

The Chronicle of the American Driver and Traffic Safety Education Association

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A New Era at ADTSEA Dr. Allem Robinson, CEO

I have frequently written about change and how this affects our lives. Change is always a challenge and usually is positive. Change also requires a dedication to maintaining the excellence you have achieved.

The change I write about today concerns our management team at the Highway Safety Center, IUP. Josh McKee, our computer specialist and technical support member, is returning to school in September. He will be attending New York University and living in Manhattan.

We also have one retirement from our staff. Theresa Kerfonta retired on June 25, 2004. Terri has 37 years with the University and has decided that "enough is enough". Terri has been the backbone of our office structure since the Highway Safety Center began managing ADTSEA in 1993. She has been responsible for membership, billing, handling routine responses for ADTSEA, conference program design and fiscal management. I know she has done a great job and I will certainly miss her contributions.

Both Josh and Terri will assist us with this year's conference. I hope you take time to wish them success in their new adventures. I personally believe that their accomplishments have made ADTSEA a better organization.

The planning for both of our summer conferences is completed. The NSSP Conference will be held at Seattle Pacific University July 8-11, 2004. Jan Meeker Savilla continues to do a stellar job of working with youth. The ADTSEA Conference in Portland, Oregon is scheduled for July 25-28, 2004 and has exciting

(Robbie continued on page 4)



Allen Robinson

Reflections on the Year Past Dr. Randy Thiel, President

This article represents the beginning of my last quarter as President of ADTSEA. This past year has certainly gone by fast!

In reflecting upon this past year, this my last article as President will share some thoughts, insights and ideas drawn from my service as your President. The year has included a number of memorable events for me. The most memorable event was being selected by my peers to serve as

President of ADTSEA. This is indeed a great honor for any individual who has been or will be elected to this office. My sincerest thanks to those who supported and voted for me.

The second event was traveling to Washington, D.C. to represent the Association at the National Transportation Research Board's forum on driver education and training. Until this forum was held, not much national attention on driver education has been given by many, if any federal or national organizations, other than ADTSEA.

The third memory came via the Michigan Association during their annual. It was here that I was honored with the MDTSEA Les Silvernale Award. Being selected, recognized and honored by one's peers is very difficult to top. The recognition holds, and will continue to hold, a very special place in my professional life.

Another memory is a more generic one, in that it's the memories of all the different people I had a chance to see, meet and reacquaint myself with while traveling on ADTSEA business. Wherever I went, and wherever driver education teachers were gathered, there was always a very special sense of family, life, love and devotion toward, and for, colleagues and traffic safety.

I also will always remember the opportunities that were

(continued on page 12 under Randy)



Randall Thiel

Editor's Notes

With this edition of our publication the goal of having it in your hands six weeks before the next edition's deadline is being achieved. It was my hope that if the publication arrived earlier that more readers would provided feedback and be moved to submit responses to what they read in the previous edition. That hope has not been realized. With rare exception the same small group of people who traditionally submit material and feedback remain the primary source of what appears in the publication. As I wrote last summer, do not self censor or prejudge items you come across which may be of interest to readers of "The Chronicle" and "News & Views". If you have an idea you want to express please send your manuscript my way. As my participation with several authors of articles in this edition illustrates I am willing to do what it takes to get your ideas published. On personal note, my daughter who was being treated for cancer at the start of my editorship is expecting a child in late August. Let Sara's recovery provide hope for all members of our community who are struggling with health issues.

Driver Education Knowledge Instrumentation

Richard E. Miller, Ed.D.

Health, Fitness and Recreation Resources

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Introduction

If licensed drivers are expected to know the rules of the road, it is assumed driver educators will have expert knowledge of motoring laws and proper driving. This knowledge should be gained through professional preparatory coursework in driver task analysis, traffic safety, and principles of instruction. This article presents the instrumentation of a driver education instructor's knowledge test. Attention is given to both the method of developing the test as well as the final version of the tool.

Since the mid-20th century, driving knowledge tests have been developed for the general public (Buros, 1966). Teacher-devised knowledge tests are regularly administered to students in driver education. For most persons, successful knowledge test performance is criterion for driver licensure. Whereas considerable attention has been given to measuring driver education knowledge in beginning drivers, little testing has been directed at the driver education professional. The instruments would have to measure knowledge in at least three areas: (1) driver task analysis - how to operate a motor vehicle safely, (2) traffic safety - driving properly within the highway transport ion system in accordance to motoring laws, (3) principles of instruction - how to teach someone in driver task analysis and traffic safety.

This investigation was limited to constructing a knowledge test in the traffic safety area.

Instrumentation

The investigator relied on an established methodology for measurement tool construction (Miller, Capiello & Golaszewski,

1982). To start, the purpose of the test was to measure driver education instructors' knowledge of traffic definitions and the regulation of traffic according to Virginia state law (VA Code, 2002). It should be added that Virginia is member of the National Committee on Uniform Traffic Laws and Ordinances. More specifically, the test was designed to measure driver education instructors' ability to:

1. identify the definitions of important terminology related to driving motor vehicles,
2. recall state motoring laws, and
3. recognize proper driving consistent with the law

A test blueprint was construed comprising two parts. Part I pertained to definitions of terminology related to driving motor vehicles. Multiple choice items were written in vocabulary directly from the article of law. Part II pertained to state motoring laws on regulation of traffic as well as proper driving consistent with the law. Multiple choice items were written in vocabulary less legalistic but consistent with the Administrative and Curriculum Guide for Driver Education in Virginia (VA DOE, 2001), and the Virginia DMV Driver's Manual (VA DMV, 2002). Altogether, 130 knowledge items were generated by the investigator and organized around the aforesaid three objectives.

Examination of Content Validity

The two-part test was submitted to a committee of three content specialists representing undergraduate and graduate course instruction in driver education. The content specialists reviewed the 130 multiple choice items. Accordingly, the investigator provided correct

responses for the items and reference material representing the source of the item-response. Items were either edited, modified or deleted by the content specialists.

