habits of the new driver. The parent is just the facilitator.

If you folks were offering the 50 hours of direct instruction, parents wouldn't need to do this. This is not a money issue. This is a marketing issue, folks. Parents are willing to spend $110 on Shaq tennis shoes that are fake, and we're all worried about who's going to pay for this. I've got to tell you, you ought to go to my website and see the line in front of my store every single day in Colorado Springs and in the Denver office.

The State testers for the State of Colorado -- I can almost tell you, every child that goes through there on that State test who's had professional education and who has not. What you're doing isn't wrong, it's just not enough of it and it's not done the correct way.

We're out of time. I had a lot more material, but I do want to end with this. There were nine things that we could do as a group. It doesn't cost us any money to make these changes. Nine things, and I want you to make note of these. Zero cost.

Every State should have a 50-hour prescribed structure behind-the-wheel training for parents in addition to the six or however you want to fit your six in. Every State should legislate a minimum of one year of a beginner-driving permit. And for anyone over 18 years of age, six months. Allow the teens to start driving as early as 15 years of age, giving them as much driving time as possible. Integrate the education with the training. This should be concurrent with one another.

Create legislation for teen driving permits to be valid for three years. That is the single most mistake of all. How many parents are in that line at the Motor Vehicles Office to renew their permit? Zero. Why? They're not going back. They've got a permit for a year. Make the permit three years. You'll cut down the traffic at the DMV and you'll cut down the amount of young drivers.

These are free. They don't cost us anything, and there's no down side to it.

I want to thank you for your time, and thank you for letting me speak with you today.

Thank you.

(Applause)

Presentation by Frederik Mottola

DR. MARSHALL: Our next speaker is Mr. Frederik Mottola. Mr. Mottola is the executive director of the non-profit National Institute for Driver Behavior. He is a traffic safety scientist, inventor, and author, and has developed crash-reducing programs for corporations, municipalities, law enforcement, emergency vehicle operators, and traffic safety educators.

Mr. Mottola.

MR. MOTTOLA: Thank you. Good morning. Those of you that know me know that I like to get audience participation. So you're going to need to do a little work in a while.

But before we do that, I'd just like to say that I'm pleased to be here. I think this could be a very historical forum.

I am in my 42nd year as a traffic safety educator. I spent 30 years as a professor at the university. The past four years I have been in retirement from the university, and I founded the National Institute for Driver Behavior. And we have done a lot of things, considering that there are two of us full-time in the organization, and it is 100 percent funded by myself.

We are trying to put together a program that will help people stay alive and to avoid the traffic fatalities and tragedies that take place.

The National Institute for Driver Behavior has put together a curriculum, which I will try to explain some of the components of. Several individuals referred it to yesterday.

Historically, driver education was conceived to teach drivers how to manipulate the vehicle with little emphasis placed upon the decision-making process. And yet when we take a look at what is occurring in a crash, almost 100 percent of the drivers involved in a crash have the manipulative skills but what they are lacking is the decision-making information processing and vehicle advanced control skills.

The National Institute for Driver Behavior has produced a curriculum to provide students with a lifelong risk prevention education. So our whole emphasis is to shift from driver education to risk prevention. And when we take a look at that, we see things just a little differently.

Risk prevention education is not merely concerned with the successful performance of a task. It requires the driver to take the best risk prevention actions during the performance of a task.

A driver may seek to execute a perfect right turn when only the task result is evaluated. However, an evaluation of the behaviors could reveal that many of the actions

performed contain high-risk behavior. So when we take a look at a person making a right turn, they may do something like this. But the turn comes out correctly.

What was wrong with that? Where was the driver looking? When the car was going to the right, the driver was looking to the left. And in many cases, we're teaching the drivers to make some errors when we only look at the task and not at the component behavior.

If some of you are still teaching, look left right left, that's a set-up for someone to have their head in the wrong direction as the car is going to the right.

So if we take a look at the individual behaviors, we could help them to develop building blocks upon which they could construct all of the actions that they have to take for any task.

A novice driver will best acquire lasting patterns of risk prevention behavior when the reason and criteria of performance are simplified into one pattern of behavior at a time. I'm going to try to talk about and have you experience one or two behaviors that we utilize in our curriculum.

The NIDB curriculum adheres to the most recent research findings of how the brain develops during the educational process. We have to make a conducive environment for the learner to acquire the information. We have to give them an opportunity to forget the information. We have to give them an opportunity to recall the information. And we could do that very adequately when we utilize the classroom as preparation for the in-car sessions.

So my maxim is absolutely nothing should be taught in the car until it is first experienced and practiced by the students in the classroom. The student then has a different mindset when they come into the in-car session, and that mindset is that they are expected to demonstrate for the educator in the car the correct behaviors.

So a teacher may very well say, show me how you should be searching this intersection before you enter it, and because they had been practicing the correct searching in the classroom, they could demonstrate that performance.

And if a student performs successfully, they will develop more dopamine within the brain, which can create longer-term memory, which is conducive to lifelong behaviors.

The odds that a driver will learn to acquire a lifelong style of empowering driving habits without having had formal education is as likely as winning a State lottery. Drivers need us. Society needs us. We cannot leave it to chance. We cannot leave it to rare events that the correct behaviors are going to be caught by chance. They need to be structured by a well-designed plan.

To improve the safety of young drivers, we really need to look at how can we improve the safety of all drivers. We are missing the boat by focusing in on trying to improve the novice driver. Why not try to improve all drivers? And that's where I come from because my whole background has been not in working merely with novice drivers but working with all types of drivers: corporate drivers, police officers, emergency vehicle, ambulance, fire apparatus, public works, truck drivers, motorcyclists, and any type of driver.

And the comments that I always get when I put on a workshop for a municipality or police department, they say, why didn't I learn this when I learned in my driver education course? Or why is my son not getting this as he's taking a driver education course? Why hasn't he learned targeting and reference points and zone control and what Line-of Sight, Path-of-Travel (LOS-POT) means? And they value it and they say they want it.

And in all my research and I have spent the past 20 years developing our NIDB curriculum with extensive empirical data as to what works and what doesn't work. And for those that know me, I tend to be rather particular about what I'm doing and how I could achieve the absolute best that's capable. I'm never satisfied with my work or to many other people's, but I'm always looking for a way that it could be better.

I taught 30 years at the university. That was 60 semesters. I never taught two semesters the same. I always found some way that something could be better.

The National Institute for Driver Behavior is dedicated to the premise that education is an essential component in the formula for crash reduction. We cannot know if our training programs are successful unless we know what the final product should look like, and that's where all of our research. Our research is taking a look at comparing driver education to no education or comparing driver education to parent education.

And what is often lacking is what did the individuals achieve from that educational experience. What kind of behavioral patterns have they demonstrated successful performance with? And if we don't look at the individual components of the behavioral patterns, then we don't know if that product has achieved the success that they should from the experience that they went through.

We teach one concept at a time and have the students apply it to all situations. We have a set of minimum standards of driver performance, which becomes the major emphasis for drivers to learn. We heard this over and over and over in the past two days, that we need national standards; we need some type of standard. We have had standards for 20 years, and I'd like to just show you some of those standards.

They're on our website, and I'll give you some information on this so you don't have to worry about taking notes. You can go to the website, you can see them.

Are they perfect? I don't think so. Will I change them if I go through it again? Probably. But is there anything better than it? I don't think so.

So here are 10 categories. And if we were to take a look at just one of these categories in a little more depth, searching intended travel path. Here are the individual behaviors under just that one category. A specific behavior, search to determine the conditions. Target area searching. Students will learn what that means. They will practice it over and over. Know how to judge space in seconds.

Search 12 to 15 seconds ahead. I introduced that in 1968, that concept of searching 12 seconds ahead. That was the first time that I presented it. That was my first conference I spoke at in Ipsilanti, Michigan.

The check changes to LOS-POT. When LOS-POT change is seen, check other zones. Evaluate intended driving path for LOS-POT conditions, and so forth.

So we have these minimum standards. And if I could use the analogy of building a house that we want to live in for the rest of our life, then the minimum standard becomes the material that we're going to construct that house with. There's the roofing and the studs that need to go in and the framing materials and the siding and the windows and the tiles for the bathroom and the bricks for the chimney. That's what the minimum standards are.

But we can't take all the bricks and use them all at once, and we can't take all the lumber and use them all at once. And that's what I often find in some programs. They'll put everything together into nice, neat packages. Parking, put all the parking maneuvers together and teach them all at one time because that fits into a nice, neat package.

Well, what our curriculum does is puts these standards into 10 modules that become building blocks of behavioral habits from the simple to the complex. And here is just one example of using searching the intended travel path to show you how they're both standards are integrated within the modules.

And for that particular standard of searching intended travel path, it appears in Modules 1, 2, 3, 4, 5, 6, 7, 8, and 9 of the 10 modules. And it starts with use of central vision, use of fringe vision; driving for targets, target usage for turns, intersection searching, left-front-right zones to the target area. And then it could culminate with skid detection and correction.

A couple of things were said yesterday that we couldn't teach vision usage until after a person gets the license. And I say, we can't drive without teaching vision usage. Advanced skills are capable of being taught from the very first lesson because we're teaching them how to use their vision and how to keep the car in control.

In the classroom, before performing in the car, we do physical equivalent activities. We use a model car -- Matchbox cars to have the student actually drive and make a precision maneuver, making a precision right turn. There are 17 behavioral patterns in making a precision right turn. The students learn each of those behavioral patterns, and then they could apply it to a whole number of other turns.

Parallel parking. There are 12 behavioral patterns to Parallel Park. Students learn those behavioral patterns, and coincidentally, some of those are exactly the same behavioral patterns that they were using for making the right turn. So if they learn the behavioral patterns, they could just put them all together. And in our analogy of building the house, the modules create the blueprint when we put the foundation in and how we build upon that until the structure is completed.

I have an activity. I'd like some of my simulated steering wheels to be passed out. We're going to take a look at just a quick demonstration so you could experience what we're talking about with the physical equivalent mental rehearsals by doing some demonstration of the power tools of zone control, targeting, reference points, and managing LOS-POT blockage. So if you could all get your steering wheels.

All right. Now, here's the best gas mileage you're ever going to get in teaching somebody how to use their vision and steering a car and getting out of a skid and all other there's about 12 different objectives that we could accomplish with this.

First of all, put your hands on the steering wheel, quickly.

Good. I see a good number of you don't have your thumbs wrapped around the steering wheel. That's just going to end up breaking them in a crash. Nothing to gain by that.

So we could go into how to hold the steering wheel, how to turn it hand over hand, how to do push-pull type of steering.

Right now I'm going to have you do a concept of targeting. So I'm going to just go through very quickly some slides here on what targeting is, and then we're going to practice it in one minute.

So targeting is the habit of searching as far as your target location to determine if your path of travel will be safe. A target is a fixed object seen in the center of the path that you intend to occupy. The targeting path is the path of travel the vehicle will take to get to the target. So, first, we select the target, and second, we evaluate the targeting path.

Two concepts for developing effective seeing habits, and this is just the beginning, is targets and targeting path. Targets get our vision ahead of the vehicle, and targeting path defines the space we will be driving into to reach our target.

Okay. Now, I'm just going to have you do a little targeting. So I want you to stand up. I'm the target. So I want all of you to get on target for me right now. So you're in the car. Hold your steering wheel and you should be seeing me with your central vision and -- we're all set? Okay.

So you should see me with your central vision. At the same time, see the steering wheel with your lower fringe or peripheral vision.

Okay. So now, as I move, I want you to stay on target. So just keep turning your body, right there, on target. Great. You're demonstrating the concept of being on target.

Okay. Now you stay right with me on target. Stay on target. Get on target. Come on. On target. Get right on target. Turn it, turn it, okay. Great. You're doing the targeting concept.

So we can now take that and transfer that to a kid in the car. Put him in a car with the steering wheel and tell him to get on target, tell him to get off target.

So now, I'm going to very quickly have you all get off target. All right. I'm still the target, but I want you to pretend the car went into a skid.

Okay. So now, the car went into a skid. And it's pointing over there. So go into a skid. Aha, I got some of you! I got some of you! And where was the head? So the car went into the skid. Where was the head, and where should the head be?

Come on. Back on target, everyone. Back on target.

Okay. The car skids that way. The car skids that way. Where's your head going to stay?

AUDIENCE MEMBER: On you.

MR. MOTTOLA: Right on target. Bring it back now, quickly. All right.

Car goes that way because you over steered. Which way do you have to turn it?

AUDIENCE MEMBER: Back.

MR. MOTTOLA: First lesson we're teaching elements of skid control.

Demonstration of reference points for classroom. Debbie Cottonware made mention of reference points, and some of the speakers yesterday. This is a concept I developed in 1962 just out of necessity. You can use the steering wheel to reference the alignment of the car to the target. The car is on target for the space to the left of the mailbox. What do you see that can affect your targeting path? Left curve.

And this is the killer right now. This next one is the killer. Kids don't learn it because it's a downgrade. And the dynamics of going into this left curve when it's a straight road, an upgrade, or a downgrade is totally different. And with our skid monster, we could demonstrate this so vividly that just a slight slope and that car acts like it's going 10 miles an hour faster than the actual speed. If this were an upgrade, people would not be getting killed like that. This was a location where there actually was a fatality in Cheshire, Connecticut.

Is the car on target or off target right now? Off, great. Which way do we have to turn to get it back on target? And that's what we would be doing.

Okay. Now, demonstration of zone control system and LOS-POT blockage. The zone control system organizes the space requirements into six zones. And the major thing that we teach drivers to look for is LOS-POT blockage, which means Line Of Sight or Path of Travel. Something affects your line of sight; something affects your path of travel.

It's only one concept that we're teaching but it applies to every single crash. Think of any crash that you can in your mind, and it was probably a change in that driver's LOS-POT.

So here are reasons for using targets. It's to visually define the path you would travel. So you're driving down this path. Look at all of the LOS-POTs, and they would all be requiring the driver to take some actions. By seeing one of them they could take the actions that would solve all of these same problems.

What they may not see is this line of sight (LOS) blockage by this car. This car pulls out unexpectedly. The driver had no meaning, no LOS blockage, didn't use the zone control system, which would have required them to check their left front zone, and this car pulls out or a bicyclist comes out, surprises the driver. The driver swerves to the left, and this car coming up over the hillcrest is going 10 or 15 miles an hour faster than they should. There's a head-on crash. What caused the fatality?

We offer two-day instructor workshops for professional improvement. Anyone could contact us on our website. And future actions that are needed. We need to effectively train driving instructors for competency in the risk prevention behavior. The National Institute has proposed a five-tier structure. It's on our website. And if you would hand out those books while I'm just wrapping up.

I'm giving you one of my books, "The Car is a Monster." And in that book, we have 10 habits that drivers should acquire.

And these five-tier instructor training has built-in assessment, it has built-in accountability, so that an instructor is trained, first of all, in just Tier 1, which allows them to teach Modules 1 through 5 of the curriculum. And somebody else has to teach 6 through 10, so that person gives a check and balance on how well they performed 1 through 5.

After successful completion of 1 through 5 in teaching, they are then allowed to take the next tier, and it builds on until they become not a driver education but a risk prevention manager.

Driver licensing exams must test to this curriculum. It must test on an unconscious level of performance. The curriculum should be integrated with subject matters from K through 12. Key behavioral patterns can be applied to pedestrian safety, bicycle safety, school bus safety, recreational safety, passenger safety, driver safety, safety belt usage, consequences of substance abuse, anger and stress management, decision-making filters, searching skills, vision usage, targeting skills, reference points,

effect speed has upon control, traction management, social interaction, and most of all, valuing the concept of courtesy. We could teach that from Grade 2.

Research could then be used to evaluate how well a person acquired the driver behaviors, how well they acquired the standards, and we could then make adjustments in the standards and improve the delivery method. None of this will happen unless we have societal acceptance of driving behavior and societal acceptance has to begin as we've been talking about, with parents and parents being able to have an adequate instrument to evaluate the students.

Public service announcements could be made of the value and virtue of the behaviors. And with the media and movie industry, they could promote positive things instead of negative.

And most of all, we could promote emotional messages of the benefits of having these behaviors: less stressful situations, protection from other driver errors. We'll better know how to avoid and manage being distracted, can learn what are safe and unsafe times to multitask, to get off the phone that they're on. Better fuel efficiency, better social skills, interacting, reduction of aggressive and road rage situations, and driving, most of all, becomes enjoyable when risk reduction behaviors are used.

I thank you for being here. I thank you for caring enough to give up two days of your life to perhaps save a whole number of other lives. Thank you.

(Applause)

Presentation by Richard Harkness

DR. MARSHALL: Our next speaker is Dr. Richard Harkness. Dr. Harkness is the chief executive officer of Advance Driver Education Products and Training (ADEPT), a research and instructional technology company that designs and markets multimedia products aimed at reducing automobile crashes.

Dr. Harkness holds a masters degree in educational psychology and a doctorate of education in psychometrics and educational psychology from the University of the Pacific. He has held teaching and administrative positions at three universities.

DR. HARKNESS: I hate coming up after everyone's supposed to already be at lunch, but here we are.

I'm going to make this brief and get us all down the road, but I don't want to detract from what I know you're going to find very interesting on several levels. One, for the last two days we've been hearing about what should be done to impact young driver crashes. We've heard a lot of research quoted, specifically things like, "in order to make a difference we're going to need a fresh start," "we're going to need to be using science-

based content," "we're going to need to build crash reduction programs based on new technologies." We need to connect with parents and develop in-car practice and rely on a lot of research that has led us to the point in time now that leads us to these conclusions that this is the new direction that we need to pursue in particularly graduated licensing.

And the reason I think you're going to find this so interesting is that not only have I been listening to this mantra develop over the last two days but we have been doing this research project I've been involved in now for seven years, five years of which it was done under a lot of secrecy.

I know a lot of you knew we were up to something. We were well-funded, we had heavy hitters behind us, but I'm pretty sure today will be the first time you actually get a peek at what we're doing. Some of you do know what we have been up to, but I know a lot of you have been interested from afar. So this will be an interesting opportunity for you to see exactly what we've done.

And all of these suggestions that have come forth over the last few days have been very interesting, but do you have any idea the cost involved in doing something like this or the time it takes to make it happen or to be subject to constant third party review. God bless John Harvey. I know he's under the microscope in his own State there. We have been under the microscope for seven years, and I empathize and sympathize and at the same time applaud you for being subjected to that kind of scrutiny.

But it is tough to do, and I can only see this coming from a very huge government infusion of cash or the private sector. In this case, this was recognized seven years ago and some private sector companies, an insurance company in particular that had one motive in mind, crash reduction. You don't have to be a rocket scientist to figure this one out. Fewer crashes mean fewer claims payouts.

So it's not only the driver education industry that's focused on reducing collisions. There is an honest monetary incentive for some public sector or private sector corporations to come to this playing field as well.

And as a result of this study and research, we have come up with what we affectionately call TeenSmart.

Well, TeenSmart, as you can see, is unique on a lot of fronts. First you have to put yourself in the position we were in five to seven years ago of forecasting where technology would be seven years from then. Think about it now. Back then we had a Pentium I 200-megahertz chip that was available out there in the households. Now we have three-gigahertz chips. Where are we going to be seven years from now? That was our challenge.

In order for this project to be successful, we needed to project over the hill to make this happen, and it was not an easy thing to do at that time, figuring out what, you know, the common household would have in it. We made some very good educated

guesses. We had a lot of resources dedicated to this, and I'm happy to say we made some correct guesses.

We knew we had to do a lot of the things that you see at the bottom there. Develop a scientific based training system, be data driven, proven learning effectiveness impact, crash reduction, etc. And again, that is exactly what I've been hearing over the last two days.

I'm going to speed ahead here. I want you to understand a little bit about what we're about. We're really about crash reduction, and we're serving two purposes. One, to help insurance companies reduce their claims, but also to help driver education in a broader sense reduce collision rates through graduated licensing programs because we recognize this is where it's going to happen. It's going to happen with parent involvement, it's going to happen in the post-licensing arena.

And as a result, we've set up affiliations and strategic alliances with DSAA and hopefully ADTSEA in the near future, but we are working with driving schools and driver educators in general to help reduce teen collisions. If we can get this instruction out there, then we're going to save thousands of lives. And we have some very good research I want to share with you that backs all this up.

I'm not going to preach to the choir because you've all seen this stuff and you know it and you probably also recognize the baby boom echo, as we call it, as coming through society. It's a huge problem. We have a lot of teens out there and that population is growing, and so will the problem.

Also, you'll recognize the basis of our research is coming from a lot of the folks that were quoted yesterday in the background and history section.

What we needed to do to reengineer driver education as we saw it was to start off fresh, and I heard calls and cries for that, too. We needed to start off with a blank sheet of paper. Why? Because we knew whatever it was we were doing, it wasn't having the impact on collision rates. And if that in fact is our objective, then why not design, plan, set goals, orchestrate, make something that only does that instead of having it trying to serve dual purposes or maybe four or five purposes. What we set out to do is just do one thing and focus on collision reduction.

In order to do that, we knew we needed huge resources and talent. We need to forecast and work with technology. We needed adequate time to do this, and we had to build one hell of a team to make this happen.

And that's one thing that, as a CEO of a movement like this, of a mission like this, I have never taken for granted because we literally had unlimited resources, we had talent. It was never a question of what does it take. It was, could you do it? Because it had never been done before.

So again, we're working on what we commonly call our Crash Curve and ways that we can make a difference. And this was both a problem and an opportunity for us. When we looked at this crash curve, we looked at that precipitous drop after three or four years of driving and recognized that the 19- and 20-year-olds, although still getting into more accidents than the rest of the population, were doing something very different than that 16- and 17-year-old.

And that's where we started. That was our challenge at the beginning. If we could just transfer some of the skills' that develop after three or four years of driving up to the 16- and the 17-year-olds, that are just starting to drive, we knew we could make a difference in collision reduction.

So we knew we had to address inexperience and the skills. We knew we had to address the risk-taking as well as the peer group influencing. And when you see our mentors and our expert panel, you'll understand this is no coincidence why we ended up building a crash reduction training program that attacks the very things you all have been hearing about.