It was decided by the committee that Part I of the test, items measuring terminology definitions, should be omitted. This section posed questions of what is a highway, roadway, lane, etc. Hence, the instrument was delimited to Part II, which contained 106 knowledge items on motoring laws related to traffic regulation and proper driving. Through committee work, several of these items were deleted having been deemed as inadequate, inappropriate or ineffective in measuring driver education instructor's knowledge. The remaining items were modified to ensure their logical relationship with the stated objectives of the test. Therefore, of these 106 original items, 43 remained and were prepared for administration to selected driver education instructors.

Examination of Reliability

Titled Driver Education Instructor Knowledge Test, the 43 revised multiple choice items were administered to 20 driver education instructors representing public and commercial driving schools. Each subject was provided a US postal stamped, returned-addressed envelope containing the test along with an introductory cover letter that addressed human subjects rights. Data was collected and analyzed via Statistical Package for the Social Sciences (SPSS) software. The internal consistency of the 43 revised multiple choice items yielded a .37 alpha coefficient. Items having lower item-total score correlation coefficients were discarded by the

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investigator and recalculation yield a .79 alpha coefficient for 37 retained items (see Table 1).

Table 1: Test Reliability Analysis

Revised Items = 43	Retained Items = 37
Alpha = .7955	Alpha = .3697

Discussion

Throughout instrumentation, issues arose that require further attention. To begin, it became evident that knowledge measurement items, although based on law, should be written in vocabulary adapted and utilized in standard curriculum and driver manual publications. Any items directly quoting the article of the law were either discarded or modified in less legalistic terms.

Each multiple choice item was written in a 4-option-response format. This was questioned by one reviewer with recommendation for 5 response format. Future instrumentation study investigators might want to consider a five-option-response format. (News & Views pp 7-8 to see a copy of the test)

Although the results of this instrument have direct application to the 20 subjects completing the test, efforts by the content specialists warrant merit. Therefore, with some additional testing on other driver educator groups, this knowledge test has potential for larger scale application.* Related to this, since the present study was limited to traffic safety, future instrumentation endeavors should be directed at driver task analysis as well as principles of instruction.

One speculative use of this tool and other valid and reliable driver education knowledge tests would be online learning. Meaning, pre-service driver education teachers can be instructed and evaluated via World Wide Web technology.

Already, professionals in the field have ascribed to technology-enhanced preparation of driver education instructors (Hattler, 1999; VADETS, 2002).

In conclusion, the investigator was successful in constructing a reasonably valid and reliable 37 multiple choice item knowledge test for driver education instructors. The test has promising application for professionals in public and commercial driving programs.

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(Robbie from page 2)
general sessions, speakers and good division speakers. Kal Kelliher, past president, has done an excellent job on planning our conference. Beth Weaver, president elect, has selected a great speaker for the Bishop Forum. Joan Maute has an excellent education background and is a motivational speaker. I hope all of you will enjoy these conferences as they help us build professionalism in driver education. The complete conference program can be found in the News & Views.

For those of you who plan ahead, the 49th ADTSEA Conference will be in Honolulu, Hawaii on July 31 to August 3, 2005, (800-468-3571) at the Marriott Renaissance "Ilikai" and the 50th ADTSEA Conference will be in Kalamazoo, Michigan on July 30 to August 2, 2006, at the Radisson Plaza Hotel.

As you can read in President Thiel's article, ADTSEA was represented at many conferences this past year. Randy was also recognized by the Michigan Driver and Traffic Education Association (MDTSEA) by receiving the Les Silvernale Award. This award is given by MDTSEA to an individual who has made outstanding contributions to driver education. Congratulations Dr. Thiel.

My summer and fall activities will include searching for three new staff people at the Highway Safety Center. The two previously mentioned positions will be filled as soon as possible. We are also filling the position vacated by Dr. Bradshaw. I hope these new staff will give us an opportunity to explore new ways to continue our support of ADTSEA activities.

This short article is my contribution to the Chronicle. My thanks to Dr. John Palmer, editor of the Chronicle, for his contributions in providing a quality research publication along with the News & Views section to keep us current in driver education.

SAFETY BELT ATTITUDES AMONG RURAL PICKUP TRUCK DRIVERS

National Highway Traffic Safety Administration

Occupants of pickup trucks consistently have lower safety belt usage rates than occupants of automobiles, vans, and sport utility vehicles (SUVs). According to NHTSA's 2003 National Occupant Protection Use Survey (NOPUS), the observed safety belt use rate is 69 percent for occupants of pickup trucks compared to 83 percent for Vans and SUVs, and 81 percent for Passenger Cars. Occupants of pickup trucks are at a higher risk for serious injury or death given their lower safety belt usage and higher ejection rates.

Belt Use by Vehicle Type, 1998-2003

	A	B	C
Passenger Cars=A			
Vans & SUVs = B			
Pickup Trucks= C			
Fall 1998	71%	70%	59%
Fall 2000	74%	74%	59%
June 2001	76%	75%	62%
June 2002	77%	78%	64%
June 2003	81%	83%	69%

Source: NCSA, 2003

The Center for Applied Research conducted eight focus groups with younger and older male pickup truck drivers who live and work in the rural areas of four different states for the National Highway Traffic Safety Administration (NHTSA). Three of the states (Georgia, Michigan, and Texas) have primary safety belt laws where an officer may write a citation whenever a motorist is observed not wearing a safety belt. One state (Montana) has a secondary belt law where law enforcement officers must first stop a driver for some other reason before issuing a citation for not wearing a safety belt. Two of the focus groups in Texas were

comprised of Hispanic males.

Reasons Given for Not Wearing Safety Belts

The men who participated in these focus groups gave reasons why they do not wear their safety belts in their pickup trucks. They feel that the size of their vehicle protects them and that safety belts are not necessary for short trips or work-related trips. Some said they feared being trapped in the vehicle by the safety belt after a crash.

The participants pointed out inconsistencies between state safety belt laws and laws for other highway safety areas. One example given was that some states lack motorcycle helmet laws but require safety belt use. Some of the men in these focus groups gave this example as a justification for ignoring the safety belt law; others said the government should not mandate safety belt use.