We need to look at valid content. We needed to look at good instructional technology. We needed to look at skills and knowledge and effective behavior change behind the wheel. This took a lot of measurement and a lot of evaluation to get to that point, and frankly, we're under a lot of scrutiny not only from the subject matter experts but from the funders of this project that were putting millions of dollars into making this thing happen and, as it turns out, happened to be equipped with loss prevention exports and an army of actuaries with Ph.D.s that I don't wish on anybody because they can be very critical.

So our first job was to identify factors empirically related to young driver crashes. We commissioned the Traffic Injury Research Foundation, which many of you know Herb Simpson and Dan Mayhew are key players in, to evaluate the causes. This was being done about the same time that Larry Lonero and Northport who has also worked with us was working on the AAA study of identifying key factors.

We know that the AAA work and our work had two different purposes. AAA's work was aimed at pre-licensing driver education. Ours took the path of looking at post-licensing or graduated licensing. Again, remember, 1996. There were a few States out there that had graduated licensing, but there wasn't the momentum or the fever that we have now. We were looking at this changing tide and were designing a graduated licensing training system to meet what we now have in 2003 as a technologically a solid system. So we had to identify the valid content and how it should be taught.

Gaining a consensus, from out advisory council, of whom many of you recognize some of the key players there. You know they're their own independent thinkers. If anyone out there has ever written a thesis or a dissertation and you've tried to get five professors to agree on everything, try to get those folks to agree on something. That was tough because everybody had his or her own mind.

But we did gain consensus, and I'll say that's a long process. This did not happen overnight. It took a few years to get this thing built right. And at the end, we ended up with what you would expect in a parent-driven post-licensing program. True multimedia. Not just flipping a page on a CD-Rom, I'm talking about interactive driving simulation that I'll show you a little snippet of. And we have home study workbooks and activities with the parents and teens.

We know that real improvement was going to happen behind the wheel, in real driving time. We have both computer-based training, video short snippets with parents and teens working together. In preparation of these parent-teen activities we made copious efforts to avoid fights between parents and teens and did a lot of focus group testing to make sure it worked.

So we ended up with these six factors, which, from this audience, I wouldn't expect to see any big surprises. These were what we call the big six. The TIRF report had indicated what we needed to be teaching in terms of addressing the key causes of teen driver causes. We knew if we nailed skill development and behavior change in these six areas, we'd probably have an impact on teen collision ratios.

So what makes it unique? The way we built it. It had to work first, not like most out there. You know, can we sell it and we market it first, then worry about does it work. TeenSmart had to work first. It had to work first and it had to be science-based versus opinion-based or expert opinion-based. Every content item had to show its correlation with collisions.

What it teaches, very limited. It only teaches six things. TeenSmart has a different mandate, collision reduction. We identified the big six. We're teaching only the big six factors that cause a majority of crashes. It is not like pre-license that needs to teach a lot of things in order to get through a DMV test.

When it teaches. We matched the cognitive learning curve of a teen to when they're able to process higher order safety skills. Only after some real driving experience does it become relevant to teach the kinds of multitasking exercises and the kind of multitasking driving behavior that we're expecting the teens to do. It has to happen after basic driver education is completed and they have some real on-the-road driving experiences. That is one of the reasons what it teaches was a little different. Of course, we knew we were targeting graduated licensing.

How it teaches. Very different again. We ended up building a holistic model, not a didactic model. Chapter 1, visual search. Now, Chapter 2, hazard detection. Now space management. No, not that. It's integrated.

Very hard to design from an instructional design standpoint, but when you think about it, it's exactly what a teen has to do when they're driving the car. They're juggling at least six things. Think about it, it's a multitasking event. We wanted to design a curriculum that embraced that reality that they needed to be doing a variety of driving

behaviors. We also wanted the training to be developing skills in the context of an active lifestyle as a teen and analyzing risk and benefit as they go forward.

The other thing was learning modalities, just our general instructional design. The TeenSmart instructional design is second-to-none, I'm not necessarily talking about driver education but any training program.

So we ended up spending $6 million to develop TeenSmart. Four years later, this is our $6 million Ford. Actually the Ford didn't cost that much, but everything else behind it did. And we ended up with a four-camera point of view that you'll see in the driving simulations. No one was there to tell us how we did that. We had to get patents and everything to make this thing work, and with that I'm going to show just a very brief video.

If you could roll the video, then I'd like to talk to you about our evaluation and research behind it and our findings.

(Live voice-over video presentation)

DR. HARKNESS: Although we may have faith in our educational systems, when it comes to pre-licensing driver education, research has shown very little or no safety benefit. One reason is that teens are not ready to process higher-level crash avoidance skills until they have some real on-the-road driving experience. The ADEPT program goes beyond pre-licensing driver education and teaches vital driving survival skills when a teen is ready to master them.

(Video presentation)

JASON: Hi. Welcome to the ADEPT Driver TeenSmart Program. We're very excited you've decided to take this step toward becoming a better and a safer driver. My name is Jason.

About 40 percent of our licensed teen drivers go on to have a police-reported accident each year. Many of these teens are injured, and car crashes are the number one killer of 16- through 19-year-olds.

That's why ADEPT Driver set out to reengineer driver's education. After years of research, we discovered two important things. First, teens are not ready to process higher-level crash avoidance skills until they have some real on-the-road driving experience. Second, there are six factors that cause a majority of teen car crashes. Unfortunately, most of these factors are not tested when you get your driver's license.

The result of this research was TeenSmart, an effective training program with the power to reduce teen driver car crashes.

TeenSmart goes beyond pre-licensing driver education and teaches vital driving survival skills at a time when a teen is ready to master them. The best thing about TeenSmart is that it's fun and engaging.

TeenSmart is a multiple CD-rom or DVD product designed to be taken at home where it's convenient for teens and their parents. There's exciting multimedia that includes state-of-the-art computer-based instruction and realistic driving simulation. You'll practice advanced driving techniques and sharpen your visual search and hazard detection skills.

There's also a video and workbook for teens and parents that guide you through this comprehensive program.

Behind the wheel you'll practice the six skills that will help teens avoid crashes. And at the end, there's a certification test that lets you know you've mastered the subject content. All you need is access to a personal computer, a video cassette recorder, and you're good to go.

I also want to introduce you to Clyde and Claudia, and recruited them to help out with the computer-based training segments, or CBTs, and to help you and your parents navigate TeenSmart.

CLAUDIA: For starters, world-recognized experts have designed this program, people who've devoted their careers to concerns like traffic safety, risk perception, adolescent behavior, and instructional technology.

CLYDE: The result is a program that teaches you effective on-the-road survival skills in an environment that's fun and engaging.

CLAUDIA: And puts you in an interactive computer environment that lets you practice and test what you're learning.

CLYDE: And your parents are included in an innovative way. You're part of the core curriculum, too.

CLAUDIA: That's true. Without parent involvement, this program is only half complete.

CLYDE: You know, be there when the rubber meets the road.

CLAUDIA: That's right. Because parent involvement is critical in reducing young driver car crashes.

The main goal of this program is to reduce the chance that any teen that completes the program will get into an auto crash. You teens are at greatest risk in your first couple of years behind the wheel.

This crash rate chart is about experience and what drivers learn in the first few years behind the wheel.

CLYDE: The difference in crash rates between 16-year-old new-to-the-road drivers and those with just a few years of driving experience is striking.

By the way, if you start driving at age 18, the crash rate is still close to that of a 16-year-old who's just starting.

CLAUDIA: So what accounts for this difference? Our experts and researchers discovered that more experienced drivers use specific skills and attitudes when they drive. And that's what this program is all about, teaching you these critical driving skills right now instead of waiting four years for you to figure them out all on your own.

If you're thinking of a typical driver's education course, think again. This program is for young drivers who already have their licenses, but more importantly, it's scientifically based on research identifying driving and social skills that most relate to young driver crashes. Our experts identified six key factors that most influence whether new drivers get into trouble.

CLYDE: These six key factors are visual search, hazard recognition, speed adjustment, space management, risk and benefit analysis, and lifestyle issues.

CLAUDIA: It's not our job to tell you how you should live, but this program helps you see that how you live is how you drive.

JASON: I'd like to focus for a minute on how we're going to teach these ideas and the role you parents need to play.

There are three instructional components in the program: parent-teen activities, multimedia computer time sessions, and the certification test.

Here's where you parents come in. There are four parent-teen activities in the program for you to do with your teen at home and in your car. Together you will both do these activities to practice effective driving techniques in the real world. As a bonus, you parents will get to update your skills as you practice some of the latest techniques.

Teens will also complete three one-hour multimedia computer sessions to learn key driving skills and attitudes. In these, you can follow the story of Anne and Jack and some teen drivers as they make their own film about safe driving.

You'll also do some interactive driving simulations to practice driving-related skills on the computer. You'll initially have to complete the computer-based training sessions, or CBTs, in sequential order, but you can always go back and repeat any CBT you've already completed.

After you've gone through the first time, your parents could even run through a CBT if they're interested.

For you teens, there will be one final program component, the certification test. You'll complete this test on your computer. This test just allows you to see whether you've mastered the contents of the program and qualify for an insurance discount that may save you hundreds of dollars.

When you add in the costs of repairing a damaged car, insurance deductibles, increased insurance premiums, or restricted driving privileges; the benefits of the TeenSmart crash avoidance program are enormous. That's why ADEPT Driver and our strategic partners have taken the lead and made our breakthrough program, TeenSmart, available to you.

And we hope you'll take advantage of the insurance premium discounts where available, and other benefits associated with becoming a certified ADEPT driver because teens are right about many things, and one of them is they're too young to die.

(End of video presentation)

DR. HARKNESS: I'd like to mention this team that we've developed not only with DSAA but also Driving School Association of Ontario (DSAO) in Canada and with a lot of help from insurance partners that are starting to come on board, which have all requested that they be allowed to give their own side of the story and their own press releases on this.

I'm not going to go into a variety of the insurance companies that are getting behind this today, but rest assured you're going to be hearing about us, along with other large recognized names that are coming behind this program.

The reason is, it works, and I'd like to talk about that in itself. I'm going to buzz through the instructional technology aspects, though I know you'll find it interesting. And if you do have more questions on this, I think there's a brochure out there. Please just give me a call. I'll be happy to talk to you about how we linked all these learning paradigms together with the content that we're wishing to teach.

One of the things that we fretted over that we had the luxury of fretting over actually was learning modalities, how a teen learns. If you're a visual learner, you'll get this program. If you're an auditory learner, you'll get it. If you learn by metaphor, you'll get it. If you learn by driving experience, you'll get it.

And this is packaged, like I said, in a very unique way for parents and teens so parents can become the champions of reducing the crashes out there like we know that they're capable of doing given the proper training, coaching, and, most importantly, in-car time with their teen. As a result, there's a driving practice manual that accompanies the base TeenSmart program that has 70 hours of in-car practice. Again, time with the teen teaching the right things has an impact on collision reduction, and that's what I'd like to talk to you about next.

I'm getting the hook here, so I'm going to spend very quick time talking about this, though I know the researcher types out there love what we're doing.

We've actually looked at five different types of evaluation. First, we had to nail the content, getting content validation. Very important. Then we set up an independent research study with Carnegie Mellon University and the Traffic Injury Research Foundation to look at how teens improved before and after the TeenSmart training.

And this involved a variety of knowledge tests, skill tests, behind-the-wheel driving evaluations that were being videotaped set up under, as you would expect from this group, very sophisticated research design models using, like, Solomon Four-Group designs control for pre-testing effects. I don't want to get too technical, but this is if you know the group involved, you know they do solid work. And we wanted to get to the bottom of things so that we could in fact build a better program. And at the end you'll see that we do have a certification test.

All that information is used to make TeenSmart better. We need to decide what we're doing right, what we're doing wrong, and make it better.

Short answer is, we have knowledge growth, skill improvement, before and after. Most importantly, transference from computer-based training and other instruction to real driving behavior behind the wheel where we're able to document that, and we have statistical significance on a lot of that.

We did this by videotaping before and after, evaluated double blind, et cetera, et cetera, with lots of good research modeling. Visual search improved, risk perception improved, space management improved, a lot of the big six that we were looking at. Honest differences.

But that's always been the big question. Can you improve skills, knowledge, attitude, even driving behavior, but at the end of the day, does that really measurably impact the crashes? And that was the thing that we had to wait for, and we're still evaluating this. We started off with 200 teens in a beta test. We did receive significance on all the measurement criteria that you would expect, knowledge, skills, behavioral change, et cetera, but then we had to really -- this is the proof in the pudding right here. How can we measure teen crash reduction?

Well, first of all, you've heard self-selection for safety. We realized right off the chute we needed to control for safety selection. So the way we were able to do that without benefit of a true experimental design with random assignment was to start off by running our teens through and then find a very onerous control group, which we did. We selected teens that came from the same high schools, same age, same gender, same months of driving experience, that had selected a very safety-laden training program, one that cost $600 instead of $300, one that required 12 hours of in-car instead of six hours, and came from households and parents that had self-identified themselves as obviously very safety-conscious, along with the associated economics that goes along with having more money to spend on the safety-consciousness.

So we stacked our TeenSmart kids up against a very difficult control group, and we got a 30 percent reduction in crashes compared to that control group. We are very excited and encouraged by those findings.

There's larger studies in place. We've been looking at this now for three years. First we looked at 2000 kids in the experimental group. Remember, we have hundreds of thousands of kids in the control group because we're dealing with, as you would imagine, a very robust database with a large insurance company.

And then it was 4000 students, 8000 students. It'll be 10,000 students here pretty quick, and we're evaluating the crash reduction potential of this. And all I say is that this is great news for parents and teens. We are pleased with the results that we're seeing on this.

And I know we're running short on time. Thank you. I look forward to sharing this with everybody. That's what we're all about, reducing teen driver crashes and helping this industry become a little better at what they do.

Thank you.

(Applause)

DR. MARSHALL: I'd like to again thank our five speakers here for their time and engaging presentations. Thank you very much.

Associations Panel II

DR. SIND-PRUNIER: Good afternoon. My name is Paula Sind-Prunier, and I'm an investigator at NTSB, and one of the investigators who was involved in the Board's investigation of the January 2003 accident in Belgrade, Montana.

Out of tragedy, the National Transportation Safety Board strives to identify ways to improve safety and, through that, to save lives. Over these two days, we've heard from teachers and students, we've heard from representatives of federal and State safety administrations, and a number of safety advocates who are engaged in initiatives to improve the safety and effectiveness of the programs that prepare our young people to drive.

We're pleased to have with us these afternoon representatives from several organizations that share the Safety Board's commitment to safety of our nation's highways. These presenters will tell us about their organizations' initiatives related to the development of new drivers, and we will use this as a springboard into a discussion of the current state of driver's education and opportunities for enhancements that will result in safer driving for our nation's young adults.

Presentation by Troy Costales

DR. SIND-PRUNIER: Joining us today from the Governors' Highway Safety Association is Mr. Troy Costales. Since 1997, Mr. Costales has served as the Transportation Safety Division manager and Governors' Highway Safety representative for the Oregon Department of Transportation. He has over 16 years experience in transportation safety and has led the way for significant improvements in transportation safety, as enumerated in his biography, available at the entrance to the boardroom.

MR. COSTALES: Good afternoon. As Paula (Sind-Prunier) had indicated, I am the administrator for the Transportation Safety Division for the Oregon Department of Transportation, and also serve as the Oregon Governors' Highway Safety representative.

Today I'm here on behalf of the Governors' Highway Safety Association, which is a non-profit association that represents all the of the State highway safety offices across the nation. The members of the association are appointed by the governors to administer the federal highway safety programs as well as the State highway safety programs under the charge of the governor.

Although I am representing one of only four State highway safety offices that directly are responsible for the States' driver education program, all of the State highway

safety offices are concerned and work towards improving the education, and reduces the high-risk behaviors of young drivers. Most of the State highway safety offices have some sort of educational programs or other programs that address that age of driver.

If you don't know whom your State highway safety office is, make contact with them. They have items such as information brochures, law interpretation, videos, speaker bureaus, officers that they are in contact with about various programs, they have access to a lot of the national programs that we've heard about, some yesterday, today, and some that are in existence that we won't hear about during these two days.

Is it really "Leave No Child Behind"? What is it that leaves a child behind? Children that don't come to school one day after the next. It's not guns, it's not gangs, it's not suicide, and it's not drugs. It's cars. It's around the transportation system where our young children of this nation aren't at school the next day.

It's what impacts the families; it's what impacts the communities. And as we've heard already, motor vehicle crashes are the leading cause of fatalities for the age group that we're talking about.

There's been a long-held theory that if young drivers receive improved driver education that they would be better trained and that they would be safer drivers and we would see fewer fatal-injury crashes. However, the state of driver education has changed dramatically over the last 30 years. Driver education is no longer in the sole purview of public schools, and we heard some of those examples earlier this morning.

And according to a recent study by "USA Today," only 27 States are now offering some sort of financial assistance towards driver education for the new driver. The survey also found that participation by the school district was voluntary in almost all cases. Hence 16-year-olds may now find alternate means to get their education, through their parents or potentially purchasing driver education through private providers.

There are no federal guidelines, and we've heard that echoed for two days. There is no minimum core curriculum that is consistent and used across the board. There are no uniform teacher certification standards, and in some cases, little State regulation.

As a result, you can see that the quality of driver education, the ability to have an impact, and the numbers that we're seeing vary tremendously from jurisdiction to jurisdiction, school to school, State to State.

The cost of education is also a potential impacting factor. It is very rare now to hear about free or totally subsidized training. Quite often, you can see price tags of $200 to $300, and for some of the more intensive in behind-the-wheel and track-related training, it can be as much as $1000 for someone to try and take that course.

While a lot of these courses are improvements over what we've seen in the past, they also limit the ability for an individual to take it because of the cost. As a result, some

of our low-income young drivers and families are not afforded the ability to take some sort of formal driver training.

When we look at driver education and graduated driver licensing, one of the questions that comes to my mind is, has the question around the ability for formalized driver education training to impact the numbers we've seen over the last few decades actually led in part to this push to the graduated driver licensing process?

Under graduated licensing, the young driver is trained using a phased-in approach over time, allowing him/her to gain on-the-road experiences to become a better driver.

I think GDL is probably the last breath of life for driver education and driver training that we're going to see. If we do not take advantage of this opportunity through this hearing, through the consensus of individuals coming together over these two days, we may see the decline and maybe even the death of driver education in its current format and structure inside of a decade.

The GDL process has driven energy and driven excitement and interest in doing something, and we need to take advantage of the time today that we're doing this.

The Governors Highway Safety Association supports the overall approach of graduated licensing, particularly when we're dealing with teenage drivers. Recognizing that driving is a very complex task, GHSA encourages all States to enact the three-stage graduated driver license program.

The GDL program needs to have components in it such as a specific age for a learner's permit, a provisional permit that is granted several months after the learner's permit and before a full license, adult supervision of the learners, nighttime driving restrictions, mandatory safety belt use, the restrictions on passengers, and distinctive licensing so that law enforcement and others can tell that this individual is under a provisional stage.

There should be, and in most cases is, a zero tolerance provision for drunk driving. The question is whether it's being enforced and adjudicated where we're dealing with alcohol, and an approach towards suspension for any impaired driving conviction or an implied consent refusal when dealing with an alcohol offense.

From a highway safety manager's point of view, whether I'm responsible for driver education or not in my State, I would rather take the time and invest the money to teach these individuals at the very front of their driving career of how to do things right. It's going to be more work on me and more work on others if we worry about trying to retrain them when they are 30 or 40 or 50 or later.

And if it's not a professional or a guided parent that's involved in training these drivers, who is it? It's Microsoft, it's XBox, and it's Nintendo. It's a situation where you get to reset your life just by playing another game or putting in another quarter. And the

whole issue of the high risk and what is involved in a life-and-death situation is missed and we've missed that opportunity.

It isn't funny. It isn't a game. And we need to make sure that we get that information out to young drivers in a very serious and formal manner.

New driver education programs should be developed that would complement the graduated driver licensing laws. These programs at a minimum should focus on vehicle handling, crash avoidance, driver behavior and risk reduction, roadway features, and vehicle road user interaction for all types of vehicles.

They should also involve driving ranges or tracks where a student is taken through a number of different driving scenarios in order to provide real-world driving experience under tightly supervised conditions. There should be learning components that are specifically geared to the parents of young drivers. The curricula should take advantage of the computer simulations and things that can be done in that technology.

GHSA firmly believes that the time is right to refocus on driver education, particularly since the remaining States with publicly funded driver education are likely to reduce or eliminate the programs over the next several years. Enhanced driver education of this type, coupled with strengthened GDL will go a long way to reducing young deaths and injuries on our nation's roadway system.

Somebody somewhere has got to be charged with the lead responsibility at a national level, and that has come out at almost every presentation so far.

There are many partners that are available in the driver education scene. The educators, the highway safety office, law enforcement, DMV, parents, media, the administrators of the schools and programs, instructors, school resource officers -- quite often overlooked as somebody that can be involved in what's going on in the school -- and insurance companies.

And in May, Ford Motor Company and GHSA launched a new public awareness program that focuses on young drivers. The Real World Driver Program focuses on four particular driving skills: hazard recognition, vehicle handling, space management, and speed management. These skills are based on research and statistics that are endorsed by an advisory panel of highway safety experts.

The Real World Driver is designed to educate both parents and teens via educational kits that have been sent to every public high school in the country. More than 20,000 high schools have received this information, and they have reached already an estimated 4 million students and parents around the nation.

It should be emphasized that the Real World Driver Program is not a driver education program. One of the goals of the program is to raise the visibility of the driver training issue and to encourage a national discussion about the most effective way to

teach young persons to drive safely. In that respect, Ford and GHSA believe that the Real World Driver Program has been very successful.

We cannot just focus on driver education as a stand-alone program in order to have success. There is a renewed interest in young drivers by both the public and private sectors. And in increased public discussions such as this, we can start to reach out and do more in order to teach young drivers to drive safely.

From a highway safety office like mine, it doesn't matter where the education is taught, whether it's public or private or community college or some other venue, as long as we make sure that the curriculum that they're addressing is reaching the high-risk behaviors of the youth and the individual teaching that program has the knowledge, skills, and ability to transfer to that young student the seriousness of the driving task.

NHTSA somehow in some way must take on part of this lead responsibility in order to make this happen because the alternative is not acceptable. We would just simply give up. We would quit the desire to train new drivers. That means that we're declaring the status quo as acceptable. That also means that we pass along the responsibility for delivering 4000 death messages to parents every year, 333 every month, 75 every week, 10 every day, 20 in the amount of time that we've been here yesterday and today. And that's the status quo, and that is a highway safety program that I wouldn't be proud to be involved in or to be a leader in.

Today, to reach the American Dream, we must understand, use, and work through the transportation system. That's the way and that's the path to meet today's American Dream. And today, to my knowledge, I don't think any student has ever died from falling on a folder, but there are students that have died because of unfortunately coming face to face with a steering wheel.

I happen to be very fortunate to be in a State where they take youth safety seriously and try and fund the effort and have the policy discussions about reducing death and injury, as John Harvey presented to you yesterday in the details of Oregon's program.

Bottom line, and I would hope that somewhere in the Board's final printed report talking about this subject we come out and say that at a minimum we must now start to change the culture of what it is to be a teen driver in this nation. It is not a rite of passage. It needs to be something that is earned and understood, and we should be able to come back five years from now or 10 years from now and not have all this debate again because the new bar has been set for what we want to do as we move forward in order to make a difference on young drivers in the United States.

Thank you for your time.

(Applause)

Presentation by Charles Butler

DR. SIND-PRUNIER: Now I'd like to introduce Mr. Charles Butler from the American Automobile Association. Mr. Butler joined AAA in 1976, and as director of the Traffic Safety Sales and Product Development at AAA, he oversees the research, development, marketing, and distribution of programs, materials, and services for educational and consumer purposes.

Mr. Butler directed the development and production of a License to Learn, AAA's new interactive driver education program, which we'll hear about today. He also directed the development of AAA's Teaching Your Teens to Drive, a Parent Involvement Program, as well as the revision of two AAA driver education textbooks, "Responsible Driving," and "How to Drive."

He received his bachelor's degree in accident prevention, health, and physical education from the University of Maryland and has taught in the D.C. public schools and Howard University.

MR. BUTLER: Thank you, and good afternoon to one and all. My name is Charles Butler, and I'm one of two directors in the AAA National Office, Traffic Safety Department in Heathrow, Florida.

AAA is a federation of 77 local motor clubs throughout the United States and Canada representing more than 46 million members in those two countries. Since its founding in 1902, AAA's been devoted to helping make America's highways safer and providing individuals of all ages the education and skills they need to be safe drivers. In fact, AAA pioneered the concept of formal driver education and training in the early 1930s.

In 1997, AAA launched a National Young Novice Driver Safety Initiative, and we did so because of the primary reason that young novice drivers -- that motor vehicle crashes were the number one cause of death for young novice drivers in this country. It wasn't homicide, it wasn't suicide, it wasn't AIDS, and it wasn't the many things that we think cause problems for young people, but motor vehicle crashes.

The campaign at that time had three goals, and one was to raise awareness of the seriousness from a public health perspective of the young novice driver crash problem.

The second goal of the campaign was to change the way that we license young people in this country. Back in 1997, there were about six States that had a graduated driver-licensing program, and today there are about 48 States that have graduated driver-licensing programs.

So at AAA, we recognized the importance of graduated driver licensing, and AAA clubs have been lobbying for strong GDL laws in all 50 States with special

emphasis on passenger and nighttime restrictions and supervised behind-the-wheel driving experience in many diverse settings.

One of the goals of the License to Learn campaign was to also change the way that we educate young people in this country. And as a complement to GDL, AAA believes that high quality driver education and training programs can enhance safety and mobility.

To be an effective crash/accident countermeasure, driver education and training must emphasize safe operation practices and be based on the results of young novice driver crash research. It should be considered as an important element of a systems approach, which incorporates the licensing and enforcement communities.

Driver education should emphasize visual search skills, techniques for paying attention to driving, speed and space management, driving emergencies, risk recognition and avoidance, and basic vehicle control.

AAA encourages new drivers not to rely completely on formal driver education but to obtain as much supervised behind-the-wheel driving experience as possible before encountering complex driving situations and environments alone. AAA urges parents and guardians to take an active role in their child's education by assisting new drivers in gaining experience under safe conditions and establishing clear expectations in terms of how the family car is used, specifically paying attention to driving time, place, weather conditions, seat belt use, number and age of passengers, alcohol, drugs, fatigue, and emotions.

AAA is concerned by the decline in availability of quality driver education and training programs in both the public sector and the private sector. Driver education and training programs are declining at a time when the teen driving population is increasing dramatically and the nation's novice drivers still incur more fatalities and injuries per vehicle mile driven than any other age group.

Beginning in the 1930s, AAA clubs emerged as a leading force in educating new drivers. Working as an AAA consultant, the late professor Amos Nyhart, the godfather of driver education of Pennsylvania State University, developed and taught the first driver training programs in the United States.

In the late 1930s, AAA published "How to Drive" and "Sportsmanlike Driving," its first driver education textbooks. Today, "Responsible Driving," "How to Drive," and "Teaching Your Teens to Drive" are examples of AAA's continued contribution to developing comprehensive teaching and learning materials that are used in public school driver education programs, commercial driving schools, and fleet driver training programs.

The decline in availability of public school driver education programs, coupled with the anticipated growth in novice drivers, represents a significant major safety issue.

To ensure that young people survive the greatest threat to their future, we must reduce traffic deaths and injuries by improving the safety performance of young drivers.

In addition to raising awareness of the seriousness of the novice driver safety problem in this country and improving the licensing process by implementing comprehensive graduated driver license laws in all 50 States, AAA is in the process of implementing a unique state-of-the-art driver education program that will improve the educational process.

AAA's License to Learn driver education curriculum will train novices in the skills needed to avoid crashes, and it will do that by standardizing driver education course content, implementing uniform instructor qualifications, mandating more behind-the-wheel driving experience.

License to Learn will also provide parents and adults with the tools, models, and instructional units they need to support young novice driver education. And to help the public select quality sources for driver education courses, AAA publishes a brochure entitled "Choosing a Driving School."

AAA also is in the process of pilot testing a new concept for an Approved Driving School Network. Now, the Approved Driving School Network Program is a design that's based on a model similar to AAA's Approved Accommodations and Approved Auto Repair Programs. In those programs, clubs review applicants, select quality driving schools to deliver AAA novice driver education and driver improvement programs within their club territory. This educational approach, we believe, will fill a void in those States where few public schools offer driver education.

In line with this stated commitment to provide the most current and effective driver education and training programs available, the AAA License to Learn Driver Education Program is a departure from the conventional read-and-lecture driver education course in that it is based on an in-depth analysis of thousands of crashes involving teen drivers. And the License to Learn instructional content is consistent with each delivery.

This analysis of crash causation, in addition to a better understanding of the learning styles of youth, indicates the need for a change in the content, sequencing, and types of learning experiences offered both in the car as well as in the classroom. One of the most obvious needs is for greater use of technology and much more emphasis on interactive learning and feedback if we're to make a change in so-called student attitude and that is to occur along with desired changes in behavior.

The results of our crash research reveal that new drivers are involved in crashes 44 percent of the time as a result of a lack of skill in the whole area of visual search.

The number two reason that they're involved in crashes has to do with paying full time and attention to driving. We talked about the importance of passenger restrictions and some of the other types of distractors that happen in the car.

Twenty-one percent of their crashes were caused by speed, not so much driving exceeding the speed limit but in too many cases driving too fast for conditions. Ten percent of their crashes was caused by not managing space around the car; 9 percent due to inadequacy in skills that they had in terms of responding to driving emergencies; and only 8 percent of the crashes that we looked at were caused by basic vehicle car control, that the student couldn't start, stop, and turn the car.

When we looked at all driver crashes, alcohol, fatigue, vehicle, or signals were causes of the fewest amount of crashes when you look at it from the overall crash problem.

So what we went out and did was designed a program that has four modes of instruction. Our program has 30 hours of classroom, has 10 hours of in-car training because we know that six hours of in-car training is barely enough for students to learn basic car control. It has a subcomponent as well as supervised practice.

When you look at our classroom program, it is a highly visual program, and we've designed this program based around what we know about how people learn. That, for instance, we know that people will only remember about 5 percent of what they hear. We know that people will only remember about 10 percent of what they read. However, we also know that people will remember about 20 percent of what they see and hear.

So what we've designed is a highly visual program for the classroom side of this program. It contains about three or four hours of video. And when you look at the video, the students look at the video in clips of one to five minutes. So you're not talking about a lot of video being previewed by the students all at one time.

The majority of this video is shot from the driver point of view. There are over 2700 driving scenes in this particular program, and all 2700 of those driving scenes can be tied back to the research that we conducted on young novice driver crash involvement.

About 30 percent, about a third, of these driving scenes are four-camera camera scenes, where when the student looks at the screen, they see the view out of the front windshield, the rearview mirror, and the side view mirror all on the screen at the same time. And again, these are situations or video of common traffic situations that we know kids have problems with as it relates to crashes.

The classroom instruction is highly interactive. It's interactive between the instructor and the student, between the video and the student as well as within the student and the student. We designed a program for this way because what we know about interactive learning and the way students learn, about 50 percent of what is learned and remembered and retained over a period of time is done so in a very interactive discussion-oriented mode. So this is a very highly discussion-oriented program that we've designed.

It is designed to be delivered as an integrated program. That is, you take both concurrently, both the classroom and the in-car at the same time. So within a day or two

of seeing these maneuvers and seeing these skills demonstrated in the classroom using a lot of video and PowerPoint slides, we have the student actually practicing the skill in the car under a certified trained instructor.

In the car, we put a lot of emphasis on skill development and give students a lot of detailed feedback on how they're performing each of the skills that was presented in the classroom.

Another component of this program is supervised practice, that what we have been able to do in designing this program is make sure that the parents are aware of how well each of the students are performing the skills in the program and getting that feedback back to the parents so that they can help us help the kids to perform and perfect each of the skills that are taught both in the classroom as well as in the car.

We have a package called "Teaching Your Teens to Drive," and this provides guidance for parents in terms of the skills, how the skills should be taught. And the skills in this particular parent involvement package also follow the sequence of the in-car training in the License to Learn Program. So it provides not only guidance for parent driving but it also provides parents guidance for supervising the supervised driving that happens in the car and provides them checklists so that they can also monitor their students' performance in the car.

With this particular program, we also provide instructor training because with this particular program we know that because it is a highly interactive program that it changes the role of the instructor and changes the role of instructor from being a lecturer to being a facilitator.

The three driver training instructor courses that we provide are basic performance. We provide a classroom course to sharpen interactive skills to teach this program in the classroom as well as vehicle operations skills to teach all of the skills in the car. There's 120 hours of training that's available with this particular program, and we offer a certification program to certify the instructors to teach this particular program as well.

In terms of the future, these are some of the priorities that AAA is going to be working on. Obviously, as we said in the beginning, AAA believes in the value of driver education from mobility as well as from a safety standpoint. We believe that an educated driver is a more effective decision-maker, that the ever-increasing demand of the highway transportation system, more drivers, more vehicles, more stress -- underscore the need for a more effective driver education and training system.

Novice drivers particularly need rigorous instruction and training to develop safe driving practices and to improve their perceptual abilities and management skills as it relates to managing time and space in traffic. So therefore, AAA urges that priority be given to these future efforts to improve driver education.

We believe that there should be an intensified government and private sector research and development effort to make driver education and training programs more

efficient, effective, relevant, and stimulating, that driver education should be reestablished as a national priority to stimulate States to implement more and better driver education and training courses for beginning drivers.

We believe that dynamic interactive multimedia software must be developed to diagnose, clarify, and reinforce modification of new driver risk-taking styles and to demonstrate their consequences.

We believe that multi-phase driver education programs must be implemented in this country. We also are going to focus our efforts in the future on developing more and better pre-licensing programs, driver refresher programs, as well as the advanced driver training and driver improvement programs.

We really believe that driver education and training programs must be financed adequately, that States should develop some cooperative financing initiatives between public and private sectors to accomplish that objective and that the real objective should be to increase the number of students that are receiving high-quality instruction, including both on-the-road and classroom training.

We believe that States should mandate more supervised novice driver behind-the-wheel training experience. They should implement uniform driver education course content and higher uniform instructor qualifications.

That State standards covering the ownership and or operation of driver education and training facilities, classroom instruction, and instructor qualifications and performance should be promulgated and enforced by the appropriate licensing agency to ensure consumer protection and quality instruction.

We believe that instructional programs should be implemented for the disabled. And lastly, we also believe that States should enhance the quality and the availability of teacher preparation courses for prospective driver education instructors through private universities as well as public universities and other local sources.

In the future, AAA will continue its partnership efforts with many organizations, like the American Driver and Traffic Safety Association, the Driving School Associations of the Americas, colleges and universities, and other local sources to enhance the quality and the availability of driver education, teacher preparation, and instructor certification programs.

It is through efforts like these that we believe that we can produce safer drivers that will have fewer crashes and that these efforts in the end will produce knowledgeable drivers that have favorable attitudes toward operating vehicles in a safe manner and provide them the skills that they need to recognize and handle risk properly.

Thank you.

(Applause)

Presentation by Allan Williams

DR. SIND-PRUNIER: Since 1972, Dr. Alan Williams has been with the Insurance Institute for Highway Safety, where he serves as chief scientist.

Dr. Williams holds a Ph.D. in social psychology from Harvard University. He's published more than 250 articles addressing a wide variety of safety research areas, including alcohol, drugs, and driving; seat belt use; and preventing motor vehicle deaths and injuries among adolescents and children.

Thank you for joining us, Dr. Williams.

DR. WILLIAMS: We're going to shift gears here a little bit, and I'm going to talk for a few minutes about what pre-license driver education can and cannot do based on the available scientific evidence, and then make a few observations and suggestions.

I have a short statement that I'm mostly going to read. I'm sure you've heard some of this before in the last day and a half, but I don't know what you've heard before so I ask you to bear with me.

In terms of what driver education cannot do, or at least hasn't been able to do thus far, I think we need to acknowledge up front that there are now five reviews of the worldwide literature on the effectiveness of driver education undertaken since 1998, all recent, and each review has reached the same conclusion, that there is no difference in the crash records of driver education graduates compared with equivalent groups of beginners who learned to drive without formal education.

That is, what we've tried so far, including a number of intelligently designed programs, has not worked as intended to provide a safety benefit.

Despite this evidence, driver education has enormous popular appeal. When the young driver problem is addressed in forums such as this, there inevitably is an appeal for more or better driver education, and you've just heard Charles (Butler) talk in some detail in that vain about more and better driver education.

To many people, a conclusion that driver education does not have safety benefits seems counterintuitive, but should we really expect standard driver education to lead to reduced crashes? Probably not.

The courses are generally of short duration, leading to concentration on teaching basic driving skills and less opportunity to teach safe driving techniques. Safety messages conveyed can be readily overwhelmed by ongoing parental, peer, personal, and other social influences that shape driving styles and crash involvement.

For the same reasons, short-term high school high education programs aimed at influencing smoking, alcohol, and other drug use have failed to do so. The audience for

driver education courses also may be relatively unmotivated by safety concerns. The primary motivation usually is to learn enough skills to pass the driving test.

Developmental and lifestyle features typical of young adolescents, risk-taking tendencies, feelings of invulnerability, immature decision-making, make it difficult to influence the way they drive through safety messages.

I think the late Pat Waller provided some good perspective on that situation way back in 1977 in an article she wrote in which she discussed the unrealistic expectations of a high school driver education teacher compared with the way teachers of other subjects are judged. She posed the question, should the driver education teacher be responsible only for whether the student can drive adequately or whether he actually does drive in this manner, and went on to note the many outside factors that influence subsequent driving performance and are largely beyond the reach of driver education instructors.

It seems apparent that driver education should be considered as one method for teaching young beginners how to drive adequately. That is, it is a way to learn basic driving skills. There is some evidence that it can be the best method for doing so.

It would be more defensible if driver education were promoted as the best way to learn driving skills rather than as a way to produce safer drivers. However, driver education is not benign. When available at early ages, it is associated with early licensure, which leads to additional crashes and injuries. The relationship between driver education and early licensure has been reported in studies in Australia, Canada, England, and New Zealand, in addition to the United States.

Earlier licensure enhances mobility, which has important benefits for teenagers, but at the expense of safety.

Courses that teach advanced driving skills such as skid control are becoming quite popular in the United States even though studies around the world have indicated that they can have an adverse effect, presumably because they inspire overconfidence and young people may create opportunities to try out these advanced maneuvers.

Here is how the most recent review of the international driver education literature summarizes the situation. This is a quote.

“The research literature suggests that beyond imparting basic car control and road law knowledge skills, pre-license driver training education contributes little to post-license reductions in casualty crashes or traffic violations among novice drivers. In addition, mandatory pre-license training or even formal pre-license training education such as high school driver education in the U.S.A. may contribute to increased exposure to risk for young drivers, particularly females, by encouraging early solo driving.

“There is also considerable evidence that driver training that attempts to impart advanced skills such as skid control to learner drivers may contribute to increased crash risk, particularly among young males. This pattern of results has been confirmed and

replicated across numerous studies conducted in Australia, New Zealand, North America, Europe, and Scandinavia during the last 30 years."

This review was done by Ron Christie in Australia.

Driver education is constantly reinventing itself, and several new programs have been developed recently in the United States, Europe, Australia, and New Zealand. I know you've heard about programs in the U.S. and some information on Europe yesterday. Australia and New Zealand are also very active.

These programs are thoughtfully and carefully planned, but they have not been evaluated. Given the formidable barriers to making young beginners safer drivers through education and training, and the disappointing results of prior evaluations of programs initially thought to be excellent, it is essential to scientifically evaluate new programs before they are fully launched.

We have made some important progress in dealing with the young driver problem in the United States through graduated licensing programs. Studies have indicated that graduated licensing works with or without driver education being a required component of the system.

Studies have also shown that in jurisdictions in which driver education graduates are allowed to spend less time in the system, novices who took advantage of this had worse crash records when first licensed than those not taking driver education. At the least, these so-called time discounts need to be eliminated.

There seems to be increasing recognition now that driving experience, not training, is key to becoming a safer driver. Let me say that again. Driving experience, not training, is the key.

There is a trend around the world now to maximize the amount of experience gained by young beginners before licensure. This is accomplished in the United States through longer mandatory learning periods and graduated licensing systems. Clearly, much of the supervision of driving in a learner stage will be done by lay instructors, primarily parents.

There is opportunity here for professional driver educators to coordinate with lay instructors to maximize the quantity and quality of driving experience gained during this initial period. This can be done by providing materials to parents encouraging them to get involved in the learning process, advising them on how to provide supervised driving practice, and telling them of the importance of following the rules and restrictions of the graduated licensing system. Some of the more recent driver education programs include this kind of outreach to parents.

Other models are possible that provide structured interaction between educators and parents. Let me give you one example.

In Australia, the Royal Automobile Club of Victoria provides for such interactions throughout the learning stage, starting with an initial 45- to 60-minute driving lesson where a parent is invited to join the learner and instructor. The intention is to encourage parents to ask questions and request advice on how to manage supervised driving instruction, motivate the provision of supervised driving experience, and introduce parents to support and guidance materials in providing a supervised on-road experience.

This coordinated approach provides an opportunity to combine professional instruction and driving skills with maximum supervised practice facilitated by parents, guided by professional instructors.

Obviously, such an approach would need to be evaluated in a rigorous fashion to see if it is better than alternatives, but it is a promising approach, I believe.

To summarize, in the case of pre-license driver education, there is a major discrepancy between public beliefs and scientific knowledge. Of considerable concern is that scarce resources continue to be spent in the name of safety on programs that have no benefit or may even make things worse.

Many new approaches are being tried or are under development, but they should not be widely applied unless rigorous assessments indicate that they are effective in reducing crash risk. I hope we would all agree that it is desirable to have evidence-based highway safety policy, not policy based on faith.

Thank you.

(Applause)

Presentation by Chuck Hurley

DR. SIND-PRUNIER: Our next presenter, Mr. Chuck Hurley, has long been involved with the National Safety Council, having started up its Washington Office in 1977. Currently, he is the vice president of the Transportation Safety Group. In that role, he oversees the council's efforts in highway safety, truck safety, and related activities. He also serves as the executive director of the council's air bag and seat belt safety campaign.

MR. HURLEY: I'm going to help everybody, I think, by compressing my remarks, and hopefully we can have a livelier question and answer period.

I'd like to talk about several things we have done, what we intend to do, and then talk a little bit about the areas where I think driver's education has a bright future.

Thanks to the efforts of Bill Combs, who's sitting out there and many of you know, we were able to put on last November in Chatham, Massachusetts, a symposium on graduated licensing which involved many of the people in this room. Allan (Williams) was kind of the dean of the faculty, I think, at that.

And it was a superbly attended conference. That happened in part because there was a Northeaster that came down the coast and no one could leave the building. But it was a very, very exceptional conference in the view of many of us.

And that led directly to the second thing, which was this all was published in the "Journal of Safety Research" in January with a very specific intent of trying to encourage State legislatures to pick up really where AAA, I think, laid the foundation in getting many of those graduated licensing laws. I'm not sure I agree there are 48 of them, but to pick up some of the tougher provisions that are harder to pass.

And one of the clear successes in that area with the help of Carol Carmody, a member of the NTSB, was the enactment in Illinois of a passenger restriction this last year. And that is a thing we hope to increase, in fact, in the future.

The thing we are now intending to do is we expect to publish either late this year or early next year again, thanks to the efforts of Bill Combs and Holly Sanders sitting back there a complete family guide to graduated licensing. Or we'll probably call it a complete family guide to teen driving safety, but based firmly in the principles of graduated licensing.

And that, we hope, will really provide a framework for a better audience for many of these messages, the audience really being more parents than teens themselves since teens being a teenager, having been one a long time ago is trying to experience as much risk as possible, missing many of the messages we all wish that we would be able to provide to them.

We're also participating with Daimler-Chrysler in their Road-Ready Teens Program.

I think many of us in the room wish the data were other than what Allan Williams has just said it is. But it isn't, and I think Jimmy Nichols also gave a very good review of that in the opening comments yesterday.

And so, why do I think that graduated licensing has been effective where driver's education, though well intended, has not been. And I think it really is that we picking up, really, on some of the things that were said. Many of the people in the room consider Pat Waller to have been a wonderful friend. We shouldn't be surprised. Teens drive the highest-risk vehicles at the highest-risk times with lower rates of belt use; higher rates of alcohol, particularly, I guess, for older teenagers; higher rates of speed; higher rates of cell phone use -- that's a personal obsession -- and a higher number of passengers.