Reasons Given for Wearing Safety Belts

The men indicated that they do wear their safety belts when family or friends are with them, or when they are traveling on interstates, in large cities, or in inclement weather (where they perceived the risk of a crash to be greater). Interestingly, many of the participants said they did wear safety belts when traveling in a passenger car, but not in their pick up trucks.

Future Campaign Emphasis

New campaign development should target where and why male pickup truck drivers in rural areas of the U.S. do not wear safety belts. Highway safety specialists should design new campaigns that emphasize crash fears and concerns that were repeatedly voiced by most of the participants.

The Hispanic men and all of the younger men were not concerned about dying in a crash; messages for these men should not show crashes that are so severe that survival in any event would be questionable. Instead, message themes about crash fears should emphasize paralysis and wheelchair use, loss of limb, and impact on family including feelings of sadness about leaving family behind.

Whether young or old, the men were not impressed with statistical facts as a motivator to increase safety belt use. Most of the men agreed that federal, state, and local governments could use numbers to prove whatever point they choose to make.

Educational efforts and campaigns should address these topics:

- * Low speed crashes—show crash damage and travel speed without the use of safety belts
- * Airbags—ejection and rollovers without the use of safety belts
- * Short Trips
- * Deciding to wear a safety belt all the time versus deciding when to wear the safety belt
- * The "habit" of wearing a safety belt
- * Get used to the feel of the belt; develop countermeasures for discomfort
- * The "mind set" of freedom to choose to wear a safety belt
- * Evolution of DWI laws and societal acceptance compared to safety belt use acceptance
- * Hispanic and youth "fate" issues

New messages and campaigns should use realism:

- * Be short and to the point
- * Show consequences to

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Reflections on Brain Research

Curt Hanson, Driver Education Teacher Fairfield, Iowa
with John W. Palmer, Editor

Recently reported research on teen brains has important implications for both driver education teachers and driver licensing agencies.

In the cover story, "What Makes Teens Tick", of the May 10, 2004 issue of Time Magazine, Claudia Wallis (with Alice Park) reports on research of the teen brain. The article explains the development of the human brain and further reports the research of the brain's development during teen years. This should be required reading by not only teachers, parents, and teens, but also people working in driver licensing agencies.

The article is supportive of the sleep research that has been presented at past national ADTSEA conferences and other information we studied as undergraduate students in professional core courses. For example, we have long known that the prefrontal cortex of the brain is the last part of the brain to develop. The prefrontal cortex helps us make plans, organize thoughts, and determine consequences.

Much of what we as teachers and parents attribute to lack of responsibility, may in fact be the reasonable thinking of a brain that is not capable of making adult like decisions because it is not yet mature. Based on the research of Dr. Jay Giedd at the National Institute of Mental Health, though it was thought that the average brain was fully developed by age 21, newer research suggests the full development of the average brain is nearer age 25.

At this same time of brain development, young adults are becoming licensed drivers. Also, puberty is causing large swings in the brain's emotional control

centers. In addition, the brain centers controlling judgment are still under development. A study by Temple University psychologist Laurence Steinberg found that teens take more risks when they are with peers; however, those over age 20 did not show the same tendency. This research indicates that Graduated Driver Licensing (G.D.L.) systems limiting the number of passengers a teen driver may transport is well founded. Perhaps a case should also be made for a family member(s) or solo license only, as a part of the G.D.L. system.

Many of us associated risk-taking driving with peer pressure. Dr. Ronald Dahl, a psychiatrist at the University of Pittsburgh thinks there is much more involved than peer pressure when teens risk their lives and the lives of others in risky driving situations. Dr. Dahl stated that, "It's a very important hint that there is some particular hormone-brain relationship contributing to the appetite for thrills, strong sensations and excitement." G.D.L. systems that limit driving times and delay full driving privileges of teens would seem wise.

The article also states, "when working with adolescents, long-range consequences are not valuable teaching tools". The more immediate the consequences - reward/punishment, the more effective the learning becomes. Again the Iowa G.D.L. system of holding a hearing with the young driver and parent as quickly as possible plus withholding the driving privilege for a short time is supported by this teen brain research.

Another intriguing finding comes from Nobel prizewinning

neuroscientist Gerald Edelman. Edelman's findings indicate that how teenagers spend their time may be critical. Edelman says that research shows that practicing piano quickly thickens neurons in the brain regions that control the fingers and that London cab drivers, who must memorize all the city's streets have a well developed part of the brain involved with memory.

Dr. Edelman believes that the acquisition of experience plays a large role in the development of the brain. Dr. Giedd further amplifies on the role of experience in brain development by saying "You can tell them (teenagers) to shape up or ship out, but making mistakes is part of how the brain optimally grows."

Edelman's and Giedd's findings confirm that what driver educators have been and are saying today about the need for guided practice driving is right on the mark. By providing guided practice parents not only are helping their teen organize their time but they are insuring that they will be there to guide their beginning driver through tough decisions.

The recent brain research finds identify the need for Driver educators need to remind parents and mentors of teenage drivers that experience with feedback is the best way to help the teenage become a safe and effective driver.

Perhaps at a future ADTSEA conference, we can learn more about the teen brain. These recent research findings can help us become not only better teachers but also better parents of teen-agers.

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Considering Risk Homeostasis Theory

C. Goebel Frahm, B.T., B.S., M.S.

formerly of Traffic Design of the Montana Dept. of Transportation, and
Minnesota Highway Safety Center at SCSU with John W. Palmer, Editor

For many years, the approach to reducing motor vehicle injury and death has been the "3-E" approach: engineering, education, and enforcement. Crash incidents have determined or dictated which roadways need improvements, where and what to enforce, and what public information and education should be conducted.

At the Montana Department of Transportation (MDT) reports of crashes with resulting injuries, fatalities and/or property damage are analyzed much as departments of transportation all over North America examine crash data. Also included in the analysis is consideration of Average Daily Traffic (ADT) volume. The results of the analysis are used to determine sections of roadways with high crash incidents where engineering "fixes" may reduce the numbers of crashes.

Examples of "fixes" ranged from erecting warning signs (such as deer crossing warning signs at locations of high deer-vehicle collisions), to installing traffic control devices (such as traffic lights with pedestrian crossing signals at locations with vehicle-pedestrian collisions), to redesigning road geometrics (such as changing edge-of-road slopes, redesigning intersections to include turning lanes or accommodations for larger vehicles such as semi-tractor-trailers, or adding additional traffic lanes). This same crash and ADT data might also be used to determine what enforcement and educational actions could impact on the crash problem.

According to Gerald Wilde's Risk Homeostasis Theory (RHT), engineering or the other two Es fixes may "solve" the initial crash problem at a particular location, but other

types of crashes may increase BECAUSE of the engineering, enforcement or education solution. My experience with the MDT projects I was assigned to provide evidence of risk homeostasis.

For example, an intersection on a major highway through a downtown urban area had a history of vehicle-to-vehicle crashes. The existing traffic control devices consisted of stop signs for traffic approaching on the side-street, while drivers on the 4-lane highway were assigned the right-of-way and were not required to stop. People attempting to access the highway often became impatient waiting for access and often attempted to enter the traffic flow when adequate space was not present. This action results in the vehicles with the right-of-way attempting to avoid a collision by swerving into another lane of traffic, or crashing into the people attempting to access this busy highway.

When a pedestrian was killed in attempting to cross the four lanes of the highway, the intersection was considered for the installation of a traffic light with pedestrian crossing lights. Shortly after the traffic lights were installed, this intersection had an increase of rear-end collisions, as those drivers who prepared to stop for the red traffic light were rear-ended by those who didn't observe the changing of the traffic light from green to yellow to red.

Another section of highway presented a different problem. Interstate 90 near Butte, Montana had a 6-1/2% to 7% grade on the eastside of the continental divide, contributing to numerous semi-tractor-trailer crashes and fatalities at the various curves/switchbacks.

Warning signs were installed in an attempt to alert truckers and other drivers of the dangerous curves and steep downgrades. Crashes with injuries and/or fatalities continued to occur. Two curve locations where "runaway" semi-tractor-trailers crashed into the Jersey guardrail in the median contributed the largest number of crashes.

The next engineering attempt to reduce crashes at these sites was to flattened east-bound downgrade curves; this "fix" only shifted the incidents of crashes to new locations. A runaway truck ramp was installed next, which seemed to help the semi-tractor-trailer drivers who suspected overheating brakes, but crashes continued to occur on these steep downgrades.

In both cases cited one kind of risk seems to take the place of another kind of risk and the total risk remained unchanged. It seems when drivers are aware of a dangerous or risky road, they tend to drive with a certain amount of caution and complain to authorities to "fix" the road. Often when roads are redesigned, reducing severity of curves and/or ditches are re-sloped to be more "forgiving", drivers perceive roads to be safer, so they decide to drive faster, thus increasing their risk of severity of crash due to higher rates of speed on the re-designed "safer" road. This kind of behavior has a name, risk homeostasis, and can be explained by Wilde's RHT.

The application of the 3-E approach (engineering, education, enforcement) to reducing the risk of motor vehicle injury and death, according to Wilde, is like attempting to dam one fork of a flowing river. The flow simply spills over into the

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others parts of the river basin.

If we "fix" all the roads to be as safe as possible (which is financially impossible), drive the safest vehicles possible, legislate and enforce safe driving practices, and educate motorists to follow safe practices motor vehicle crashes resulting in injury and death will continue. If we don't address the source of the water flow or risk taking, RHT predicts that people will continue to take risks leading to about the same crashes. We need to examine WHY people take risks.

In Target Risk, Wilde states "all decisions are risky decisions". Economists ask the question of costs vs. benefits. Traffic Safety Educators should ask a similar question. Let us examine WHY we take the risks we do and explore the potential benefits and the possible costs of risk taking.

Wilde states in Target Risk, "A variety of factors determine the extent of the accident risk that different people are willing to take. When the expected benefits of risky behavior are high and the expected costs are perceived as relatively low, the target level of risk will be high. The term "target" is meant to be synonymous with "preferred, desired, accepted, tolerated, and subjectively optimal". RHT states that the target level of accident risk is determined by four categories of motivating factors:

1. The expected advantages of comparatively risky behaviour alternatives: for instance, gaining time by speeding
2. The expected costs of comparatively risky behaviour alternatives: for instance, automobile repair expenses, insurance surcharges for being at fault in an accident.
3. The expected benefits of comparatively safe behaviour

alternatives: for instance, an insurance discount for accident-free driving.

4. The expected costs of comparatively safe behaviour alternatives: for instance, using an uncomfortable seatbelt, being called a wimp by one's peers.

"The higher the values in categories 1 and 4, the higher the target level of risk. The target level of risk will be lower as the values in categories 2 and 3 rise. Some of the motivating factors in all four categories are economic in nature; others are of a cultural, social or psychological kind.

With experienced drivers the motivating factors are usually so thoroughly internalized that most people, most of the time, are not consciously aware of them. Thus, the target level of risk should not be viewed as something that people arrive at by explicitly calculating probabilities of various possible outcomes and their respective positive or negative values."

"A person's target level of traffic accident risk is defined as that level of subjective accident risk at which the difference between benefits and costs (including the perceived danger of accident) is believed to maximize. There may be cases in which risk is deliberately pursued, but most risks that people incur are rather more passively accepted as the inevitable consequences of their deliberate choice of action. Anybody who takes to the road knows that they might have an accident, either because of their own behavior, or because of the behavior of other road users that cannot be predicted, let alone controlled."

Risk Homeostasis Theory maintains that "in any activity, people accept a certain level of subjectively estimated risk to their health, safety, and other things they value, in

exchange for the benefits they hope to receive from that activity (transportation, work, eating, drinking, drug use, recreation, romance, sports or whatever)."

Does believing in RHT mean throwing your hands in the air and doing nothing to address the costs of risk taking? Does it mean the abandonment of the three Es? Even if you do not believe in RHT can you afford to ignore the possibility that it may be true?