The reason why I think graduated licensing has proven effective where other methods have not is because it does try to systematically reduce these risk factors.

And so where do I think we can go. I think the bright future for driver's education is really, I'd like to pick up, where Allan left off. I think many driver educators, particularly those fewer driver educators who are still in a high school environment, have some extraordinary opportunities. Let me sketch out a few of those, and maybe we can get into some more of this in question and answer.

I know at the Safety Council we would welcome discussions with driver educators, particularly in a high school environment, that would be willing to pursue what we believe to be a better audience and a better carrot. By a better audience, I think that would mainly be focusing on parents -- yes, involve the students, but the people that can reduce the risk best to teenagers in my view would be the parents -- and working aggressively with them to provide ways to reduce that risk.

An example might be vehicle selection. A lot of the risks teens face is dependent on what box they're in. And yet, that has received very little attention in many of the presentations even at this conference, I think.

And also, to involve the parents over time so that the driver, particularly high school driver educator, and I understand there are fewer of them now than there used to be, could in fact be kind of the public health advocate in that community to try to set community norms, to not have your teenagers drive or ride with drivers with certainly less than six months, maybe even two years, that's probably a little long, but six months, anyway, of safe driving experience.

To try to advocate for better State laws, certainly the ones that have been proven effective. Again, I would refer back to the symposium proceedings that we had talked about.

But I think the high school driver education professional has an extraordinary bully pulpit to use in the community for the things that are proven to work, and we would certainly welcome discussions toward that end.

One other point I think picking up on something that Allen Robinson said yesterday morning. He talked about the competency-based training as a way of identifying high-risk teenagers. I would hope to complete that thought in the following way. I think one of the best ways to do that would be -- I think it's New Zealand now, where they literally do not allow, I think Florida may have some of this -- where a student cannot proceed to the next level of graduated licensing if they are not violation-free and crash-free.

And I think one of the best ways to identify the high-risk teenagers is through ticketing, and I certainly, using an N of 3 in my own house, I did on a number of occasions have to resort to license revocation. But I think that that is probably the better, at least in my view, the best way towards identifying high-risk driving might be well to

harness and to push for State laws which would not only say but actually carry out license sanctions for teenagers that violate the law and the risk principles involved in those laws.

Again, I think the better carrot, the better audience, I believe, is to broaden out to the parents. The better carrot, I think, as Jimmy Nichols said yesterday, is not to use driver's education to license teenagers sooner but to use driver educator advocates of graduated licensing to help teenagers remain crash-free, ticket-free so that they can in fact graduate to a full license at age 18.

Those are the comments I wanted to make initially. I hope that this will be degenerate into a more vibrant discussion.

Thank you.

(Applause)

Presentation by Peter Kissinger

DR. SIND-PRUNIER: Peter Kissinger serves as the president and CEO of AAA Foundation for Traffic Safety, a position he's held since May of 2002. If you're not familiar with it, the AAA Foundation is a not-for-profit affiliate of AAA and the AAA Motor Clubs, which supports research and develops educational products to enhance traffic safety.

Mr. Kissinger is no stranger to the Safety Board. He spent 12 years with the Board, first as a safety specialist and later as our managing director.

Mr. Kissinger earned his masters degree in operations research from George Washington University, and he holds a bachelors degree in engineering from the U.S. Coast Guard Academy.

MR. KISSINGER: Thank you very much. It's nice to be back on the other side of the table.

I would first of all like to start by complimenting NTSB on tackling this very important subject and for holding this forum. Far too many novice drivers are killed in this country every day, and we can and should do a better job of addressing this major public health crisis. The Safety Board's examination of driver education is most timely. If anything, it's probably a little bit overdue. And again, thanks for the opportunity to share with you a few thoughts this afternoon.

As just mentioned, AAA Foundation is the research affiliate of AAA and the AAA Motor Clubs around the country. We are also the de facto research affiliate of the Canadian Automobile Association (CAA) in Canada.

Our mission, as described by this graphic, is pretty simple. It's to identify traffic safety problems, to foster research that seeks solutions primarily by making grants to universities and researchers throughout the world. And we then take that research and develop appropriate educational products, which we disseminate to the widest possible audience.

I should point out that although we are an independent organization, we do get the majority of our revenue from AAA, from AAA members, AAA clubs, as well as our counterparts in the CAA. And throughout its 50-year-plus history, the Foundation has funded hundreds of research projects covering a wide range of safety issues but with special emphasis on tackling problems associated with human behavior. Today, I'd like to highlight just some of the key Foundation efforts related to this forum both past and present.

In its early years, the AAA Foundation for Traffic Safety placed heavy emphasis on developing a wide range of traffic safety videos, many of which have been extensively utilized by both public and private driver training schools and educators throughout the country.

More recently, the Foundation has placed a little less emphasis on developing safety videos, but it still does routinely provide and develop a range of safety brochures and other informational materials. For example, presently we are working in collaboration with the Better Business Bureau to develop a new 60-minute video and DVD entitled "Crash Course: What Do You Need to Know Before and After a Crash," which we're very excited about.

From a research perspective, clearly the most relevant project today's forum is the Foundation's Novice Driver Education Model Curriculum Outline, which was originally published in 1995. This effort was driven by a broad research advisory committee comprised of many of the organizations scheduled to appear or have already appeared before this forum. Six researchers from Northport Associates, Interscience America, and Queens University conducted the actual work. I believe Larry Lonero was one of the speakers yesterday who was very instrumental in this particular effort.

The research team reviewed the current driver education literature in order to identify the novice driver needs, to evaluate methods of instruction, and to assess the effectiveness of driver education in influencing behavior. It sounds to me an awful lot like the objectives for this forum that we're participating in.

It then went on to propose performance objectives for driver education graduates and methods for achieving those objectives. In short, it attempted to reinvent driver education into a form that reduces crashes by novice drivers.

Unfortunately, some eight years later, I believe the key findings from this research project, some of which I've summarized on this slide, are just as valid as the day they were first issued.

We've heard a lot the last day and a half about what would be described as the diminished status of driver education in this country. I hope we will look upon that as an opportunity to reinvent it and make it more effective.

We need a more comprehensive understanding of the needs of novice drivers, and we need to include those in the appropriate driver education programs. Clearly, as Chuck (Hurley) has just mentioned, parental involvement in the context of GDL legislation is most critical.

And driver education should, wherever possible, be individualized and take advantage of the technology and provide interactive and instructional methods such as that that Charles Butler talked about in AAA's License to Learn Program.

From a little broader perspective, two other key findings of that study that I'd just like to summarize are first, the toughest and most critical challenges in accomplishing all of these things will be developing effective and practical means to motivate, train, and support teachers to deliver this important education. And second, we can't do this in a vacuum. It'll be very important to mobilize families, communities, and industry as well as government if we're going to be successful.

Unfortunately, with few notable exceptions such as, in my opinion, AAA's License to Learn Program, and those efforts that have emphasized the role of parental involvement as part of GDL legislation throughout this country, we have made scant little progress in enhancing driver education in this country yet alone reinventing it in the past eight years.

Thus, I would most certainly recommend to the Safety Board staff that they review this report, which I've provided for the record.

Inspired by its own research, the AAA Foundation almost immediately launched a development effort that led to the release of its Driver's Education Interactive Risk Management Training Tool. That has proven to be one of the Foundation's most successful educational products.

When released in 1997, DriverZed was a cutting edge advance in PC-based interactive training technology that focused explicitly on giving novice driver's much-needed experience in risk identification, evaluation, and avoidance. As such, it complements and supplements driver education programs.

DriverZed is still, in my opinion, a state-of-the-art product from a technological standpoint and has been emulated by others. For example, Great Britain recently mandated a new Zed-like hazard perception test as part of its new driver-licensing program. And the Federal Highway Administration is currently developing a new interactive training tool for work zone safety that essentially utilizes the "Driver-Zed" technology.

To conclude my remarks, I'd like to highlight three projects, three of our research projects that in my opinion are all relevant to today's forum.

First, we have funded the Traffic Injury Research Foundation, or TIRF, in Ottawa, which has clearly been mentioned several times throughout this forum, to conduct a major research initiative entitled "Reducing the Crash Risks for Young Drivers." This project, which is a very ambitious 27-month effort, will explicitly examine why teens to continue to crash at alarming rates.

A major component of the project will be an in-depth evaluation of GDL licensing provisions so as to enhance further this most beneficial safety intervention.

Methodologically, the effort will include a comprehensive analysis of crash data and surveys of novice drivers and parents. And we're also hopeful that it will look at the issue of exit testing as a means of setting up a performance criteria upon which novice drivers would graduate from one tier to the next in a GDL kind of environment.

We are very optimistic that the study will provide important new insights to novice driver behavior that, among other things, can be incorporated into ongoing and future driver training and education programs in this country.

Secondly, we will be evaluating a very exciting pilot program that was administered by the Alberta Motorists Association, which is the CAA club in that region in Canada.

Under the Teen Good Driving Incentive Program, financial incentives in the form of a fairly substantial insurance premium rebate were provided to novice drivers that remained violation- and crash-free for a specified period of time, which I think was six months.

Anecdotally, the club believes this program has been quite successful, and that's both from a business standpoint as well as a safety standpoint. But it has asked us to conduct an independent, scientifically sound evaluation of it just to be sure. And although this is not directly related to driver education per se, again, as in the case of the last research project I just mentioned, I believe the evaluation of this very unique and innovative program should provide invaluable insights that could be incorporated into future driver education efforts.

And lastly, we hope to shortly initiate a project to develop guidelines for the evaluation of driver education programs. From our perspective, there have been far too few evaluations of driver education, especially in this country, and those that have been done have often been hampered by methodological weaknesses or lack of scientific rigor.

This effort, which will incorporate an international advisory panel and associated workshop, will develop suggested technical protocols and guidance to support the future evaluations of driver education for novice drivers. Basically, we hope to develop a tool kit that will support future higher quality evaluations.

The AAA Foundation is pleased to have participated in this forum and is eager to participate in the question and answer session and is certainly willing to supplement its comments by providing any information that the staff may want after the fact.

Thank you very much.

(Applause)

Presentation by Gerald Donaldson

DR. SIND-PRUNIER: Dr. Gerald Donaldson joins us today from Advocates for Highway and Auto Safety, where he's a senior research director. Advocates for Highway and Auto Safety is a highway and motor vehicle safety public interest lobbying organization.

Dr. Donaldson received his Ph.D. from the University of Virginia and has held teaching positions at George Washington University. He has been involved in a multitude of safety advocacy initiatives that are further elaborated upon in his biography, available in the boardroom lobby.

DR. DONALDSON: Okay. I'm the Yankees' cleanup batter.

(Laughter)

DR. DONALDSON: And I'm only sorry that Allan Williams preceded me because Allan stole a lot of my fire and in fact my presentation.

I have a very short presentation I'd like to read. I don't have any PowerPoint slides. I will not read the citations in here. God forbid. They're strewn with Williams. "Williams '97," "Williams '85," "Williams '74," "Williams ought 6 -- '86." Sorry, Allan (Williams). Allan (Williams) goes back a long way, as I do.

I'd like to give you a short presentation and then make a couple of paradoxical remarks and observations.

No study assessing the value of young driver training programs has demonstrated a sustained beneficial effect of such efforts to overcome the high crash, fatality, and violations rates of young drivers. The highest motor vehicle death rate per 100,000 people is among drivers 16 to 24 years of age and drivers over 80 years of age. Drivers under the age of 19 are over-involved in fatal crashes by a factor of four, and drivers aged 19 to 20 are over-involved by a factor of six. Young male drivers age 19 to 20 years of age have up to three times the overall fatal crash involvement rate for all drivers.

A recent examination of the 1998 and 1999 traffic violations conviction data for the Commonwealth of Virginia showed that for use of alcohol and other drugs, speeding, reckless driving, improper driving, high-risk behavior, seat belt violations, and

administrative violations, the percentage of convicted drivers specifically 18 through 20 years of age was several times higher than for any other age group. In fact, all younger drivers are over-involved in fatal crashes until about the age of 27.

Furthermore, virtually no study conducted over more than 30 years has demonstrated that teenage driver education effectively reduces either the rate or the severity of young driver crash involvement. For example, the large scale DeKalb County, Georgia, project conducted in the late 1970s and early 1980s was unable to show even after nearly 20 years of data reanalysis that driver education is associated with reliable or significant decreases in crash involvement.

In fact, many authors and researchers point out that young driver education usually enables teenage drivers to gain unrestricted licensure at earlier ages when their risk of violations or crashes is much higher than older drivers, while also encouraging them to increase their exposure to crash involvement by driving more miles, longer hours, and more often at night.

Younger drivers are especially at risk for late-night/early-morning crashes, a time when fatigue and sleep deprivation usually as a product of an accumulated sleep debt over several days of unrealistic school times and late hours and early rising times generate high rates particularly of single-vehicle crashes.

Nighttime fatal crashes for young male drivers under 21 years of age are four times their daytime rates, and you can be certain that it's higher than that on weekend nights. And young male drivers operate their vehicles more at night than older male drivers.

The results of several well-known evaluation studies have shown that intensive driver training course graduates actually have higher collision rates than those without such training, especially when the subjects are young drivers. Advanced skills training, especially of young drivers who are not fully mature, leads to overconfidence, for example. Risk-taking among those who have undergone intensive driver training can lead to lower reluctance to drive in adverse conditions because the trained drivers reduce normally cautious behavior in favor of an exaggerated confidence in surmounting difficult driving demands.

Furthermore, there is substantial deceptive face validity of many training courses. In fact, the actual success of those courses with dealing with the specific knowledge and skills most critical to safe driving performance is far lower than it appears. The length of training, for example, has no demonstrated correlation in any studies to the successful outcome of lowering crash and conviction rates as compared with control groups.

Now, those are the written remarks, and that should make it pretty clear where we stand on driver training. We think it's a great idea. We think it's a great idea because it doesn't necessarily mean that driver training courses that have failed to date over the past several decades of effort are the only way that we can properly educate a young driver to

reduce risk-taking and to be able to advance their skills behind the wheel. It has to go along with their increased age, their experience, and their maturity of judgment.

I think that some of the speakers up here, Chuck Hurley and Troy (Costales), who was up here first with us, are right on the mark. We don't want to throw out the baby with the bath water. Certainly, one of the things that has come on the scene in the last decade or two is the understanding that one of the things that we have to do as a society, as people who have any participation in the creation and the implementation of policy, is we have to reduce risk-taking behavior by young drivers.

How do we do that? We have to delay the age of the onset of initial licensure. We have to reduce what are the well-known times when those risks are the highest. They can drive during the day, but we don't let them drive at night. We make sure that they are accompanied by an experienced driver, an adult who's also capable behind the wheel. We don't let them drive late at night on weekends with lots of passengers in the car.

Unfortunately, as a side anecdote here, one of the problems with that is that if that young person escapes the consequences of being distracted and animated by having several young passengers in the car, he or she is then alone in the final trip back to the house. That final trip back to the house is often at 2 or 3:00 in the morning. And that's after an accumulated sleep debt from the previous week. They fall asleep at the wheel, and then we have a tragic consequence.

Now, one of the things that may have been mentioned here over the past couple days -- I looked at some of the web cast yesterday, but I didn't have an opportunity to see most of it which I think can never bear enough repeating, and everybody here at this table with me here today is critically aware of this. When we talk about graduated driver licensing and we try to come up with an innovative skills training indoctrination, and I'll use the word "indoctrination," and the attempt to be able to get a young driver to use more mature judgment as they age behind the wheel, all of that interacts with extremely powerful political, cultural, and economic forces.

Let's face it. Having a driver's license is basically the fundamental, the threshold way of participating in the national culture. How many young people, particularly in urban areas, do you know -- don't give me counterexamples from Manhattan, the Bronx, and Brooklyn, okay -- that don't have a driver's license?

And let me ask you another question. How many people do you know -- Steve is a close friend who's 38 years of age who over a beer one night finally admits that he doesn't have a driver's license. He's always flunked all of his driver license exams. He flunked all of the various stages, or at least one of the critical stages of his graduated driver-licensing program in one of the more enlightened States, and here at the age of 38 he has no driver's license. Know anybody like that? No, right? Okay.

So the problem here is, how do we avoid using driver education and graduated driver licensing with all the admitted benefits that we're all aware of as nevertheless nothing more than another exercise, another rite of passage to have a young person

introduced to the traffic stream at a later age and at an age where he didn't commit all the atrocities he could have committed at the age of 15 or 16 or 17, but who nevertheless ultimately is going to be in that traffic stream.

And let's face it. Some of those people who are out there, a significant portion of them probably should never drive at all. They are high-risk behavior individuals. They have high-risk inclinations. If they successfully get through an even relatively demanding driver education course and they successfully proceed through a two- or a three-tiered graduated driver licensing program, they are nevertheless going to be out there posing a risk to themselves and many other people for decades to come.

I remember my first accident. I was 15 years old, and I had a license for two months in the State of Louisiana. That was 46 years ago. I never had another crash. That was the first one and the last one. But I was given one week of driver's education after my mother insisted, after I'd already gotten my license. And after two months with that license behind the wheel, I had my first and only crash.

So my fundamental stance here for my organization is that we are not against driver training. We think driver training to date has been in many instances a rather innovative, one-size-fits-all approach. We think it has to be done in a very carefully crafted, complementary way with a graduated driver-licensing program so we delay and curtail the potential risks that we all know can affect these young drivers.

We also, I think, cannot have a one-size-fits-all driver-training curriculum. Some people out there who get into the classroom for driver training are people who are definitely going to be tabbed earlier on as being high-risk individuals. They need the kinds of interventions, they need the kind of wise judgment and training which to the extent feasible is going to attempt to offset that tendency toward high-risk behavior.

So I look forward to answering any questions along with the rest of the panel members. Thank you.

(Applause)

Question and Answer Session

DR. SIND-PRUNIER: I'd like to direct this to all of the panel members who care to answer. Like most complex tasks, safe driving entails a combination of the mastery of certain knowledge, the development of certain skills, and the possession of certain abilities. To improve driver's education, it seems we need to specifically target the establishment and/or the enhancement of these specific knowledge, skills, and abilities that are required for safe driving.

Are there aspects of providing novice drivers with the requisite knowledge, skills, and abilities to be safe drivers, which have not already been discussed in this forum?

MR. HURLEY: Judgment is one that probably is more important than the others that you've mentioned. Most kids have better skills than I do. A lot of them are more knowledgeable about a number of things than I am, but as risk increases for example, at nighttime belt use drops. Alcohol use increases.

It's the risk denial and I don't know how you educate about that. That judgment generally comes from experience. I think most of us are very heavily weighted on the experience side of doing that over time, particularly with real consequences for misjudgment, I think, is an education itself.

DR. WILLIAMS: Well, obviously you have to learn some driving skills in order to drive. That's number one. And I think that, you know, driver education has done a pretty good job at teaching young people driving skills. If you look at the infamous DeKalb Study, the people that had the super driver education course scored best on an on-road performance test. They were better skilled drivers. But obviously skill is just one thing. Its attitudes, motivations and lifestyle as well that are involved.

I'm certainly willing to concede that a good driver education program can be the best way to learn driving skills, but where do you go from there? What I was trying to say is that maybe professional driver education instructors can teach parents how to teach kids to drive. Because there's also the experience factor and if you can maximize that in the pre-license stage, which is what graduated licensing tries to do, and do that in the best way possible, I think that's a combination of professional driver education and parental involvement that can really work out.

MR. BUTLER: Well, I don't know. I think that we probably at this forum over the last two days have basically covered all of the things that are really important to get young people to do a better job of driving and performing behind the wheel.

So what I really think that the panel has sort of hit on it -- I think that there are many things that we can do much better. And I think the forum has identified many of those things.

I think one of the first things that we need to do, and one of the greatest challenges that we have, is changing the perception that the public has that driving is something that everybody can do, that it's something that is relatively easy, that you can learn relatively easily, and that almost anybody can teach it.

And so a lot of times I think that the challenge for us as educators as well as the challenge of the public and the researchers is basically, how do we change people's perception that driving is something that I can get right now, it's something that I can learn relatively quickly, and it's something that I can be taught and not cost a lot of money. I think that's one of the greatest challenges that we have to turn around.

We didn't get to where we are overnight. We've been driving in this country for 50 or 60 years. And certainly, I think all of us realize that we're not going to be able to turn it around very quickly, but we do have to start someplace. And I think we do have to

start as quickly as possible because, again, the number of young people in this country is just skyrocketing at a time that countermeasures that we know work in terms of helping them to be better drivers are diminishing.

So we've got a real problem on our hand. We've got a real public health issue on our hands that we have to get the public excited about and wanting to do something about. And I think that's the biggest challenge we have.

DR. SIND-PRUNIER: There's another question again directed to all of the panelists. It seems that parental involvement is a recurring theme. While everyone here is or at least likes to think of himself or herself as a good parent, we know some bad parents. What do you do for the novice drivers whose parents don't, won't, or can't get involved in preparing their young adult to become a safe driver?

DR. DONALDSON: Thank you. This is sort of editing your characterization.

As "Business Week" pointed out in an issue the week before last, one-person heads 50 percent of American households up. And about a fifth to a fourth of those are not an immediate parent of the person whom they're responsible for, the minor child. So you've already got your cohort whittled down here quite a bit.

MR. KISSINGER: Well, the one thing I would add is, I'm not sure what your characterization of a bad parent is, but I think sometimes those bad parents behave because they don't necessarily appreciate what the real risks are.

I know in my own personal life, I interact with a lot of parents. And when we start talking about what I do and I start talking about some of the research that we've seen, there's like this light bulb that often goes off in their heads. They really don't seem to appreciate that the first 1000 hours after their son or daughter becomes an independent driver is just unbelievably risky to the point where it's hard to appreciate.

And so I think that's where we should start, with more efforts to make those parents aware of what the true risks are.

And secondly, probably, we need to provide, additional incentives. The incentive right now is often to get the kid his independent license so they don't have to take them to the soccer game. And that need for mobility often overshadows any concern that they may have about the risk associated with that driving experience.

I asked Charles (Butler) the other day, who's been in this business a lot longer than I have, at least focusing on driver education, what was his assessment of the last 10 years. And I think his phrase was, "faster, cheaper, but not necessarily better." And I think that's a pretty good sound bite for an assessment of where we are in this country.