The answer to all these questions is No.

The engineering, enforcement and education communities should explore RHT and adjust their responses to both the cost and benefits of risk taking. As traffic safety educators, we must be aware of the risks and address the decisions that come with the driving task recognizing the reward of risk taking. We must prepare drivers for making the best decisions with regard to risk. We need to remember that "Education that brings no change is as effective as a parachute that opens on the first bounce".

So how can traffic safety educators avoid delivering education that works after the first crash? The answer is to recognize why people change their behavior and to ask: What will it take to get you to lower your target level of risk taking?

In Minnesota a different way of teaching decision making is being explored. This approach starts with these two related questions: What will it take to get you to change? How uncomfortable do you have to feel before you will take action to reduce your discomfort? The theory behind this approach is that people do not change unless they have reached their target level of discomfort. Sound familiar? It should because the approach is a response to RHT and the need to improve education's response to risk taking.

To directly address sources of
(Risk continued on next12)

The distraction effects of phone use during a crucial driving maneuver

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Liberty Mutual Research Center for Safety and Health

Accident Analysis & Prevention

Volume 35, Issue 5 , September 2003, Pages 725-730

Abstract

Forty-two licensed drivers were tested in an experiment that required them to respond to an in-vehicle phone at the same time that they were faced with making a crucial stopping decision. Using test track facilities, we also examined the influence of driver gender and driver age on these dual-task response capacities. Each driver was given task practice and then performed a first block of 24 trials, where one trial represented one circuit of the test track. Half of the trials were control conditions in which neither the stop-light was activated nor was the in-vehicle phone triggered. Four trials required only stop-light response and a further four, phone response only. The remaining four trials required the driver to complete each task simultaneously. The order of presentation of specific trials was randomized and the whole sequence was repeated in a second block giving 48 trials per driver. In-vehicle phone response also contained an embedded memory task that was evaluated at the end of each trial circuit. Results confirmed our previous observation that in the dual-task condition there was a slower response to the light change. To compensate for this slowed response, drivers subsequently brake more intensely. Most importantly, we recorded a critical 15% increase in non-response to the stop-light in the presence of the phone distraction task which equates with increased stop-light violations on the open road. These response patterns varied by driver age and driver gender. In particular, age had a large effect on task components that required speed of response to multiple, simultaneous demands. Since driving represents a highly complex and interactive environment, it is not possible to specify a simplistic relationship between these distraction effects and outcome crash patterns. However, we can conclude that such in-vehicle technologies erode performance safety margin and distract drivers from their critical primary task of vehicle control. As such it can be anticipated that a causal relation exists to collision events. This is a crucial concern for all in-vehicle device designers and for the many safety researchers and professionals seeking to reduce the adverse impacts of vehicle collisions.

Driving performance during concurrent cell-phone use: are drivers aware of their performance decrements?

Mary F. Lesch , Liberty Mutual Research Institute for Safety and Peter A. Hancock Department of
Psychology, Institute for Simulation and Training, University of Central Florida

Accident Analysis & Prevention

Volume 36, Issue 4 , July 2004, Pages 543-550

Abstract

Prior research has documented the manner in which a variety of driving performance measures are impacted by concurrent cell-phone use as well as the influence of age and gender of the driver. This current study examined the extent to which different driver groups are aware of their associated performance decrements. Subjects' confidence in dealing with distractors while driving and their ratings of task performance and demand were compared with their actual driving performance in the presence of a cell-phone task. While high confidence ratings appeared to be predictive of better driving performance for male drivers (as confidence increased, the size of the distraction effects decreased), this relationship did not hold for females; in fact, for older females, as confidence increased, performance decreased. Additionally, when drivers were matched in terms of confidence level, brake responses of older females were slowed to a much greater extent (0.38 s) than were brake responses of any other group (0.10 s for younger males and females and 0.07 s for older males). Finally, females also rated the driving task as less demanding than males, even though their performance was more greatly affected by distraction. These results suggest that many drivers may not be aware of their decreased performance while using cell-phones and that it may be particularly important to target educational campaigns on driver distraction towards female drivers for whom there tended to be a greater discrepancy between driver perceptions and actual performance.

Using mobile telephones: cognitive workload and attention resource allocation

Christopher J. D. Patten Stockholm University and Swedish National Road Administration, Albert Kircher ,
Joakim Östlund and Lena Nilsson VTI, Swedish National Road and Transport Research Institute

Accident Analysis & Prevention

Volume 36, Issue 3 , May 2004, Pages 341-350

Abstract

Driver distraction is recognized as being one of the central causes of road traffic incidents and mobile telephones are tangible devices (among many other electronic devices) that can distract the driver through changes in workload. Forty participants completed a motorway route characterized by a low level of road complexity in the form of vehicle handling and information processing. A peripheral detection task (PDT) was employed to gauge mental workload. We compared effects of conversation type (simple versus complex) and telephone mode (hands-free versus handheld) to baseline conditions. The participants' reaction times increased significantly when conversing but no benefit of hands-free units over handheld units on rural roads/motorways were found. Thus, in regard to mobile telephones, the content of the conversation was far more important for driving and driver distraction than the type of telephone when driving on a motorway or similar type of road. The more difficult and complex the conversation, the greater the possible negative effect on driver distraction.

Driver risk factors for sleep-related crashes

Jane C. Stutts, Highway Safety Research Center, University of North Carolina, Jean W. Wilkins
School of Medicine, University of North Carolina, J. Scott Osberg AAA Foundation for Traffic Safety
and Bradley V. Vaughn School of Medicine, University of North Carolina

Accident Analysis & Prevention

Volume 35, Issue 3 , May 2003, Pages 393-400

Abstract

A population-based case-control study was carried out to examine driver risk factors for sleep-related motor vehicle crashes. Cases included 312 drivers involved in recent North Carolina crashes and identified on police reports as asleep at the time of the crash and 155 drivers identified as fatigued. Controls were 529 drivers also involved in recent crashes but not identified as asleep or fatigued, and 407 drivers not involved in recent crashes. All drivers were contacted for brief telephone interviews. Results showed that drivers in sleep-related crashes were more likely to work multiple jobs, night shifts, or other unusual work schedules. They averaged fewer hours sleep per night, reported poorer quality sleep, were less likely to feel they got enough sleep, were sleepier during the day, drove more often late at night, and had more prior instances of drowsy driving. Compared to drivers in non-sleep-related crashes, they had been driving for longer times, been awake more hours, slept fewer hours the night before, and were more likely to have used soporific medications. Knowledge of specific risk factors for sleep-related crashes is an important first step in reducing the thousands of deaths and injuries each year in the US attributed to drowsy driving.