DR. WILLIAMS: I think Peter (Kissinger) makes some good points. The research literature is very clear that the highest-risk teens come from families where the parents are less involved not only with driving but in other aspects of life as well. That's a hard

group to reach and a real challenge, but there are a lot of parents out there who just don't realize the risks and would, I think, if you went after them the right ways, get more involved in the driving experience of their sons and daughters. I think that that's a larger group perhaps than the very high-risk families and the parents that are involved in those families and certainly a group that's a good target.

MR. HURLEY: One other thing. I think you identified in theory a great opportunity for professional driver educators to fill that vacuum under some pretty clear circumstances.

MR. COSTALES: One other potential is to look towards the law support. I know in our case, in our State, when we moved forward with the graduated driver license, a lot of the pushback initially was aren't these things that a parent can enforce already, shouldn't the parent be doing this already, and then having this conversation about are parents engaged. And even those that were involved and were supportive of what was going on, the fact that it was in law gave them an extra piece of support to say, not just because I said so, because it's the law.

And a part of that support also can be materials that not just help the parent or the guardian help their teenager through driver training and experience but also teach them something. And in the guide where they maybe have some sort of message that they're giving to their teenager to help them know the next phase there's a side note to the copilot or to the individual helping that this is something that they need to be aware of, a tip or something that leads them ahead.

Because, quite often, you spend the 50 hours, 100 hours in a setting with teaching a teenager to drive, you're going to learn something too in that material as well.

DR. SIND-PRUNIER: This question is directed at Mr. Costales. Earlier in the symposium NHTSA has said that it will require the States to come forward to demand changes in things such as curriculum standards or otherwise. What is GHSA doing to engage NHTSA in that regard?

MR. COSTALES: Well, GHSA's members are at all kinds of different places within their individual States. Some of the highway safety offices are in the DOTs and so there's a connection there. Some are associated with the motor vehicle offices. Some are associated with public safety offices. And there are still some that are actually independent offices.

So when mandates start to come through and you start to talk about a relationship with the State highway safety office, you're going to have to have some sort of menu of choices or understand that it's got to be different options because the highway safety office may not be poised in the right particular place to try and carry that out.

There are highway safety offices that are not in a place of being able to deal with policy or being able to go to the capital, talk with legislators or the governors about what's there. So sometimes what the relationship with NHTSA and if NHTSA was to

come forward with some of these requirements, they may need to actually be the spokesperson in that State or to find a different avenue to get the message through because the highway safety office may not be positioned to do that.

From a national level, the Highway Safety Association continues to focus on those things that are causing the death and injury in the United States, and this particular group is one of those that have been a focus for many years. And what we can support to our individual members to help them with, we try and do that.

DR. SIND-PRUNIER: This question is directed at Allan Williams and any others who would like to comment on it. I'd ask that Dr. Williams speak first.

Is it even possible to design and rigorously evaluate new types of driver's education programs, perhaps closely associated with graduated driver's licensing principles, that would truly affect novice driver safety resulting in crash reduction as well as imparting skills?

DR. WILLIAMS: Well, that's an interesting question. I mean, from a scientific standpoint, the design of a study is not difficult. You just need not to give it to everybody but to do random assignment, and some people get it and some don't, or some get it later. There are various techniques.

I think, too often we've reinvented driver education by saying, okay, well, what we've tried before doesn't work so let's just try something new. And you know, we sit down and we get the experts involved in and they put together what seems like a very intelligently thought out program. But the question is, is that going to work?

And I tried to point out in my talk that there are some really formidable barriers to affecting this young driver audience, which is not your most motivated audience to listen to safety messages.

So I think, you know, sure, given the right circumstances, you can design a program and evaluate it in a way that'll show what its effects are on crashes. And I would argue very strongly, I mean, look, the highway safety field has very scarce resources. We can't be affording to waste money on things that don't work. And you know, let's try to find things that do work, but let's not just think they work, let's try to evaluate them scientifically and make sure that they do before we launch them fully.

DR. DONALDSON: I agree with everything that Allan (Williams) said. I have a bit more of an optimistic view of this because I go back to an intuitive baseline.

We all believe that people can be educated, they're educable. Young people, those of us who have had them, sometimes we have great doubts that they can be educated, but they are. And they go through secondary school, they go to college, they learn basic skills, literacy, mathematics, science, and then they learn perhaps some professional trade, some professional skills, and they move on in life. There's no question

that those skills somehow were transmitted by the institutions they attended. Some of them don't do well; some of them do a lot better than others.

When you have a driver training curriculum, even one that tries, as I instanced before, an attempt to provide the right kinds of Johnny-on-the-spot interventions for the student who you see has the bad attitude, who is a slower learner, who has less maturity than others and there will be significant differences in maturity level in any group of students that you have in their teen years, in a driver education course.

Does that mean that we throw out the baby with the bath water? Does that mean that there is no driver education course that can help in tandem with graduated driver's licensing to inculcate the right kinds of skills to help move along a better maturity of judgment and to improve and to reinforce the experience that comes with driving while at the same time abbreviating the risk that we know? And I think the answer is "yes."

And yes, there are scarce resources out there, but the most precious resource out there is thousands of young people who die every year. And it seems to me that if the game is worth a candle -- I hate to use a crude capital evaluation of the value of a life, but certainly their lives on that old-fashioned capital evaluation principle is worth a lot more than mine is. And I want them to have a better opportunity to be able to move through life.

And if I can capture three or five or seven or 11 percent of them to increase their skills, their educational ability, improve their maturity of judgment and their attitude on the road about risk-taking, and I still lose the other 91 percent or 88 percent, I'm willing to do that because I know that every educational and training enterprise to a considerable extent is trying to reduce from the margins and that if you have a hard core of people who are not going to really be affected by a driver training program in the long run, I'm not sure any regime is going to make a difference.

But it will make a difference for some, and when it makes a difference for some in combination with graduated driver's licensing, that's more lives that we can save and less risk that we'll have out on the highways.

DR. SIND-PRUNIER: This may be an appropriate follow-up question, then, for Dr. Donaldson. Are there satisfactory screening tools available to identify high-risk potential drivers, and might this be a way of perhaps triaging drivers into strategies that may prove cost-effective for targeting some of the greater threats to these young adults?

DR. DONALDSON: I'm immediately going to defer to Peter Kissinger and Troy (Costales) at the end of the table, and Mr. Butler, because they have participated and vetted some of the protocols that we can use to be able to engage in these interventions, identify the high risk -- the potentially high-risk driver -- and to try to successfully respond to it because that's not an area that I work in.

MR. KISSINGER: You know, in the context that the question is asked, I don't think we are necessarily smart enough now to be able to employ a simple screening tool

that will identify exactly who those high risk individuals are, except by looking at crash history.

Every time since I've been in this business when the insurance industry has tried to reinvent itself, at least in terms of the factors that it uses to set rates, especially for youthful drivers, every time they seem to have found what they think is the magic formula for that, it doesn't seem to be the right formula. I'd actually defer to Allan (Williams) or appreciate Allan's (Williams) input.

I am aware that, for example, there is a large insurance industry research effort underway which is attempting to do just that, to develop what they are calling "driving factors" that they can use not only to set rates but to provide input to future driver education in this country. Drive Safety -- a new Safety organization, is doing that and if you haven't contacted them, you might want to do that as part of this forum.

I also am quite intrigued by the program that I mentioned briefly in my remarks that they instituted in Great Britain. The Transportation Research Laboratory, after something like six or seven years of trying, under a mandate from their Department of Motor Vehicles or their licensing authority, to come up with some measure that could be instituted to make a difference, has gone to essentially a risk-based, perception-based test which seems to place heavy emphasis on risk identification and reaction time.

They believe, based on their research, that they have something that is working. I think time will tell. It's just been implemented, and I couldn't agree with Allan (Williams) more in that across the board I think we underinvest in the evaluation of all of our countermeasures. You know, we rush to judgment and we then we spend years trying to implement things, but unfortunately, we as the community-wide institution underinvest in the hard work of looking back and saying, what have we done and does it in fact work.

And quite candidly, that's one of the reasons why I enjoyed my 12 years with NTSB, because that's pretty much what NTSB does day in and day out.

DR. WILLIAMS: Well, let me just add quickly. I mean, we certainly know the characteristics of high-risk individuals, high-risk teenagers. I don't know that that information can or should be used, before the fact to try to treat them differently in the licensing process.

And what we've tried in the past is to try to pick out the problem drivers after they're licensed, the people that have violations, that are getting in crashes, and treat teenagers, in particular those under 18, with more severe penalties that are applied, more quickly in terms of fewer license points than adults.

That's all well and good except that I think the statistics indicate that the majority of young people who get into fatal crashes have no prior history of violations or crashes on their record. So it's certainly an imperfect method of dealing with them.

Obviously, graduated licensing treats everybody the same, and I think there's a basis in that because graduated licensing really is a system for dealing with driving inexperience, the phasing-in of full privileges. So I think, inexperience is a risk factor for everybody, and it certainly justifies treating them as a group on that basis.

Obviously, there are different levels of maturity among young people, but they are at a developmental phase, as Chuck (Hurley) indicated, where there's a lot of risk-taking and trying out of new things. And even the most mature teenager gets alone with a group of his friends and gets in a car and some unwelcome things can happen.

So I think, sure, we know that the risk factors are different for different teenagers, but I think that graduated licensing does it the right way.

MR. COSTALES: Part of what I read into the question is a conversation of how do we take a current system and the licensing process of being a reactive system, where we react to a set of information or a set of circumstances, to then put a restriction on somebody's driving ability. How do we then become proactive.

And I don't think that there are necessarily a lot of studies that have started to aim that way into the proactive sense. It's all based on looking at past crash record history or past years of when there were teenagers involved and what was their history and what were the causes of those crashes versus starting to look ahead. And I think that's a topic of discussion and potential topic of research to go proactive.

But I also come up with a question of how do we identify in some cases a proactive way you or I are identified as a problem driver. How are mainstream adults identified through the licensing process of potentially being a problem?

Well, it's the people around them. Somebody calls up and says this person's having a problem. A family member says, this person shouldn't be driving anymore. They're at risk; they're doing things that aren't right. To be retested, reevaluated.

Well, around a teenager, who is that audience? Who is that person or people that can see their driving behavior and skills? Their peers. Well because you can do this or that or the other. Do a cookie in the parking lot or whatever. Well, you're cool and not necessarily seen as a bad-risk behavior. But it goes back to, again, the parents.

We have a culture where parents are not necessarily stepping in nor are they willing to be the person that calls in to the DMV and say, I need to restrict my child's license or need to have you place some restrictions, or they themselves say, I'm going to restrict you whether or not there's a GDL.

The only way I know of being able to be proactive, to answer the question, is that those that are around with a different pair of eyes watching that individual's driving ability and skills to say, it's not good enough.

MR. BUTLER: When you look at the task of driving, we know that there are three aspects of driving: there are social aspects, there are physical aspects, and then there are mental aspects. And a lot of the crash problem that young people have is not the result of what skills they have, what they know, or what they can do. A lot of their crash problem is the result of what they choose to do and how they are motivated to use the safe driving practices that they are exposed to both in the classroom as well as in the car.

We know from how people learn that we have not been very successful in teaching maturity and we haven't been very successful at teaching people to interact with one another, but we have been pretty successful at teaching people skills. And I think that that's where we have to start. And we can do a better job of teaching people skills.

What we have to do is to look in some other areas to see how we can affect and do a better job of motivating young people to use the skills that they're taught. And so, yeah, there are probably tests out there that you can give an individual to determine what their probability of future crash involvement is. But again, I think that we're doing a lot of things right but we also can do a much better job of motivating young people to use the skills that they are taught.

And I think right now that's the greatest challenge for us, is how do we change the educational process, the licensing process, and the awareness process to get young people to do a much better job of actually employing safe driving practices that they probably have been exposed to in driver education.

DR. SIND-PRUNIER: Another question to anyone who cares to respond. Fifteen, 16, 14. What is the right age for young drivers to begin training, and would there be any advantage to introducing licensing and/or training at age 21?

DR. DONALDSON: Let me respond to that first, and then Chuck Hurley will of course jump into this. I had, for some strange reason before we started this panel, the notion that somebody was going to hit us with the hard number question, and they hit us with the hard number question. Here it is.

I made a comment when I was doing my presentation about this quote, unquote, powerful political, cultural forces out there. And what those political and cultural and economic forces are always sending as a message is, we want that young person behind the wheel of a car as soon as possible. We don't want any restrictions on his or her mobility. We want the flexibility to go anywhere when they want to, to drive as far as they want to, most especially down to the nearby mall.

Vehicle makers would probably not be happy in having a lot of restriction on the initial stage of licensure. Certainly, a lot of people in important economic markets for young people would not like that. Young people are not going to get on a bus and get free transfer tickets to be able to get down to the Gap to buy anything. They want to get into the car and they drive down there.

So what's the answer? And somebody threw out a number here. Chuck (Hurley) threw out 17. Well, let's analogize. What is it for commercial truck drivers? In interstate commerce, it's 21. Some States have intrastate-only CDLs, as was mentioned yesterday, which go as low as 18. We have had initiatives by various interest groups and the commercial trucking community to lower the initial licensure age for commercial drivers.

Anybody who does the nominal research on this, I know Allan (Williams) has, I have, a lot of other people have, know what the over-involvement rates are not just for young people behind the wheel but for young commercial drivers between the ages of 18 and 21 in those States which allow them to drive either any truck or a specific type of truck, usually a straight and unarticulated, non-combination vehicle. It's extraordinarily high. And we know that their over-involvement rates from 21 to 25 are extraordinarily high, and we also know, if we go do a little history, that up until 15 to 20 years ago the initial stage of licensure for a commercial driver was 25, not 21.

Did we save lives? Yes. We absolutely did. Commercial mobility in this country right now wants to demand that that age be lowered below 21.

Here's my own feeling about it. The notion of a series of State legislators saying for all practical purposes, you're not going to drive until you're out of high school, sounds very implausible to me, and Chuck (Hurley) is sniggering over here because he knows that that is a very infeasible proposition for a State legislator. Our national culture is centered around the kid with the automobile, either his own or borrowing Dad's, to go out particularly on the weekends to go to a movie, to go down to see the submarine races at the lakefront.

But probably the hard answer, the abstract answer, and the answer that's not grounded in policy and political and economic realities is that you probably shouldn't have anybody licensed before the age of 18. And if they are, then they have to be licensed under extremely abbreviated circumstances, probably more restrictive than we have in any graduated licensing program in the country right now.

So there's the hard number answer. It is not a palatable answer, but each year that we can delay initial licensure, particularly with a graduated licensing program, is a year that we gain in reducing risk exposure and getting that curve that we all know, that nice shallow curve running from 16 and 17 down to the middle years and back up again and nearly approximating the young drivers' fatal crash rate by the time you reach 75 to 80, we can reduce that rate and we can reduce the number of lives lost.

DR. WILLIAMS: I should point out that there is a lot of variation in this country when we allow people to start -- 14, 15, 16 in some States -- and when they're allowed to get a full license, which 15, 16, or 17. And of course, European countries mostly license at 18. So there's no magical age.

Obviously, the recommendation from a safety standpoint would be, the later you start, the better it's going to be. And with a graduated system, it's optimal if you start at

16 and keep them in the system until 18 so you get the past first two years, 16 and 17, that we know from the statistics are very high-risk.

But obviously you get into safety and mobility tradeoffs here. Each State has sort of decided where they want to set the starting age and the licensing age. There's not really been much change in that over the years.

MR. BUTLER: I don't know what age it should be, but I can tell you, regardless of the age that you start anything, if you're a novice at anything you do, you're going to have a higher risk of crash involvement if the age is set at 18. You're just delaying the learning curve there.

MR. HURLEY: No, no.

MR. BUTLER: So I don't know what the age is. I don't. I just think that, you know, that it's the first six months of driving. The first year and a half, two years, from all the research that I've seen, is the most dangerous time for novice drivers. So there is, I believe, a learning curve associated within it. There's specifically a learning curve associated with driving.

DR. SIND-PRUNIER: It sounds like a perfect segue into a related question, and I can see that Mr. Hurley is going to want to answer it. We're sort of using interchangeably age, maturity, and experience. What are we really talking about here, and what is it that is really critical in terms of developing safer young drivers?

And I'll ask Mr. Hurley to go first.

MR. HURLEY: That's such a good question I'm going to answer the previous one first.

There is a novice driver effect, but the data from, let me scare Allan (Williams), when I was at the institute (IIHS), I remember the data on New Jersey is that in fact it did save a large number of 16-year-olds and that the novice driver effect is less as age is increased. So the short answer is that higher is better.

Sixteen would be my answer realistically, but I think what we found is that graduated driver licensing is the politically acceptable way of raising the driving age in the United States, that it is a very rational, data-based system that delays full licensure from the ages that are truly scary to ones that are less scary.

And I think I was still at the institute (IIHS) when Governor Allen of Virginia in his wisdom decided he was going to lower the age to 15 and a half in order to get kids more experience, which leads to greater exposure, which leads to greater risk.

That everything I've seen is that higher is better and that the best way to politically accomplish that goal if we could raise the driving age in the United States to

17, I think we'd save a lot of kids. I don't see that happening, and so the best way to accomplish that goal probably less well is graduated licensing.

What was the second question?

(Laughter)

DR. WILLIAMS: Since Mr. Hurley has forgotten the second question; I'll take a first crack at it.

Is it age or is it inexperience? Well, obviously it's both that are risk factors. And you know, how much does one or the other contribute. They both contribute, and it's a little hard since they're very correlated behaviors to parcel out the effects of one versus the other.

I think the kind of a summary answer is that in countries or in jurisdictions like in Europe where you license at 18 the studies indicate that experience is the more important factor than age. And in countries like the U.S., Canada, New Zealand, where you license at 16 typically, then age is a slightly more important factor. But they're both there, and if it's 50/50 or 40/60 or whatever, they're obviously both factors that you have to work with.

And graduated licensing really does that. As I say, it's a system that deals with inexperience primarily, but in doing so it lengthens the process of getting a full license. So it works on the maturity factor, too. It gets people a little older and perhaps more mature before they get their full driver's license.

MR. COSTALES: I think in most States as far as looking at the records of the age of drivers, you don't start to see that one-to-one number of licensees versus drivers in fatal injury crashes until you're above the age of 25.

I have a 13-year-old son at home. As far as he's concerned, he believes it's the law in Oregon that he can't get his license until he's 21.

(Laughter)

MR. COSTALES: Or at least his mother tells him I will be working on that law change before he gets to the age of 16.

I had the fortune of visiting four European countries a year and a half ago, and this 18 discussion came up. And what's rather interesting is to hear their research individuals and their licensing bureaus talk about because of the good experience in the United States of graduated driver licensing, they're looking at backing their 18 down to 16 and starting to develop skills and training at an earlier age.

So one of the things we have to be careful of is that we're bouncing off some of our thoughts and experiences based on the European model. They're looking across the

ocean back at us and saying, look how well it's done so maybe we should be introducing our young drivers earlier.

MR. HURLEY: Let me add two points to that. I think also in Europe its not just age, it's economics. To get a license is very costly in countries like Germany, with $2-, $3000 of training costs and pretty stiff insurance costs as well. So it's not just age but economics, I think, that is the barrier.

The second point is some of the 14- and 15-year-old licensing ages in the United States are based on an agrarian society that has not existed in this country for 50 years. Now, there are still some States where that may be true, but that makes no sense for ages less than 16, in my view.

MR. KISSINGER: I would certainly add that GDL has been remarkably successful based on what we've seen, including what we've seen from some pretty decent evaluations that have been done. And I think I agree with the panel that have said that we need to place our emphasis on further strengthening those laws and to enhance those provisions which are making the biggest difference. And that's where I think we can have the biggest payoff in the next decade.

DR. SIND-PRUNIER: One final question, and some of you did address this in your presentation. For those of you who did not, I'd like to ask you to answer it. I'd like to go down the table, starting with Mr. Costales and work our way down.

What do you envision and hope the NTSB will do as a result of this forum?

MR. COSTALES: First and foremost, I would hope to see that the NTSB publishes a document that identifies that there is a problem and there is a need and identifies that there are a small set of national federal entities that can be put in the point place of being responsible to further this discussion and send the charge to those agencies that they are to hold this discussion but also that NTSB puts a deadline on this. Every day we wait there are 10 fatal crashes involving teenagers. So a quick timeline.

There have been a lot of concurring themes and thoughts by all the panels over the last two days. So I think that taking the NTSB at its mission statement and its charge, which is to identify the problem and kick off the next level, at a minimum, we should be able to walk away from these two days with that in hand.

MR. BUTLER: My hope is, is that the NTSB will be able to do basically three things. First of all, raise awareness that motor vehicle crashes are the number one health problem for young people in this country. And I think it will go a long way in doing that.

I also hope that it will draw attention to the need to strengthen the way that we license young people in this country from a graduated driver-licensing standpoint.

And the third thing I think that, hopefully what the forum is really about, is how in this comprehensive model that we're going to be using to address the young novice

driver crash problem, how can we improve the educational process in this country. Because, from my experiences, the public's perception about driver education is simply, give it to me now, give it to me quickly, and give it to me cheaply.

And if we're ever going to get a handle on the young novice driver crash problem in this country, we definitely have to change and turn around that perception, and we have to find a way to implement a comprehensive approach to the young novice driver problem with specific focus on how we can improve the educational process.

DR. WILLIAMS: Well, I'm assuming that the NTSB will try to point out some promising directions in which driver education can go. This panel has suggested some, and there may be others.

I would hope, though, instead of just recommending more and better driver education, that we are very careful about insisting on scientific evaluation of whatever people come up with so that we don't adopt and institute programs that don't actually work.

MR. HURLEY: This is a very good question. I think one of the things I certainly would hope is that the Board would continue its very active role in the States of not just talking about GDL but trying to bring it about and trying to get the votes behind some of the tougher provisions.

Second is that I think in Washington we tend to suffer from the disease of hardening of the categories, and the idea of doing driver education separate from GDL doesn't make as much sense as trying to do driver education as a way of strengthening GDL in some key areas that have been identified. That is, as a stand-alone program I'm not sure driver education has a very bright future. But as a component part of a graduate education licensing, I think it could serve some very useful roles. I hope the Board would point that out.

MR. KISSINGER: I guess I have a very simple answer, which is to take advantage of the power of the participants over the past two days and the credibility of the Safety Board to turn this event into an ongoing process with some sustained focus that will in fact lead to changes in the months and years ahead.

DR. DONALDSON: I guess the first thing I want to say is to agree with Chuck Hurley that I can't even imagine talking about any potential novice driver training course, whatever that might be, without having it forged to complement the idea of graduated driver's licensing.

I think it is impossible that on the one hand we will control young drivers exposure to risk as they get older by putting them through the various levels of GDL and giving them training of any kind, and on the other hand providing driver training and simply looking the other way on trying to control those risks with a GDL program. I think they're absolutely complementary.

As far as the Board's action in this area, the Board, as many of you know, has already been very active in the area of graduated driver's licensing. I think it is much appreciated by those of us in the safety community that the NTSB has taken the lead on being vigorous about the need and the importance and the value of GDL.

I would like to see the Board evaluate, as Peter Kissinger just said, any potential new promising directions for driver training which will not plow the same old ground that we've had before, the same uninnovative, one-size-fits-all approach, and that they would engage in an ongoing review and evaluation of any innovative driver training courses, particularly with regard to what Allan Williams has indicated repeatedly today as a necessity of vetting any of these programs on a strict scientific basis, use a proper protocol to evaluate them, and not just give a thumbs up to them because they sound good, feel good, and they've been advocated by some special association or interest group.

DR. SIND-PRUNIER: Thank you very much.

MS. BISHOP: And we hope that you aren't going to wait until our report comes out in six months. We hope that you will take some of the information you've gathered here and use it when you go back to your organizations.

Thank you very much, panelists. That was a great conversation.

(Applause)

Current Research

DR. MOLLOY: Good afternoon, and welcome to our panel on driver education research. In this session, we'll be discussing recent research projects in the areas of Texas youth driving accident statistics, the use of simulators in driver education, and the perceptions of teachers and students on the needs and deficiencies of driver education. We'll also examine general issues in driver education research.

Presentation by Terry Kline

Our first speaker is Dr. Terry Kline with the Eastern Kentucky University Traffic Safety Center, where he's served as an associate professor since August of 1997. He holds an Ed.D. from Texas A & M in industrial education, curriculum specialist. He has developed curricula for highway railroad grade crossings, elementary bicycle education, junior high school traffic safety, secondary alcohol and driver education, adult commercial driver skill enhancement, and adult alcohol education programs.

DR. KLINE: The session that I'm involved with as far as the Texas youth crash statistics really was a result of a couple different forces coming together. The Houston Region AAA was very involved in trying to work with the GDL licensing requirements in Texas. The result of that, they came up with some stats that showed that there was a recent rise of 36 percent of 16-year-olds' crash rate in Texas over the last four or five years.

So what happened is, a group of legislators asked the TA to do a study and just try to check out what the data shows as far as a increase in the crash rate of the 16-year-olds.

So really, what happened is, as a result of this Texas situation growing and they were trying to do some things with GDL at the same time, they really had a certified program of instructors up until 1995. And their State-certified program really is in three different options, which is rather unusual that they had three different standard options.

Their first option is a half-credit course with 56 hours of classroom and 14 hours behind the wheel, seven of which has to be behind-the-wheel time. The other seven, directed observation. So really, they have a program that did a whole semester in their basic program.

After some budget cuts occurred, they also had an after-school program or a non-credit program of 32 hours of classroom and 14 hours behind-the-wheel, with seven hours being behind-the-wheel instruction. So that became the most used option after

1995. And most of the programs went to after school, before school, during the summer sessions.

During that time period, up until 1995, all the State instructors were State-certified. After 1995, a law was passed through the legislature that allowed parents to certify program participants. What we mean by that is they were given the curriculum by the Department of Public Safety (DPS), and they were allowed to use the curriculum that was used by the regular certified instructor in the State of Texas and instruct their students based on 32 hours of classroom and 14 hours of behind-the-wheel time.

And when they certified them as completing that program, they had the same certification requirements as any student in the State of Texas for driver education. In other words, they did have their driver test waived at the test center just like any other student would have that has a certified program. So it's a little different type of operation.

The original concept was designed for home schooling, and that's how the law really came into place. But in the process of the Senate bill and the House bill and the interaction between the House and the Senate as they finalized the bill, they made it into a parent training program and not just a home schooling program.

So what happens is the certificates are purchased from the Texas Department of Public Safety, and they get full certification. And they also get the insurance certificate as well as any other certificates that would be applied to a regularly certified driver education student.

What happened is that there were a lot of alternatives considered at this last legislative session. They talked about having a parent training certification course, which would allow the parents to have some training in using the new curriculum guide that they were using. There is no parent training except for the home schooling with the certification. That was another process that was thought about. And they also thought about having a completion certificate but would not be allowed to have a waiver for the driving test. None of those things changed over the last year in the process.

The Texas legislature went on vacation to I think it was New Mexico and also to Oklahoma, and it sort of stalled the process as it went along.

There are some assumptions as we looked at this data because, really, we just had a very short period of time to look at the data. And the person from the TA called me up and said that, you've already collected some of the data from 1993 to 1997, she'd like me to just continue that process so she has some data to show to the legislators.

So that's really the process that occurred and how it occurred. And really, as we looked at this data, we had to assume that the DPS data was correct, the first big assumption. The second big assumption was the fact that in 1998 they changed the way they reported the crashes. So prior to that time period, if a person got their license in 1995, let's say, they had a crash in 1996, they were considered to be 16 years old. They

could actually be 15, 16, or 17 in that time period. It depends on when they got their license.

So you see it made a problem on really trying to identify was a person really 15, 16, or 17 when he had his first crash. So that became a problem as far as those changes. Those changes occurred in 1998 that related the crash to the birth date. So that could be some differences in the reporting of the crashes.

Also, after I think it was 1996, they went into a process where they raised the limit on property damage from $500 up to $1000. And in many cases in that time period that several larger cities really were having police sent out to injury crashes and not really property damage crashes. So there's all of that. Many of the property damage crashes were really self-reported. So that could be another confounding problem when you're looking at this data. All right.

Also, trying to compare national age comparisons of data to this information was rather difficult because we really don't know how the other data was collected other than collecting it from the National Safety Council's accident report facts.

So what we did is we put some information together. You can see the difference in the stats from 1995 to 2002, how the parents were more involved in the education process for new drivers. As you see, the program really didn't get started till 1996, even though the law passed in 1995. That's when the first certificates were issued. And it started out with about 35,000, and now, in the last year, it's up over 75,000. Now, the last year that was reported was 72,000.

So as you start to realize there is a growing population of parent-taught certification going on. And largely, if you notice where it's coming from, it's really coming out of the public schools. The commercial schools have really kept their numbers pretty much the same throughout that time period. So as they're dropping programs from the public schools, the parents, instead of taking them to commercial schools to be trained, they usually do the training themselves.

There's also another confounding effect in here because, especially in the 1999 time period, there was a lot of persons who tried to do the training, got about halfway through, then decided to send them into a public school program or into a commercial school program. So that was another sort of confounding factor with this.

So as you look at this idea, you can very easily look at the data and see how the age 15-year-olds, the data shows under-involvement. So what I put in this data is to show you how it's set up. These are all 15-year-olds from 1993 to 2000. If you look at the data, up to 1997 they had an under-involvement in crashes compared to the national averages of 50 percent. And this is a time period that in Texas that they spend time with their parents, the whole age 15 years, they spend with their parents driving and also with the driver education instructor. So it's really a permit time period and not a time when they drive themselves, unless they do it illegally, which you've heard some evidence of that today.

In 1998 and 1999 and 2000, we started to notice a trend, that there were more crashes during that time period with that student, even though the licensure rate was the same. So as you've seen, there is a change in the crash rate.

Now, what that's attributed to is really hard to tell right now. It could be a combination of the parent training, a combination of the reporting system, or a combination of how the accesses are really recorded in the data. But we do see a very consistent rate up to 1997 and a very changed rate after 1998 for the 15-year-olds.

Now, that's the time they're supposed to be in the training aspect of what they're doing. So they don't have a regular license themselves at this point.

If you look at the 16-year-old age group, you can see again the change in their over- and under-involvement. As you see, they were over-involved with their crash rates for 16-year-olds to 1997. The over-involvement got a lot worse. Almost three times the difference of what it was in 1997.

Again, it's hard to relate exactly what the cause of that is. In fact, it's one of the reasons why Texas Transportation Institute (TTI) is going to be working with NHTSA in the new few years trying to determine really what did cause this change. Is it the parent training, is it the anomaly with the change in the crash reporting system, or is it something else that we may not have figured into this. But this data really is the result of trying to take a look at the future.

It was rather interesting. The 17-year-olds were still under the old system at this time period. You notice there's not much change in their data other than an anomaly in 1997 of a very low licensure rate for 17-year-olds. No clue of why it's a lower licensing rate, but you notice that there's just that one-year that the licensing rate went down. And the next three years it was consistent at 1.3.

As you've seen, the over- and under-involvement rate is pretty much the same, pretty consistent, for that 17-year-old group.

If you look at the 18-year-old group, you may notice there's a consistent over-involvement growing and growing with the 18-year-old group. So really, it's back very close to what it is at national stats. There's the comparison.

I just put together the 19-, 20-, and 21-year-old group because we try to use them for a baseline. I wanted to let you see that they're very consistent in their involvement.

From 1993 up to 2000, they're very consistent in their rate, very consistent in licensure, but as you see, the licensure rate is growing a little bit for the 19-year-olds. For the 20-year-olds, it's very consistent. For the 21-year-olds, it's very consistent. So we use them for a base rate as we did some comparisons.

Now, what we try to do with the comparisons is just to give you some idea what we're talking about. The box that's outlined in red in the bottom, those are the 19-, 20-,

and 21-year-olds that really make up our baseline. What it shows you from 1993 -- we grouped the 1993 to 1996 group together. And when they were compared with the 1997 to 2000 age group, same 19-year-olds, and they had a 2 percent rise in their crash rate. And you also can see the same thing happen with the 20-year-olds. There was a 6 percent rise in their crash rate between comparing those two time periods. And for the 21-year-olds, there was a 1 percent rise in their crash rate.

So what we try to do is average that out with a baseline rate change of 3 percent for the 19- to 21-year-old drivers. Then we went back and compared that with the 15-year-olds, the 16-year-olds, the 17-year-olds, and the 18-year-olds to see if there was really any change over what they did in the past.

And what you see, the rate of change in involvement is really a comparison of the 15-year-olds to the 15-year-olds in both the groups. So as you see, from 1993 to 1996 compared to 1997 to 2000, there is very little change of involvement from that base rate. And what we have is a change of baseline of 100 percent down. So the 15-year-olds really did do a lot better, all right, over the process.

If you look at 15-year-olds and 16-year-olds over that process between 1993 and 2000, you'll notice that there's a 50 percent rise in their crash rate comparing the 1993 group to the 2000 group.

And also, if you compare that to the base rate, the baseline, it's 15.7 times higher than their base rate. So when you're comparing the change from 1997 to 1996 of those three groups, it shows there's a big change in their base rate.

The 1997, 16-year-olds compared to the 1993, 16-year-olds. You'll notice that they're changing from the normal involvement, changed from 1996 to 2000 being 143 percent up, right. So they had 143 percent change in their crash rate and that when you compare those two years of involvement.

When you compare that with the baseline, it's a 50 percent -- 50 percent change upward. So there is a definite change in the crash rate. We just don't know exactly the reason behind it.

As you look at the 17-year-olds, there's a 7 percent change in their over-involvement, and there was only a one-time change higher from the base rate. It's not very significant as far as the change from the base rate.

For 18-year-olds, 6 percent up in their rate of change involvement. It's about the same as the baseline rate, about one time greater. So you see for 15- and 16-year-olds there's been quite a change in their involvement rate, and we're talking about people that are in the 17- or 18-year-old category, which weren't involved in the changes yet that the rate is pretty consistent with the baseline rate. That's what we found when we looked at just the Texas crash rate.

When we compared them with the national rates, then, all right, we tried to take a look at how they compare with the national rates in that same area. So as you're looking at the data that's shown there for the people under age 16, or under age 15 is what it should say there, we had the normal rate for involvement for the 1993 to 1996 time period was about 9 percent. That's up 33 percent over what it was in the years past.

If you're looking at the national crash rate in comparison to Texas drivers, all right, it's about 14 percent up. If you look at the baseline rate, it's up about 6 tenths or about 69 percent higher than it was before.

If you look at 17-year-olds, it's only about 129 percent up. So it's interesting to see the 17-year-olds in this new period had a higher baseline rate change compared to the national averages. So what it's saying, the national averages went down during that time, and the Texas averages went up just a little bit. So that's a rather interesting change in that rate.

If we're looking at the 18-year-olds, you've seen that in comparison to the national rate, they went up about 5 percent. But they're actually about 40 percent lower than the baseline for the national statistics.

So what we tried to do with this is we gave this to the legislators to try to give them some idea what's happening with it. The only thing we could actually show is there's been a change. As far as what the change does compared to national statistics, it's actually been going up over the last three years. Prior to that, the rate has gone down. So it's interesting to show that there's been a change in the rates of crash involvement over those last three years.

Now, we had another problem, not getting the statistics for 2001 because they're not fully entered yet with the DPS. So the furthest we could go is 2000. So hopefully, in the next study that comes out with this, it'll show the rates for a little bit more current.

But we did recommend that more research is needed to find what the causes of novice driver changes are and we hope that we can do some other States look at some comparisons of their novice drivers and see if the rates are changing or not.

We do notice that in as far as the vision for the future that there's a lot of monies being directed to research problems of older driver populations and there's not much being directed at the novice driver populations and trying to see what it is they need to change. We also need to find ways to improve our educational process instead of giving up an invaluable means of getting this reliable knowledge out for this database.

What we have with the knowledge base in driving is expanding so greatly, but we really don't have a curriculum that gives the information other than ones based in 1996, 1960, and 1970 research information. So really, our database is pretty old as far as getting new information out to the students.

So we'd like to just in the summary point out to you that the TTI, the Texas Transportation Institute, is going to work with NHTSA to try to study this problem of novice driver crash rates, especially related to the parent training area. We need to develop an educational base for basing knowledge and skills for Phase I driver education. We also need to develop an educational base for crash causation for Phase II. And we need to provide some materials for parent training that have positive training reinforcement. All those things you've seen being supportive of all the other things that have been done so far in this program.

I think it's important to realize that which we really don't have enough data, not reliable data, out there to see what we're really doing right now in the programs. And hopefully, efforts will be done in the future to make a change in that kind of data.

But that's what we had. We just collected some data, and hopefully the TTI can come up and get some good analysis of what that data's saying to us. And that's what I have to show you for today's session, okay.

Thank you very much.

(Applause)

Presentation by Bimal Aponso

DR. MOLLOY: Our next speaker is Mr. Bimal Aponso. Mr. Aponso is the technical director for Systems Technologies, Incorporated, and was a key contributor and software engineer for the initial development of their PC-based driving simulator. He was also a primary contributor to the functional specification for the National Advanced Driving Simulator.

Mr. Aponso has a B.S. in mechanical engineering from the University of Manchester in the United Kingdom, an M.S. in aerospace engineering from the University of Maryland, and an M.B.A. from the University of Southern California.

MR. APONSO: Thank you, Robert, and thank you for the NTSB for convening this session and for inviting me to be here. It's a great honor to be included in this august crowd of people with the depth of experience and passion for the subject that's involved here.

What I'd like to talk about today is a project that we've been involved in. We're about halfway through the project. The people involved in the project at Systems Technology, Incorporated, my colleagues, Wade Allen, Ted Rosenthal, George Park, Marcia Cook, and our collaborators at Southern California Research Institute, as well as Dr. Eric Virre from the University of California, San Diego.

I'm not one of the authors. I'm here representing Wade Allen, who could not be here, but I'll try to do their work justice.

The project is being funded by the Centers for Disease Control, the National Center for Injury Prevention and Control. The Phase II of this project started in September 2001. The Phase I was completed somewhere in 1999. And they expect to complete this project in September 2005.

Actually, I should have added in the introduction I'm not a driver educator and neither are any of my colleagues. We are coming at this from a driver behavior perspective. We have been involved in driver behavior research for the past 30-odd years, which is why we developed the simulator for driver behavior research.

The present status of this project is that the subject training has been completed and the data analysis and driving record data collection is underway.

Let me go on to explain what the project is about. The basic premise of the project is to look at how to include, or how best to include, a driving simulator in a driver education curriculum and how effective it is. So our task here, as outlined in this slide, is to train 500 -- actually, we trained more than that -- high school students, novice drivers, and then compare their violation and accident history to a demographically matched control group after two years of driving.

And a side objective which was actually suggested as a part of the peer review process that the research proposal went through was to evaluate the simulator configurations that would best suit the purpose. Should it be a single monitor system, a wide field of view system, and so on?

Not being driver educators and coming from behavioral aspects, we started off doing some research to determine how best it would fit in a driver education curriculum. We went through the past research, in this area. And all the things that are on this slide here have been covered previously.

The primary issue was the whole issue of the licensure paradox, which somebody in the previous panel just mentioned. You need to drive to gain experience, but when you start driving to gain experience, you increase your exposure to accidents.

Also, we read in the literature there's not much evidence of the effectiveness of formal driving instruction. And also, the various the risk components that novice drivers are exposed to, the peer pressure, the natural optimistic bias, and the emotionality and the maturity issues. Basically, there were a lot of issues that came up here, and we had to target which ones we would try to attack that would correlate best with what a simulator can be used for.

So out of that we came out with some training objectives, basic road safety and traffic safety instruction, that would be part of the driver's education curriculum of the schools that we would be involved with. And also, the importance of simulator aspect is

to teach some critical skills in a real-time environment: primarily, the situational awareness, hazard perception, decision-making, as well as the steering and braking and normal vehicle control aspects.

So we focused on the psychomotor cognitive perceptual skill deficiencies and tried to include experiences that demonstrated the value of being a safe driver. The other objective was to make the novices aware of their limitations and to counteract problems of overconfidence. All these goals were encompassed to create the driving scenarios that the students would be subject to. And we tried to go back and tried to include all these aspects in the scenarios that they would be exposed to.

The simulator itself had to serve an assessment function as well as a training function, and there were common elements to both. And in this case, we were primarily using it in the training function because the assessment function would come later on when you evaluated the driving record.

The primary initial focus was, how do we create the software platform because the simulator on it's own wasn't suitable for use in a school environment. There were several requirements. We worked with a couple of local schools, and one big requirement was that in order to include this as part of the driver education curriculum you had to minimize the teacher involvement in this extra time. And so what we did was to create an almost self-administering series of tests and evaluations that the teacher could oversee and which would complement their regular driver education classroom teaching.

So we developed a platform that allowed for the logging in of students, record keeping, presentation of background on safety and the normal driver education curriculum as well as performance feedback. We tried to develop a fairly generic platform with application beyond the novice driver education issue.

Just a quick overview of the platform -- and I'm showing this slide just to show the various aspects that are involved. On one side, you have the driver assessment and training system, which ties-in with the actual driving simulator component. To try and make this as generic as possible and to be able to adjust it as the need arose as we learned more as the project progressed, we had the educational component in a PowerPoint presentation that could be presented with voice-overs to the student.

Subject registration procedures where the students had their performance data all recorded on a floppy disk. So the student could at any time pick up their floppy disk, put it in the computer, and it would start up the evaluation and pick up from where they left off, if they had been doing it previously. Also, a performance assessment and a progress monitor.

In the driving simulator component, the important things were the configuration of the simulator itself, simple aspects like sounds to more detailed aspects like what is the field of view that's going to be displayed. And a very important component was the scenario. Different scenarios had to be presented to the subject at different stages of their training. And you had to have to a platform that could accommodate easily.

Just a sample of what was involved in the PowerPoint presentation, just a couple of slides -- regular situational awareness issues. We developed this in collaboration with the driver education teacher that we were working with.

As I said earlier, we augmented the program to look at the effect of different configurations of the driving simulator. The system you see up there, that actually is one of the high schools. And they were really enthusiastic about joining with us in the program, and I'll talk a little bit more about that later on.

They provided half the computers in their computer lab, which we converted to driving simulators. We had headphones so that the teacher and the students wouldn't interfere with each other. And we had simple game-type driving controls, which, if the computer was not being used as a simulator, the driving controls are kept just underneath and the computer could be used for whatever else the computer is used for during school time.

In this particular school, what the teacher did was when the driver education class came along, they'd send half the class to the simulator training and half the class would continue with the classroom training, and they'd switch.

The simulators were always available for the students to come in and drive through the program.

We also had a wider field of view system, which is a three-monitor system. I should add, with the single-monitor system, the drivers had the capability of scanning left and right by pressing buttons. The configuration you see at the bottom is a three-monitor system also with a simple game-type driving control. Tests with this configuration were administered at the Southern California Research Institute and the University of California at San Diego. And the cab arrangement on top was used at systems technology itself, and we had students come in and drive that.

Six hundred twenty seven students were taken through the program, of which about 250 went through the single-monitor system in the high school and about 160 went through the three monitors with the game controls, and less than that used the cab. So the lowest amount of people was with the cab configuration.

One important aspect -- I talked a lot about setting up the scenarios. And one of the things we were trying to do was, I guess in a way, trying to get the students up the experience process, try to speed it up using the simulator -- improve the situational awareness and decision-making skills.

And one variable that we used for that was the concept of the time-to-collision. The time-to-collision is simply the distance to the vehicle in front of your vehicle or object in front of you divided by a closure rate to that object. If you don't do anything, you will collide with that object at the time-to-collision.

We actually used the time-to-collision to trigger events. So we kind of worked it backwards. We said, okay, to force quick decision-making you had to set a time-to-collision of around three seconds. And we set different events with time-to-collision that varied around that three seconds.

So we triggered the events. So if it's a pedestrian that is crossing the road, we triggered that pedestrian to start walking when you are about three or five or less seconds away from colliding with that pedestrian.

These are some just examples of the scenarios, showing the different types of traffic. And we could fill it up with as much traffic as we wanted or as little. We had a lot of other things going on in the background, but the events that we were measuring were all based on time-to-collision as well as just other basic issues, such as looking at mirrors and so on.