The "genetics" of driving behavior: parents' driving style predicts their children's driving style

Alessandra Bianchi and Heikki Summala, Department of Psychology, Traffic Research Unit

Accident Analysis & Prevention

Volume 35, Issue 4 , July 2003, Pages 501-514

Abstract

It can be hypothesized that children inherit their parents' driving habits both through genetic disposition and model learning. A few studies have shown indeed that parents' and their children's traffic convictions and accidents correlate which, however, may be due to life style and other exposure factors. This study aimed at investigating the relationships between parents' and their children's self-reported driving behavior. The subjects were 174 parent-child pairs who independently completed a questionnaire. Driving behavior—driving style—was evaluated by means of Manchester driver behavior questionnaire (DBQ), while data about driving exposure, life style, accidents, and traffic tickets were also collected. A series of regression models indicated that parents' self-reported driving behavior explains their children's respective self-reported behavior, even when exposure and demographic and life-style factors are controlled.

Typical patterns in road-traffic accidents during driver training An explorative Swedish national study

Hans-Yngve Berg and , Nils P. Gregersen, Division of Social Medicine & Public Health Science, Department of Health and Society, Faculty of Health Sciences, and Lucie Laflamme Division of Social Medicine, Department of Public Health Sciences, Karolinska Institutet

Accident Analysis & Prevention

Volume 36, Issue 4 , July 2004, Pages 655-659

Abstract

A new law came into force in Sweden on 1 September 1993, which makes instructor-assisted driving practice possible at the age of 16 years instead of the previous 17 years and 6 months. When the age limit was reduced, the possibility that this would lead to more road-traffic accidents (RTA) during driving practice was discussed. The aim of this study was to highlight typical road-traffic accident patterns and to discuss their potential for improved training and targeted prevention. A total of 11 variables (41 categories) descriptive of the 1081 RTA involving novice drivers and police registered during the period 1994–1999 were analysed simultaneously using in turn, two multivariate analysis techniques: the Factorial Analysis of Correspondence (FAC) and the Hierarchical Ascendant Classification (HAC). Four accident classes were identified and quantified, of which the first two were more typical of rural areas: (1) accidents in rural areas on straight stretches and related to speed limit 70 km/h (n=306); (2) accidents in rural areas on straight stretches and high-speed related (n=97); (3) accidents in built-up areas, low-speed related and of the type rear-end (n=298); and (4) accidents in built-up areas, at road junctions and low-speed related (n=380). Together, these classes point to a variety of opportunities to develop ways of working with targeted prevention. Instead of adopting a general attempt to counteract the relationship between individual variables and accidents, it is possible instead to focus on a whole context and its relationship with its typical accidents and any resulting injuries. This, in its turn, allows greater specificity in the build up of the Swedish licence and training regulations and its corresponding course curriculum.

Accident involvement among learner drivers—an analysis of the consequences of supervised practice

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Science, University of Linköping

Accident Analysis & Prevention

Volume 35, Issue 6 , November 2003, Pages 913-920

Abstract

It is a well-known fact that experience is important for safe driving. Previously, this presented a problem since experience was mostly gained during the most dangerous period of driving—the first years with a licence. In many countries, this "experience paradox" has been addressed by providing increased opportunities to gain experience through supervised practice. One question, however, which still needs to be answered is what has been lost and what has been gained through supervised practice. Does this method lead to fewer accidents after licensing and/or has the number of accidents in driving practice increased? There were three aims in the study. The first was to calculate the size of the accident problem in terms of the number of accidents, health risk and accident risk during practising. The second aim was to evaluate the solution of the "experience paradox" that supervised practice suggests by calculating the costs in terms of accidents during driving practice and the benefits in terms of reduced accident involvement after obtaining a licence. The third aim was to analyse conflict types that occur during driving practice. National register data on licence holders and police-reported injury accidents and self-reported exposure were used. The results show that during the period 1994–2000, 444 driving practice injury accidents were registered, compared to 13,657 accidents during the first 2 years with a licence. The health risk during the period after licensing was 33 times higher and the accident risk 10 times higher than the corresponding risk during practice. The cost-benefit analysis showed that the benefits in terms of accident reduction after licensing were 30 times higher than the costs in terms of driving practice accidents. It is recommended that measures to reduce such accidents should focus on better education of the lay instructor, but not on introducing measures to reduce the amount of lay-instructed practice.

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- * If statistics are used, framing is important; for example, use "1 out of 3", not 33%
- * Avoid humor; participants interpreted humorous messages as sarcastic

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(Brain from page 6)

Powel, Elizabeth. "Studying Functional Differences in the Adolescent Brain may Provide Evidence Nervous System is Responsible for Behavior serendip.brynmawr.edu/bb/neuro/neuro04/web1/epowell.html

"Teenage Brain: A work in progress". National Institute of Mental Health, www.mental-health-matters.com/articles/article.php?artID=219

Risk from page 8

discomfort traffic safety education needs to provide learning opportunities that enhance knowledge, awareness of feelings, and the ability to think. Traffic safety education should result in changes that will result in an increased likelihood that it's graduates will sense the discomfort (unacceptable risk) know how to respond to reduce their discomfort and have their parachutes open when they should.