Like I said, there were 627 students who went through it, and currently we're at the stage where everybody's gone through the training and we are going to be following up. We have an arrangement with the California DMV where we can track their driving records for a year.

What I'm going to show are some very preliminary data from the project. What's shown here are the average accidents per subject. And we had six trials that the students had to go through. There was a graduation criteria. And if they didn't graduate in six trials, they could go on to seven trials, eight, or a maximum of nine. If they hadn't graduated by a maximum of nine, they were told to drive safely, and there were no other consequences.

This shows the difference in the average accidents per subject in the three different simulator configurations what is obvious from this is that the single-monitor system had a greater amount of accidents than the three-monitor or the cab. And the big difference there is the field of view available. So not a big surprise there.

The next two slides show the average speed in miles per hour as well as the time-to-collision. They're kind of related. I'll show what's happening here. Again, you see the difference in the field of view, but you also see that toward the end of the trials, when they are getting close to their six trails, the average speed starts dropping off. And what we think is happening here is kind of a coping mechanism by the students. They needed no accidents essentially to graduate, so they started becoming more cautious as they went along.

And a similar trend is shown by the average time-to-collision. A smaller time-to-collision means you're coming closer to objects before you avoid an accident. So they started off high. As they got more confident, the time-to-collision started going down, but then, as they needed to graduate, the time-to-collision went back up again as they wanted to graduate.

Let me just go quickly through some of the anecdotal -- just our experience in this whole project working with the high schools. The driver's education licensing requirements in California are no different than anybody else. The California Department of Education requires that schools must teach driver's education but it need not be a graduation requirement. The DMV requires, the usual 30 and six that a lot of people have talked about here.

What we experienced when we tried to go to the local area -- this being the south bay area of Los Angeles. We contacted local schools, and offered them software, and hardware, if necessary, at no cost in return for including the simulator training in their driver's education curriculum.

I'm sorry to say most of the schools basically didn't want to talk to us, but three schools did. Actually, one school was in San Diego, and the other two in the south bay area of Los Angeles. And the schools that responded were very enthusiastic about the program. One in particular, the one I showed the picture of, the teacher there was really enthusiastic about it. They went and fought with their management to get this included, and they were really committed to it. And that's why the whole program went quite well. And some of the schools we contacted didn't have a driver's education program. They outsourced the whole thing.

We got feedback from the teachers, which is one of the more interesting things here, from the Peninsula High School. And the teachers, and this is a quote, said "The simulator added a valuable dimension to the instruction," and "They had a basis on which to base their instruction on."

And the majority of students enjoyed the experience. It was something different. Each time the simulator came up, we had a picture of a vehicle of some kind, usually some kind of an exotic car, and I think that's one of the things that the students had liked most. They wanted to find out what car they were going to drive that day.

And they wanted it back next year. Even though the CDC to do that does not fund us, we might continue just because of the enthusiasm, plus they are in close proximity to us, so we can support them easily.

The bad news. This is the one school we found in that area that had driver's education as a graduation requirement. Well, no more. It's been removed as a requirement the next year.

So let me go back to my summary. As of now, we have a general-purpose platform for assessment and training, which can administer training, and assessment without involvement of a teacher full-time. There we've created some flexibility in preparing the orientation and instruction where the teachers could, if needed, put a PowerPoint presentation together with the driving simulator for autonomous operation. And it's designed to be run very easily by teachers. The simulators we set up at the school just ran by themselves with very little involvement from us.

Future issues. I think we've just scratched the surface. There are many issues related to driver education and how to make it better that a lot of people here have better knowledge of than us.

We think one of the biggest issues is for transfer of training studies and also to understand the effective amount of simulator training. I think a previous speaker put it quite well. The whole issue of driver education is like a jigsaw puzzle. The components -- there are not that many components, but the interaction is quite complex. And so if you're using the simulator, how best can you use the simulator in this kind of an environment?

And the last point is something that one person in our group just threw out, and I haven't heard it mentioned. There's a potential of on-board data recording devices. When we were doing our work in San Diego, we happened to come across an article in the San Diego newspaper about some person who was selling an on-board -- basically a package data recorder, not as sophisticated as the aircraft data recorders that I'm sure the NTSB is very familiar with, but simpler aspects.

It monitors speed, lateral acceleration, longitudinal acceleration, and so on. Not only can the parent then take the information out, plug it into a computer, and see what's happening, you can have it trigger alarms or voice messages. So it's kind of like having a parent on board.

So that's another dimension that possibly can be used. It's not driver education as such, but it probably would help this whole overall issue.

And that's all I have today. Thank you for your time.

(Applause)

Presentation by Dale Ritzel

DR. MOLLOY: Our next speaker is Dr. Dale Ritzel. Dr. Ritzel is the director of the Safety Center and a professor of health -- health education at Southern Illinois University, Carbondale, and has been teaching driver education and traffic safety for 39 years. He has been involved in driver education research, including high school students driving and drinking, aggressive driving, et cetera.

He is the founder -- he is also the founder of the DE-L, the Driver Education Listserv.

DR. RITZEL: I want to first of all thank you for the opportunity to be here, and particularly thank Mary (Jones) for the arrangements she made for me to get here and Jennifer (Bishop) for arranging this whole thing and for Robert (Molloy) with the panel and organizing this whole aspect of the presentations.

Looking at the four presentations they are giving in this panel, they are very different from each other in many ways, but also very much closely related to the whole area of driver education.

I wanted to talk a little bit about some of these items because of the fact that I've got quite a few figures in here and charts in here that some of these I will be going through relatively quick.

But a little bit of background, we know that driver education has been around for a long time, but in Illinois it started in the 1940s, probably around 1947 to 1948, and really took hold in the early 1950s. Illinois was one of the early States after Michigan to actually set up a driver education law act in 1957 where driver education at that time and since that time has been required of all students if they want to get a license before the age of 18. It wasn't that way in 1957, but has come that way since the mid 1960s.

Well, we really did not know up until a few years ago exactly what the teachers were doing in teaching driver education in Illinois as well as what the students were seeing and perceiving they were seeing in regards to topic areas in driver education. So the Safety Center at Southern Illinois University was contracted by the Illinois Department of Transportation and the Illinois Transportation Research Center, which is a center that's about 15 years old that's actually funded by the Illinois Department of Transportation, to take a look at some of these issues.

The purpose was basically to take a look at specific subject content areas covered in driver education in the State of Illinois and the time spent on each of the subject areas and what would need to be included that's probably not included in the current topics that are being taught in driver education.

One of the things we did as we normally always do, and I just wanted to put this in there and let you know that we did do this, we took a look at everything that had been done up until that point and really felt it was important to do that before we started anything else.

In order to determine the specific areas that were being covered in driver education and the time that was spent on each, we developed two separate but very similar questionnaires. The only difference between the questionnaires was the demographic information that we collected. We did reliability checks on these instruments, and you can see what they are in relation to the versions of "did spend" versus "should spend" in regards to the teacher sections as well as the student surveys, too. They were very, very high in regards to reliability.

Each of our questionnaires was developed for the teachers and mailed to every high school in Illinois. We had at that time approximately 621 schools in Illinois that offered driver education. They were sent to the driver education program, and in many cases we knew the specific person in charge of the program so it was specifically addressed to them. In some cases, we did not know who that person was.

We did receive back approximately 43 percent of the surveys that were sent, and if you've done much survey research, particularly with schools and teachers and so on, getting 43 percent back is a very, very good response, even though we would have liked to have seen more.

We also, as I mentioned, used a second survey or questionnaire that was administered by our project staff to students in randomly selected districts from all the 10 regions of Illinois as defined by the 10 driver education regions of Illinois as defined by the State driver education association.

It was basically a geographic stratified random sample process in which we selected schools randomly from each of the 10 areas, and from that we contacted the schools and asked for permission to come into the school, which is totally another different kind of issue right now because trying to get schools to participate in research is not always easy. And since you have to use right now an active response for parents to give permission to allow students to even participate in a paper-and-pencil survey, active basically meaning they'll take something home and bring something back signed. We can't do that, as we were able to do it one time. If they didn't bring it back, then they cannot participate.

Because of the size of some areas of the State in regards to number of schools and population, we did get more from some districts than others. We found out from our selection process that the schools really represented different parts of the State and that it really represented very well the gender and racial mix, urban, rural, large, small schools that we have in Illinois.

The questionnaire itself included 26 possible topic areas that after looking at the research you can see that these are the topic areas that were included. We relied upon a lot of the recent research at that time, particularly the novice driver education curriculum from the AAA Foundation for Traffic Safety and Peter (Kissinger), we thank you for your ongoing use of that good piece of information as well as other sources.

I'm not going to say that this listing is comprehensive, but it's as comprehensive as we could find in relation to taking a look at a lot of different surveys. We also have a validation process of various types of experts in the field to help us determine that these were probably the best and probably as inclusive as we could get.

Let's see. We also took a look at what should be spent and what was actually being spent from the standpoint of how the teachers looked at it and how the students looked at it.

We actually end up using the median time that the schools or the teachers indicated, and we also used the median time in regards to what the students indicated because we found we had some good skewed information if we used the mean. We found that if we used the median, which in this type of research is probably a better means of measurement anyhow, that we could determine a better response.

The median time that the teachers indicated for 15 of the 26 topics they would like to spend more time. In other words, at least one hour or more. For one topic they felt that the area of alcohol, drugs, and their effects on driving they would like to spend at least two more hours than what they had indicated they were actually spending on the topic. And then we find out today from listening to what was said by the AAA that the alcohol and other driving is one of the low issues in regards to crash involvement. So that's an interesting point to at least think about.

The students indicated that for four cases they wanted more time spent on the topics than the teachers did. The two topics were: one, they liked the amount of time on the visual scanning and the item predicting the actions of others.

Two topics the teachers wanted to have more time spent included rules of the road. I think we have found over the years that teachers, in 30-hour courses, if that's what they've got, would like to spend at least half that time on the rules of the road. And we know that's not an efficient use of time in regards to what needs to be taught.

I've got 26 slides like this, and I'm going to go through them pretty quick because I think you can get a sense of the blue line being what students indicate the program spent on driver education. The yellow one indicated what students thought should be spent. And you notice in some cases the "should be spent" is a lot less than what was actually being spent. The gray is what the teachers spent, as they indicated, and the red is what the teachers said should be spent.

Now, in some areas like social and economic consequences, you'll find that teachers in this case, and most cases, felt that they should spend more time and the students felt they should be spending less time. I'll let you make your own judgments as we go through these.

This is on emotions and driving. You'll notice that the teachers in some cases from the standpoint of the number of hours, particularly if they got over two hours or more, they thought they needed to spend more time in teaching this than what they were doing.

This is the relation to the rules of the road. You'll notice that almost everybody said, at least a high percent indicated that they spent a lot of time on the rules of the road. And one of the problems with having a category of "five or more," because of the fact that we were using a bubble sheet to have the teachers and the students respond, we were limited by the number of spaces that we had. And one of the limitations was the fact that we might have maybe found with the rules of the road part that the teachers were actually spending a lot more than five hours. Maybe a lot more than that.

From the standpoint of physical limitations of other drivers, it seems like the lesson one to about two hours was probably what needed to be spent, at least from the standpoint of what should be spent versus what was being spent.

Vehicle dynamics. You'll find out that a good percentage of the teachers spent one hour approximately on this topic, and it's an area that probably should have a lot more time spent on than one hour.

The impaired states of alertness. You'll notice there that in most cases the teachers would like to spend a little bit less than one hour, or one hour or so.

The basic vehicle control. And again, you have to realize that a lot of our topics, the reason we used the ones that we did was that we didn't want to separate classroom from the behind the wheel or the laboratory part. And so one of the instructions said they had to take a look at what they did both in classroom and what they did in both behind the wheel or laboratory, and they should look at what they should be doing the same way. And so you'll find out later that is how we came up with some of the numbers we came up with as a part of this.

Basic vehicle control. Again, a lot of this relates to the behind-the-wheel portion.

Visual scanning. I find that probably a lot of this was stuff that was being done out in the vehicle, but we did find that teachers saw a lot more than students, at least from the standpoint of two hours, and five and more, and four, that there should be more time spent on that.

The hazard identification recognition. Quite a few hours spent on this. And again, it's our feeling that, a lot of the hazard identification recognition, as has been said by many speakers over the last two days, can be and should be done in the classroom and that we should be putting more focus upon that in the classroom as well as continuing to put more focus on that out on the street.

The time-space-distance estimates. Teachers mostly spending one hour, but there's a feeling out there, at least from the standpoint of students, that a lot more time should be spent on this because I think you have to realize that the students that we surveyed were basically seniors in high school. In other words, they had two years of driving experience. In some cases, we dealt with juniors, so they had one year of driving experience.

And so we were getting some of this information from the students that really related more to spending more time on the perceptual processes of driving than what we were getting from the teachers. So the experience, I think, helped the students realize that they probably should have more time in some of these areas.

Like, for example, predicting the actions of others. You'll notice that at least from the standpoint of three or more hours, that students felt there should be more time spent than what there was.

Decision-making in traffic. Again, this is one where the students felt there should be more time spent.

From the standpoint of increased time, not necessarily in relation to what the instructors are doing. When instructors over here say they're spending two hours, but those that indicated two hours felt that they should spend less than that. That was kind of interesting.

The speed control. Again, an issue that needs to be spent more time on, both in the classroom and behind the wheel.

Vehicle positioning. You'll notice that we tend to spend a lot of time about one hour or two hours.

Handling driving emergencies. Again, teachers indicated as well as students that we should spend more time on this one.

Handling special situations. Likewise, some of the same kind of responses.

Vehicle maintenance. What do you notice there? Both students and teachers feel that we need to spend a little bit more time on this, particularly students. I would say in most cases students are showing a greater need to spend some time on this. And again, this doesn't necessarily have to be done in driver education, but as a part of the basic program, but it could be done as a continuing or second phase type of course.

Self-assessing of driving performance. Need to spend a little bit more time with this.

Alcohol, drugs, and driving. You'll notice that is the biggest category. We tend to spend two or three hours, and there is a tendency to want more with that, probably five or more.

Driving responsibility.

Accident protection. This is one I was happy to see that there was at least a need to spend a little bit more time on it since we do have a fairly low rate, at least in the State of Illinois, in regards to young people wearing safety belts.

Having a positive attitude.

Communication techniques, and the whole range of communication techniques. Mostly there was one hour spent, and probably need to spend another hour or so, at least from the sample of the students' feelings on this one.

Fuel-efficient driving. There's not many programs that get into fuel-efficient driving, and we decided to add this as one of our topic area primarily because of the fact that gasoline is still pretty high, and it will continue to go up, in my estimation. But you'll notice that the teachers don't want to spend too much, and the students don't, either.

Vehicle ownership responsibilities, and we're talking about insurance and buying a new car and things like that.

And then driving in adverse conditions. Spending probably more time than what we are currently doing.

Some of the things that we hinted upon as I've gone through this is that teachers who teach in and students who have completed high school driver education want more hours devoted to most of the topics covered in the program. Teachers and students really want to spend additional hours on the topics that I've mentioned here. I'll let you go through those. But to highlight, almost every one I talked about, except for a couple of them. But I think you'll notice that a large number of them relate to the visual skills and visual habits and perceptual processes.

And then both teachers and students want a lot more time spent on alcohol and drugs. And then students in particular want more time spent on various topics than teachers.

Some of the key recommendations, and again, these are recommendations that we've made to the State of Illinois recently, and it's recommendations that I think can pertain to any State or at the national level too. And again, I don't think this is saying anything different than what we've said the last couple days, and, except the fact that we looked at it based upon the number of hours that were being shown by both students and teachers and that we need to spend probably at least 10 hours on the street.

And I've heard suggestions the last couple days up to 50 hours and even more. I wouldn't have a problem with that, either. But I think a lot of that has to do with parent involvement, too. But we recommend at least 45 hours for classroom and at least 10 hours for on-street instruction.

One of the problems that we started in driver education in 1949, and a couple people have talked about, the first driver education conference in 1949 where the recommended minimum number of hours of driver education was 30 hours of classroom and a minimum of six hours of behind-the-wheel. Over the years, the 30 hours minimum, six hours minimum, have become the minimum, maximum, and everything in between. And I think we have to go back and take a look at the fact that this was a minimum recommendation and not just 30 and just six.

We also need to consider additional funding. I don't think that's something new. But we do get fees from a variety of different sources, and I think we need to look at doing more of that.

Some of the things that we had on our survey was an opportunity for teachers and students to indicate some other topics, and some of the ones that were listed are cellular phones, carjacking prevention, particularly in larger city areas, emergency off-road recovery, and standard transmission driving, which we do very little of in the United States today.

Also, we looked at some recommendations pertaining to a lot of the groups that have been mentioned not necessarily from a standpoint of just Illinois but that we need to

look at trying to strengthen a program through a lot of key leadership. And I would add the National Transportation Safety Board to this, too, if I were doing these recommendations today. They were done a couple years ago, so at that time that wasn't the case.

And I thought also that we needed to take a look at increasing areas being covered. And again, as I'll say and I'll emphasize again, most of this deals with driving. I think the focus for a long time in driver education has been on topics that don't relate directly to driving. And we need to put a focus more on topics in the classroom that relates to driving, even though some of these other topics are important, like rules of the road and other issues. But the focus should be more on driving.

I'll just mention some of the limitations that I feel any time I do any type of research. I should probably start out by talking about some of the limitations. You start with your limitations, and that's a good way to do it, too.

But I think the fact that we have a limit of having just five-plus and not breaking it down further. And I think there was some problem with people not knowing that. Is it done in the classroom and is it done on the street. And the answer in many cases is, yes. How do you break that down? How much time do we spend on street, how much do we spend in the classroom situation?

I appreciate your attention, and I enjoyed being here today. Thank you.

(Applause)

Presentation by Jean Shope

DR. MOLLOY: Our final speaker is Dr. Jean Shope. Dr. Shope is Senior Research Scientist and Director of Social Behavioral Analysis at the University of Michigan Transportation Research Institute, where she's worked since 1991. She's also on the faculty of the Department of Health Behavior and Health Education in the University of Michigan School of Public Health.

Dr. Shope's Ph.D. from Wayne State University is in the theoretical and behavioral foundations of education. Her research involves the driving behavior of adolescents, young adults, and older drivers. Special interests include at-risk drinking and drink/driving as well as graduated driver licensing.

DR. SHOPE: Thank you. I want to thank NTSB for this privileged opportunity and awesome challenge to be the last speaker at the end of two very full days.

I'm not a driver education professional. Although I did help my own three children survive that process. I am a health educator and researcher, and my research has been originally on alcohol and other substance abuse prevention, school-based by the

way, and that led very logically to an interest in young people's driving. So I hope I can bring a bit of a fresh perspective to what kind of research we need at this point.

I have a colleague who coauthored this presentation, Ray Bingham, who's an adolescent development expert obviously, one of the kinds of experts we need in this area.

I want to also say that our research support has primarily come from the National Institutes of Health (NIH), the National Institute on Alcohol Abuse and Alcoholism, as well as NHTSA for our GDL work and other work with young drivers.

I did prepare these slides ahead of time, and many of them I'll be able to gloss over because previous speakers covered the topic very nicely.

It is indeed timely to examine driver education. Many of the reasons have already been detailed, but we have more cars, more congestion, and more aggressive driving. We have cell phones; we have all kinds of electronics coming into vehicles -- you can get your fax, your e-mail. Just think about a 16-year-old with all that potential in the car.

We have more complex driving environment. The roadways and the highways are not only congested but they're getting arranged in all kinds of new ways that some of us didn't grow up driving on.

The fact that enforcement is not optimal just makes it all too easy for youngsters, as well as us to develop bad habits and just keep right on doing them. For young people, speed, alcohol, and the use of safety belts are very important risk factors that need to be monitored and enforced. So the fact that enforcement doesn't often happen is something to keep in mind.

The high crash rates I don't have to repeat again. This is a MAJOR public health problem. The deaths, the injuries, the incredible costs just deserve our attention.

It's good that GDL has started to show nice reductions in those crash risks, but we really need to understand a lot more to reduce the crash risks even further.

We talked quite a few times in the last two days about what the appropriate outcome of driver education should be. Is it learning to drive; is it getting licensed: is it reducing crashes; is it reducing violations; is it learning to drive safely? Obviously, the outcome needs to be considered for those of evaluation and us that do research. The first thing we'll ask is, "What's the expected outcome?" for a program we're trying to evaluate.

One conference that hasn't been mentioned in the last couple days is the Young Drivers Expert Conference in March of '02 that Bruce Simons-Morton from the National Institute on Child Health and Development pulled together with people from CDC and NHTSA. Several of the things you've heard here were summarized at that conference and published in "Injury Prevention" if you want to take a look at that. Driver education is

insufficient to reduce the initial high crash risk of teens. It's an important infrastructure; and it could be improved and modified to address young driver safety. That statement was in Bruce's (Simons-Morton) introduction to the published conference papers. And Allen Robinson was at that conference, very eager to look beyond tradition, the licensing age, the way we train drivers, to broaden our driver education view, improve it, and change the way we evaluate driver education.

You've heard speakers refer several times to Mayhew & Simpson's review, also from that conference. But, I think it's important again to emphasize that we need these programs to be empirically based and to address critical age- and experience-related factors.

One paper that's also been mentioned is Vernick's paper on driver education effects, summarized on the slide in three bullet points. You've already heard these results, but they keep us tuned into what we really need to be focused on.

Another paper you may not have seen yet is in the "Journal of Safety Research" by Hirsch and talks about the mobility/safety tradeoff. He asks some questions we need to consider, has a bias toward mobility ignored safety and hindered the driving research that we need to do? And he asks also, our parents really aware of the risks, and do they really prefer mobility? I think this is a question we need to think about a lot. Or is it optimism bias, the one that if I surveyed you all and everyone out there on the street, they would all be above average drivers. "Compared to all other drivers, how well do you drive?" "I'm above average." And I suspect people probably think their youngsters are also above average. But we need to help them be a lot more realistic on behalf of their youngsters health and welfare.

To use a health education approach to this problem, which is the most complex public health problem I can think of, we would be looking at skills, attitude, and behavior. We know that knowledge is necessary but not sufficient to affect or change or prevent behaviors. It's really difficult to change behaviors. Allan Williams referred to adolescent substance abuse prevention work with a negative take. Some of us have been somewhat successful, but it's really, really, really hard for reasons I'll get to in the next few slides. Driver education happens once, and then you release the kids on their own -- the rest of their lives and their driving career with no monitoring and no follow-up. In health education approaches we would want to do booster sessions, and monitor, and have reminders. There must be some follow-up interaction if we really expect a behavior to change. There's a whole continuum of skills and behaviors here to be affected that make it very complex.

We have to keep in mind all those other factors that have been mentioned in the last couple days, the other influences on teens' behavior. These youngsters are little bundles of physical, and cognitive, and emotional development going on. Wonderful brain research is coming out teens' brains aren't even developed fully yet. So having them assume that because they live in the U.S. they ought to have a car because that's our culture is a really awesome thing to think about. They grow up, of course, mimicking their parents and the other drivers on the road. When you stop and think about the culture

and the examples that we're all setting, why should we expect them to behave particularly safely and differently from us.

Teens also have a social context. Only an adolescent has such a social context they have friends and peers and dates and issues and popularity and sports and many other things going on in their lives, let alone in their cars, that are going to influence what they're doing behind the wheel.

Here's part of a figure that I showed at the Young Driver conference. Some of these factors affecting crashes, and this is just a framework of them, are influenced by GDL. You can see that we use age, and we try to build in experience. The driving environment can be restricted, as well as night driving and transporting passengers. We're trying to get more of those restrictions transporting. The driving behaviors are the obvious ones: drinking, speeding, and unsafe maneuvers.

My role at that conference was to discuss a paper by Allan Williams and Sue Ferguson, and I thought that we should think about all the other things going on that are influencing the crash risk of a young driver. And as we've said before, there's a whole social environment. To what extent have parents been involved all along in the child's reading, in their selection of friends, in their time to be home at night? All that parental monitoring buildup to suddenly, "What are we going to do about driving?"

The parents', the siblings', the peers' norms and behavior are a big influence on these young people. And what's going on in the community. Does the community really care about their kids; do they want them to stay safe; are they enforcing the restrictions from GDL or the safety belt laws that they ought to be? Even the media play their part in setting norms and expectations that influence these kids.

The driving behaviors are pretty much the same in this figure, and the driving environment, but look at the driver characteristics. We had age and sex before, but personality is an important factor and you basically can't change people's personality. So teens come into driver education and into their driving career with that personality. Some have a risk-taking propensity. I don't think very many young people really are going out deliberately taking risks with their car or their parent's car, or wanting to crash. But they may use bad judgment that puts them in a very risky situation or causes them to do risky behaviors.

Knowledge and competence; probably driver education does affect those. We've seen that. But it could affect experience, if we added more experience. It could affect attitudes, depending on the kinds of content and teaching methods. And it certainly could affect risk perception. We can see that in the British studies of hazard perception that can be improved by training. But all those other factors certainly give driver education some assurance that just because it hasn't reduced crashes, it's not all their fault.

There are several approaches we could take at this point. And I just took one. Larry Green and his Health Education Planning Model may be familiar to some of you. But it takes you through a process of developing an educational diagnosis before you

start treating, and it can guide this process. It gives you a structure for applying some of the behavioral theories that we have, so that the most appropriate interventions can be identified and implemented.

You'd start with a social epidemiological diagnosis, which is kind of what we've been doing. We know the numbers; the statistics are terrible. We know some of the influences. That's kind of where we are now. We need to move on to the behavioral and environmental issues that contribute to the problem and then think about predisposing factors, reinforcing factors, enabling factors. What should be intervened upon in our approach to this complex system, and then what administrative and policy interventions could also be adapted and enhanced in addition to what we already have?

The symposium on GDL has been mentioned. It was held last November, and here's the citation if you want to look at the papers that were included. I've summarized a few of the points made that are relevant to the topic of this forum. Certainly, we have good scientific evidence that crashes and injuries are reduced under GDL. We also know that public acceptance is high, which we weren't sure of earlier. We've learned that the extended learner phase of driving is very critical, and that if you reduce the learner phase length just because someone's gone through driver education that will probably increase crashes.

Some future research issues were also addressed very nicely in the last papers in this GDL issue. We need to look more at how to structure the learner phase how to integrate driver education into GDL, and then particularly, what is learned and how is it learned in the learner phase; how does the novice driver learn? Several folks over the last couple days have mentioned that we know how to do that research but we probably need to do a little more of it. Also, the highly recommended, seldom implemented, two-phase driver education needs to be evaluated. And since I'm in Michigan, we're going to try to do that soon.

Clearly, we need a fresh look at all this, and I think this forum has given us a nice chance to do that. I think about the kinds of training that other roles in our society would require where someone would have the potential to injure or kill someone, a physician, and a nurse, here we give these teenagers a powerful vehicle and the keys to it! Although they don't often hurt other people, they really could and do sometimes. We need to really think about that potential and plan the right approach to driver education and training, instead of just going along with the common practice that we've gotten used to.

We need to understand more about the driving task before we work on driver education. Sometimes I'd like to create that small town effect that lets a youngster know that there are people who care about them, that there are people that are watching them. I didn't mind mentioning to one of my son's friends, "Oh, I saw you driving on Stadium and Main the other day." It doesn't hurt him to know that people are watching, people who know him, who know his parents.

My husband told me when he was learning to drive in a small town outside Princeton, New Jersey, he had a real cool car and he was getting into it over the first few

months. He was stopped by the police officer in this little town. And he thought, "Oh, what'd I do? What'd I do?" And the officer said, "I've been watching you for a few months. You keep that up and you will get a ticket." My husband thought that was very effective. That was all it took for him to stop fooling around. Achieving that effect might be something to think about. The down side, as I hear in these little rural towns, is that everybody knows everybody and they don't really want to enforce some of the things that they should be.

Don't forget public transportation. I know kids don't like to ride in the school bus or the city bus, but it really is safer, and if it's what a particular youngster should be doing a little longer before driving, we could try to make that more cool. Some towns let you put your bike on the bus. It just shouldn't be ignored as a possibility.

We've got this big complex picture, and driver education is part of it. I did also like the puzzle analogy presented earlier, which lets us start thinking about what the pieces are and how to put them together. So we need to figure out where driver education should make its contribution. What is its appropriate purpose; and, how do we achieve that.

The issue of parental involvement is really, really big. Bruce Simons-Morton has developed a program to work with parents pre-licensing. We're going to be evaluating that in Michigan within our driver education and GDL program. I think a lot of parents don't really realize the risk that their kids are exposed to. They think the big risk is drugs, and it's not. It's cars. There's a lot we need to do to help them understand the risk. We pick up the paper every day and we discover risks. "If you're this or that, you're two times more likely to get this kind of cancer or that kind of heart disease." We could probably do a lot to help parents understand Ken's crash risk if we just put it in those kinds of terms. The risks are increased with factors that we clearly know about (such as age and gender).

And parents are in charge more than they realize. They need some support. Many of them think, "Oh my goodness, it's all peers now; I'm out of it." We have plenty of research evidence from teens that they really, really care about what their parents think. They do listen and pay attention, and it does affect their behavior.

So parents need to kind of feel a little bit empowered and remember that it's probably their car. They have the keys. It's their child who they taught to walk and ride a bike and cross streets. And here we have the most dangerous thing of all, the number one killer of teens, and parents need to remember that they are in charge.

In Michigan, all parents have to do is call up and say, "I'd like my child to stay at GDL Level 2; please don't graduate him, I don't think he's ready. Who's in a better position to decide if this child is ready to go to the next level of driving?"

We need to evaluate new programs, and parts of programs before they're implemented. Allan Williams, I think, said it three or four or five times a while ago.

Clearly, we need to evaluate these programs. So a big change is needed and it's needed around the culture of teen driving, and I think we can change it.

I started to pull together some research questions, and I suspect if we got a group of us brainstorming there would be many more. But here's a start, some ideas.

Around crash risk, we need to know what driving safely really means. As someone else put it, what should the final product of driver education look like? What is it that causes these risky behaviors? We talked about inexperience, poor judgment, maturity, risk-taking or just risky behavior, and the question: how do age and inexperience interact. A few studies have looked at that. There's probably more we can do.

I've always wanted to do a study looking back at every teen crash that took place. What exactly was going on? Were you talking? Were you playing music? Were you passing big drinks of Coke around the car? What was going on in the car? With that we could have a better sense of what factors precede a crash.

Vehicle selection was mentioned once. That's probably very important to protect teens, and we haven't done much with it.

Someone asked the question about crashes during the learner phase, the practice phase. Apparently, we don't have a good enough answer to that question yet.

And we also think about how to convey teen crash risk to parents and to others.

There are a lot of different State policies. We may have an opportunity to compare some of them. What happens when you require driver education for teen licensing? What happens if you permit earlier license for completing driver education, or if you lower insurance for driver education? How do these policies and the outcomes compare?

There's a whole host of questions about learning to drive that need some research. What are the optimal approaches? We've heard many. Some of them have been studied; some have yet to be studied.

I'm also interested in what goes on in families while the teen is learning to drive. How does each parent manage the practice driving? Should there be a common supervised practice approach? We're seeing more and more parent materials come along, which is great because the parents were desperate for those. But is there a good optimal approach all should be using? How can we help those parents?

How should driver education link best with GDL? I think one wonderful thing is that GDL has at least spread out the moment a teen gets licensed to drive independently. Where I lived teens used to take a day off school to go to the motor vehicle office to get their driver's license on their 16th birthday. When we looked at our data in a longitudinal study, many teens were licensed right on their birthday. That date of license has spread

out a lot more now, with more hurdles to be crossed before licensing, and that's good. That's taken a little bit of rush to license the old pattern away.

How could driver education link better with parents? We've talked about that a lot, and I think parents should be given some help. The driver education folks, when they're watching a teen drive, have a good sense of what more needs to be worked on. If that knowledge was handed off to the parent, as the young woman said earlier today, that would be a very useful thing for the parent to know-exactly what they should be working on.

Parents can monitor, and they can enforce. Very few GDL restrictions are enforced by law officers. It's really up to the parents to be sure teens are home by the night restriction hour. I think they're glad to have the law behind them, but it's the parents that need to be sure it happens.

And finally, we have quite a few research questions about driver education and the training involved.

What is going on? We heard about Illinois. I know North Carolina's done a survey and can more or less say what's going on in their State, but what do we know about existing practice? What performance standards are being used; what are successful techniques; what should be the sequence, the length, the timing, the information, the skills, the segments? Should we be using a more individualized approach, something competency-based, or more flexible? People really vary a lot in their abilities, and teens perhaps the most of any age group.

Another research question involves the second stage of driver education. Michigan requires it just before independent driving. It's short and I think probably we haven't gotten all the kinks out yet. It would be good to revisit the second, or third stage. Or, think about a better issue of a sequence of training or timing. Do we need more checkpoints for competency along the way?

And finally, there is the whole issue of the background training, monitoring, and updating of teachers. That's come up a lot and is an important, unanswered question. How do we make driver education empirically-based. How do we address the critical age-experience question?

One thought that people have been kind of flirting with in several of the presentations is expanding driver education to include other lifestyle factors, and decision-making. Michigan is kind of unique. I've been in school health education for a while as well, and we have something called the Michigan Model for Comprehensive School Health Education, K through 12. It resulted from seven different State agencies realizing that everybody was wanting isolated bits of students time for kidney education, for blood pressure education, for heart, et cetera. They got together and developed a comprehensive sequential curriculum in a loose-leaf notebook (so it could be easily updated), and it is an implemented K through 12. Some students actually received high school driver education as part of their high school semester of health education. That's a

nice platform because you're already talking about substance use; you're already talking about healthy decisions to protect your body the best you can. So that's something we could think about. I honestly don't know if that would be a good approach, but we might consider it. The hierarchical model that Dr. Siegrist mentioned with self-assessment skills is also related to that. These are higher order skills that certainly need to be taught at some point and do relate to driving.

So where are we; what do we recommend; where do we go from here? I'm glad I'm not the only one making recommendations. NTSB will come up with recommendations, but I'll be happy to mention a few, too.

We need to flesh out and prioritize the research agenda. There are all kinds of experts in all the pieces of this comprehensive context. We need to create awareness of the problem, as several people have said, and some suggestions for solutions. We probably need an advocacy group. MADD is a great example for the areas they work in, and I'm not sure I'm hearing a lot from the traffic safety community. Maybe we need to think about how to build that piece in.

We need to clarify and refine the research questions, and add to the ones I've proposed here. We need to obtain funding to carry out the research. That's going to be hard. Right now to get funding to study driving, we can go to NHTSA, and we can go to CDC's National Center for Injury Prevention and Control. NIH doesn't institute that study driving. You'd think for the size of this public health problem, it wouldn't be quite so hard to get funding. Corporations are helping. But clearly, we don't have the funding issue completely solved yet.

We'll also need to modify policies as we obtain the research findings and modify driver education to link better with GDL and parents.

So that's a start. It's a big, big task, but I think and I know you all think, from talking to you, that our young people are well worth it.

Thank you.

(Applause)

Question and Answer Session

DR. MOLLOY: I would like to apologize for Dr. Kline, who had a flight to catch. So he will be unable to answer any questions regarding his research.

If you do have any questions about his research, I believe there's someone in the audience who is continuing that program and they might be able to help you.

Mr. Aponso, would you expect the results of your study on simulators to generalize to other simulators, such as the ones we have outside? And why?

MR. APONSO: Sure, I don't see why not. What we are trying to focus on is something else. The simulator platform we're using is just that, a platform.

I think what's critical here is to find out how best to integrate it because it's a cost benefit issue. If you want the simulator to attack all the problems, from are they using the turn indicators right, are they scanning right, to how good is their judgment or perception of risk, cognition, if you want to cover all those, then the fidelity of the simulator and all the different things it's got to do increased. And as you build a lot of functionality, the cost goes up as well.

My personal opinion on it is kind of the way the flight simulator industry has progressed. It started off with very expensive full-flight simulators, and more and more simple computer-based trainers are being used per task to train on particular areas.

Now, the tasks are different. These are more procedural tasks, but yet I think that the same model can be applied here. So, yes, it's more the content that you want to deliver that is important.

DR. MOLLOY: Dr. Ritzel, you mentioned that you had made recommendations to the State of Illinois regarding the kind of shared opinion by both educators and students for increased education. How have those recommendations been responded to?

DR. RITZEL: Not much at all, which is not necessarily atypical. I think it's important to note that we have had budget problems, like many other States in recent years, and we went from maybe 30 years ago having eight people working full-time in driver education at the State level to, currently, nobody. Our most recent person retired, and so there's not that kind of leadership that is actually involved in it. Probably our main leadership right now in Illinois is probably through the Illinois Secretary of State's Office, who is providing us most of our interest and working with schools to generate.

But it takes a legislative process, which has been proposed to a couple of the important committees in regards to increasing the amount of time that we spend particularly with behind-the-wheel instruction. I think we've got a history of almost 60 years of having one level, and it's going to have to take some real sound research to show that increasing the number of hours is going to help a young person how to drive. Until we do that, I don't think we're going to have much changes made.

DR. MOLLOY: Another question for Dr. Ritzel. Can you provide information on the driver's education listserv?

DR. RITZEL: Besides having a big virus and a few other things attack it in more recent months -- yes. The driver education listserv is a listserv that was started approximately five years ago as a result of interest. I've helped develop four of them over the years, and there was an interest from the driver education community to have a way

that they can ask questions and respond to each other in a very timely and quick fashion. And the driver education listserv was set up for that purpose.

And we have periods of time where the activity is pretty good, and other periods of time where there's not much activity. But I think one of the big things that we have had is initially we promoted it a lot and there was a lot of promotion on it, but in more recent times there's not been as much.

I think we find too that listservs don't function as much as they did at one time. I think four or five years ago there was a greater interest.

But if anybody's interested in subscribing to it, there's been a couple times when the website for the ADTSEA was given. If you go to the ADTSEA website, you can subscribe to it through that way. The other way is to e-mail a message to DE-L@siu.edu. And that will permit you to subscribe to it if you provide the appropriate information. Also, if you type in safety@siu.edu, I will respond. That's one of my e-mail addresses, and I will tell you what to do.

DR. MOLLOY: This is a question for any panelist. If you could design and conduct any research project you wanted and have all the funds you needed provided, what project would that be?

DR. SHOPE: Oh dear.

(Laughter)

DR. SHOPE: Well, I'd need at least overnight to think it through, but I probably have a drawer full of ideas. And of course, it would be very comprehensive, so it would have multiple stages.

From the very basic, what's this learner driver going through with their family and their teachers trying to learn to help with interventions -- to assessing the real outcomes, the crash outcomes, there's whole range of ideas and stages. I'd like more time to design the project! What about you?

DR. RITZEL: I think if I had that opportunity, what I would look at, and I appreciate Jean (Shope) for reminding me of something I've believed in and worked in a long time, and that's the aspect of looking at driver education not just being a part in relation to a graduated driver's license but being a comprehensive traffic safety program that starts when the child is born until they get into adulthood and probably going on with that.

Because I think we've put too much on driver education at one level at one time and really haven't built upon the strengths that we could have by having a very defined, a very exact and by the way, we do use the Michigan model in our county in Illinois in the schools.

And I think something like that is what I would like to spend more time researching if I had the money to actually take a look at a broad-based traffic safety program and where driver education is a part of that. So that we can really focus upon in the high school driver education part among those tasks that are important to driving. And we can deal with not having to teach sign signals, roadway markings, and the rules of the road and all the other issues that really can be taught a lot earlier, and we focus upon driving an automobile or driving a vehicle and focus upon that.

MR. APONSO: I'd like to build the most expensive simulator you could buy. No.

(Laughter)

MR. APONSO: Seriously, I think -- there's one in Iowa.

(Laughter)

MR. APONSO: I think one place it could be used where there's a little bit of talk early on incorporating new technologies. And one area that it could be used for is to look at new technologies, simulation being one of them, and on-board data recording being another.

But you know, like a couple of the previous panelists said, to figure out which ones are effective, you need to do long-term studies, look at records and effectiveness studies. So that requires a lot of funding, but it's I think what I'm trying to say here is, when using any new technology, the trick, I think, is to try and find out how best it fits and try to pick out the areas where driving simulation would work best, like I said previously, without just trying to build a simulator and have it do everything a car would do, try to focus on those tasks that you're trying to teach in terms of behaviors. So that's what I would take a look at.

DR. MOLLOY: Have any of you actually seen or done any research that looks at the textbooks used by driver education programs? And how effective are the school textbooks when teaching driver's education?

DR. RITZEL: Is there an answer to that question? Yeah, we're looking at a textbook at 6:30 this evening, matter of fact.

I think one of the challenges that textbooks have is the fact that they have to develop something that's appropriate for 50 States and other parts of the world, too. And it becomes a challenge to be able to include things that are somewhat consistent now. If you're dealing with the basic tasks of driving and things like that, they are what they are and that doesn't need to change. But when you get into other issues, it becomes a lot more difficult.

My research in regards to looking at driver education textbooks actually occurred about 30 years ago. And there have been a lot of changes made since then. I think there have been a lot of good things that have developed over those years in regards to

readability and usability and practicality and a lot of those other issues, and I think that will continue to happen.

I think as we develop newer techniques of approaching instruction, the textbook may not be an item that's used as much as we have in the past because of the fact that we've got new media and new forms of instruction that will probably replace part of the textbook. But I think what I see right now, and I've looked at all the textbooks in recent months again, I think they're appropriate for what they're doing right now.

DR. MOLLOY: This is for Dr. Shope. What are the necessary steps to move forward on a research agenda for driver education and training, and how do we do this?

DR. SHOPE: We'd need a lot of help. I mentioned some of the steps. I think we have to get a good group of folks together to do some brainstorming. Probably, that would take some funding and some good organization and preparation (a subcommittee doing the planning to organize topics) to make the brain storming really come out with a useful product. It would be helpful to have some papers prepared ahead of time.

I've been involved in a couple similar efforts and they have been quite successful. You get people away from their office and their phones, and focus for a couple days, do some breakout sessions and some prioritizing, and they can come up with a research agenda that's prioritized based on their collective wisdom: what should we do first, second, and third. And then something has to happen with it afterward.

We've done it with TRB workshops and some of the others that have been pulled together on a special topic. So that might be a good next step.

DR. MOLLOY: Thank you all very much.

Appendix A

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Acronyms and Abbreviations

ADEPT - Advanced Driver Education Products and Training
AAMVA - American Association of Motor Vehicle Administrators
AAA - American Automobile Association
ADTSEA - American Driver and Traffic Safety Education Association
ABS - antilock braking systems
ASSSDE - Association of State Supervisors of Safety and Driver Education
ACTS - Automotive Coalition for Traffic Safety
ASF - Automotive Safety Foundation
CAA - Canadian Automobile Association
CDC - Centers for Disease Control
CEO - chief executive officer
CDL - commercial driver's license
DARPA - Defense Advanced Research Project Agency
DMV - Department of Motor Vehicles
DPS - Department of Public Safety
DSAO - Driving School Association of Ontario
DSAA - Driving School Association of the Americas
DUI - driving under the influence
ESC - electronic stability control
EVOC - Emergency Vehicle Operators Course
EU - European Union
GM - General Motors Corporation
GHSA - Governors' Highway Safety Association
GDL - graduated driver's license
HSDE - high school driver education
IUP - Indiana University of Pennsylvania
IIHS - Insurance Institute for Highway Safety
LOS - line of sight
LOS-POT - line of sight, path of travel
MPI - Manitoba Public Insurance
MADD - Mothers Against Drunk Driving
NBA - National Basketball Association
NCSE - National Commission for Safety Education
NHTSA - National Highway Traffic Safety Administration
NIDB - National Institute for Driver Behavior
NIH - National Institutes of Health
NSC - National Safety Council
NSSP - National Student Safety Program
NTSB - National Transportation Safety Board
NETS - Network of Employees for Traffic Safety

NYU - New York University
ODOT - Oregon Department of Transportation
PSU - Pennsylvania State University
PDL - pre-driver licensing
R&D - research and development
SPC - safe performance criteria
SUV - sport utility vehicle
SADD - Students Against Drunk Driving
TEA - Texas Education Agency
TTI - Texas Transportation Institute
TIRF - Traffic Injury Research Foundation
TSD - Transportation Safety Division
YMCA - Young Men's Christian Association