REFERENCES

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Reviews and comments on Target Risk and the theory of risk homeostasis <http://www.drivers.com/article/000000162>

Wilde, G.J.S. (1994) Target Risk: Dealing with the Danger of Death, Disease and Damage in Everyday Decisions PDE Publications, Toronto, Ontario Canada <http://www.drivers.com/store/books/014.php>

(Randy, from pg 2)

afforded me to serve ADTSEA as an Association representative at the Governors Highway Safety Association Conference, the Iowa Post-State Conference workshop on student performance standards. Each event presented unique opportunities and challenges that I will always remember.

I would be remiss if I didn't also take a moment to acknowledge and thank all those individuals who were willing to serve as ADTSEA representatives at numerous other events. This past year ADTSEA was well represented at a number of state conferences including Hawaii, Virginia, West Virginia, North Carolina, Montana, Wisconsin, and Pennsylvania just to name a few. My sincere thanks to Beth Weaver, John Palmer, Owen Crabb, Louis Pesci, Terry Kline, and Carol Hardin for their

willingness to represent ADTSEA at the various events.

In order for ADTSEA to function, it takes a lot of time effort and people. I am happy to say that we are blessed and very fortunately to have the leadership we do in Dr. Allen Robinson and his entire Highway Safety Staff at Indianan University of Pennsylvania's Highway Safety Center. Faced with some major challenges, Dr. Robinson and his staff maintained the highest level of professionalism and dedication throughout the entire year.

As President, an open line of communications was always provided and when help was needed or information sought, Robby never missed a beat. Because of this time-sensitive information changes were carried on the entire year. When important information needed to be shared it was communicated efficiently and effectively using a variety of technologies.

A major task is the planning and organization of the annual ADTSEA Conference. This past year like so many other years was no different. Kal Kelliher handled the program with class and outstanding dedication. He worked with the various Division Chairs, established deadlines and maintained contact with those Chair people to put together what I'm certain will be reflected in a great conference in Portland. Our deepest gratitude and thanks to Kal and all the Davison Chairs for your time efforts and talents.

Your ADTSEA Executive Committee also deserves a great deal of recognition. This past year we not only held the mid-year meeting in Pittsburgh, but we also conducted a number of telephone Executive Committee meetings as needed. Although it may not sound too demanding, ADTSEA was also active with a variety of corporate members' initiatives in developing

(continued on page 16)

Factors associated with young drivers' car crash injury: comparisons among learner, provisional, and full licensees

Lawrence T. Lam, Royal Alexandra Hospital for Children

Accident Analysis & Prevention Volume 35, Issue 6 , November 2003, Pages 913-920

Abstract

This exploratory study aimed to investigate factors associated with car crash injury among young drivers aged <25 years with different license status. Of special interest were the differences in risk patterns among different license holders of different age groups. Data utilised in this study were obtained from the New South Wales (NSW) police. The results indicated that female young drivers were more at risk of being killed or injured in a crash than males. Some risk factors, in particular environment-related factors, were identified as license-status-and-age specific. On the contrary, disregarding their driving experiences and ages, young drivers were more influenced by their own behaviours and driving conditions. Young drivers of 16–17 years with learner and provisional licenses tended to have increased risk of crash injury due to special road features. Night-time driving seemed to be a problem for older and more experienced drivers only. Fully licensed drivers of 18–19 and 20–24 years were more susceptible to the influence of alcohol. Risk-taking, speeding, fatigue, and carrying many passengers increased the risk of crash injury to car occupants for nearly all young drivers disregarding their ages and driving experiences. The results obtained provided indicative information on areas where the graduated licensing systems in NSW might be effective, and on other areas that might be lacking. A population-based case-control study was proposed to overcome the limitations of this study.

Does increased confidence among novice drivers imply a decrease in safety?

The effects of skid training on slippery road accidents

Ari Katila , , Esko Keskinen , Mika Hatakka and Sirkku Laapotti Department of Psychology, University of Turku

Accident Analysis & Prevention Volume 36, Issue 4 , July 2004, Pages 577-584

Abstract

Finnish driver training was renewed in 1990 with the inclusion of a compulsory skid training course in the curriculum. The study evaluated the renewal's effect on accidents in slippery road conditions. A questionnaire was sent by mail to 41,000 novice drivers who were randomly selected from the official register of driving licences. It included questions on driving exposure and the accidents the drivers had been involved in during 6–18 months following licensing. The rate of return was 74.7%. Half of the drivers had received their licence in 1989 and had, therefore, not received any skid training. The other half had received their licence in 1990 after the introduction of the skid training course. The results showed no effects of the renewal on slippery road accidents for either male or female drivers. Another questionnaire was sent to 1300 old and new curriculum drivers immediately after licensing and a second time 1/2–1 year later, both with questions about skills, worries and perceived risks regarding driving in slippery conditions. The new curriculum drivers showed higher confidence in their skills and they were less afraid to drive in slippery conditions than the old curriculum drivers. This increase in confidence as a result of skid training is discussed. It is argued that high confidence in one's personal skills does not necessarily imply negative safety. The crucial factor is how these skills are used, and for what purpose.

Trends in fatal crashes involving female drivers, 1975–1998

Daniel R. Mayhew, Susan A. Ferguson Insurance Institute for Highway Safety, Katharine J. Desmonda and Herbert M. Simpson Traffic Injury Research Foundation

a 4

Abstract

Since the mid-1980s there has been concern about the growing number of female drivers in the US involved in fatal motor vehicle crashes, and similar trends have been noted in other parts of the world. The present study examined whether this trend has continued into the 1990s and the reasons for it. Fatal crash data were obtained from the Fatality Analysis Reporting System (FARS), mileage data from the National Personal Transportation Survey, and licensure data from the Federal Highway Administration. Many more women were licensed to drive in 1998 than in 1975, and on average they drove more miles. When changes in total annual mileage were taken into account, per-mile crash rates decreased similarly for men and women (about 40%). An examination of the characteristics of their fatal crashes revealed that male and female drivers have seen similar reductions in single-vehicle, nighttime, and alcohol-related crashes. However, men continue to be involved more often in these types of crashes.

The efficacy of an educational intervention in promoting self-regulation among high-risk older drivers

Cynthia Owsley, Beth T. Stalvey and Janice M. Phillips Department of Ophthalmology, School of Medicine, University of Alabama at Birmingham
Accident Analysis & Prevention

Volume 35, Issue 3, May 2003, Pages 407-415

Abstract

Visual processing impairment increases crash risk among older drivers. Many older drivers meet the legal requirements for licensing despite having vision impairments that elevate crash risk. In this study, 365 older drivers who were licensed, visually-impaired, and crash-involved in the prior year were randomly assigned to an intervention group or usual-eye-care control group to evaluate the efficacy of an educational intervention that promoted the performance of self-regulatory practices. The educational curriculum was designed to change self-perceptions about vision impairment and how it can impact driver safety and to promote the avoidance of challenging driving situations through self-regulation, leading to reductions in driving exposure. Analyses compared the intervention and control groups at pre-test and 6 months post-test with respect to self-reported perceptions about vision and driving practices. At post-test, drivers who had received the educational intervention were more likely to acknowledge that the quality of their eyesight was less than excellent, report a higher frequency of avoiding challenging driving situations (e.g. left-turns) and report performing more self-regulatory practices (e.g. three right-turns) as compared to controls. Additionally, drivers in the educational intervention group reported significantly fewer days, fewer places and fewer trips made per week as compared to those not receiving the educational intervention. These findings imply that visually-impaired older drivers at higher risk for crash involvement may benefit from educational interventions by reducing their driving exposure and increasing their avoidance of visually challenging driving situations. A critical future step in this research program will be to examine whether this educational intervention has an impact on the safety of these high-risk older drivers by reducing their crash involvement in the years following the educational intervention.

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Injury and risk-taking behavior—a systematic review

Cathy Turner, Rod McClure, and Sandi Pirozzo Injury Prevention Unit, School of Population Health, Mayne Medical School, University of Queensland

Accident Analysis & Prevention Volume 36, Issue 1, January 2004, Pages 93-101

Abstract

There is a substantial body of work in the scientific literature discussing the role of risk-taking behavior in the causation of injury. Despite the quantity of diverse writings on the subject most is in the form of theoretical commentaries. This review was conducted to critically assess the empirical evidence supporting the association between injury and risk-taking behavior. The review found six case-control studies and one retrospective cohort study, which met all the inclusion criteria. Meta-analysis was not possible due to the diversity of the independent and outcome variables in each of the studies reviewed. Overall the review found that risk-taking behavior, however it is measured, is associated with an increased chance of sustaining an injury except in the case of high skilled, risk-taking sports where the effect may be in the other direction. Drawing specific conclusions from the research presented in this review is difficult without an agreed conceptual framework for examining risk-taking behavior and injury. Considerable work needs to be done to provide a convincing evidence base on which to build public health interventions around risk behavior. However, sufficient evidence exists to suggest that effort in this area may be beneficial for the health of the community.

Has the difference in accident patterns between male and female drivers changed between 1984 and 2000?

Sirkku Laapotti, and Esko Keskinen Department of Psychology, University of Turku

Accident Analysis & Prevention

Volume 36, Issue 4, July 2004, Pages 603-608

Abstract

The motorcar accident pattern of culpable young (18–25 years old) and middle-aged (35–55 years old) male and female drivers was studied in Finland. The aim was to see whether the difference in accident patterns between males and females has remained constant or whether it has changed over a 16-year period. Two different sets of traffic accident data were used. The first set of data covered all motorcar accidents for which damages were paid between 1987 and 2000, a total of 140 802 accidents. The second set of data covered all fatal motor vehicle accidents in Finland during the time period between 1984 and 2000, a total of 2401 accidents. The results are analysed and discussed in the framework of a four-level hierarchical model of driving behaviour [Keskinen, E., 1996. Why do young drivers have more accidents? In: Junge, F., Fahrerinnen (Eds.), Young Drivers (in German and in English). Berichte der Bundesanstalt für Straßenwesen, Mensch und Sicherheit, Heft M 52, Bergisch Gladbach, Germany; Hatakka, M., Keskinen, E., Gregersen, N.P., Glad, A., Hernetkoski, K., 2002. From control of the vehicle to personal self-control; broadening the perspectives to driver education. Transportation Res. Part F 5 (3), 201–215]. Female drivers had proportionally more accidents that were connected to vehicle manoeuvring and control of traffic situations, e.g. reversing and loss-of-control accidents in a sober state and when not speeding. Male drivers, and especially young male drivers, had proportionally more accidents connected to higher levels of driving behaviour like motives for driving and attitudes. Factors that characterised these accidents were speeding and alcohol consumption. Male drivers also had previous traffic offences more often than female drivers. The study concludes that the difference in accident patterns between male and female drivers has remained constant, i.e. the accident pattern of female drivers was as dissimilar to the accident pattern of male drivers in the year 2000 as in the middle of the 1980s.

SAFETY BELTS AND RURAL COMMUNITIES 2003 REPORT

http://gulliver.trb.org/news/blurb_detail.asp?id=3782

According to a report released by the National Highway Traffic Safety Administration, rural Americans face greater risk of being injured or killed in a traffic crash than those who live and commute in urban areas.

CHILDREN UP TO 11 STILL NEED CAR SEATS

http://gulliver.trb.org/news/blurb_detail.asp?id=3609

Research from the United Kingdom's Department for Transport (DfT) indicates that not all parents use appropriate child seats in their cars. As part of the THINK! road safety campaign, the DfT is urging parents to use child car seats

or boosters for their children until they are at least 11 years old or 150 centimeters tall about 5 feet. By May 2006, European Community member states will be required to ensure that children up to age 11 or 150 centimeters tall use an appropriate restraint system.

(Randy from page 12) various instructional tools and resource curriculum materials. Dr. Robinson, Dr Terry Kline and Owen Crabb were all instrumental in providing their time and talents in various curriculum resource material reviews. All these efforts not only benefited the respective proprietors of the materials, but also the Association. Many thanks to all who provided their time and talents.

In a few short months, Beth Weaver will take over as your new President. Knowing Beth and her level of enthusiasm and dedication, I know the Association will be blessed with a great leader. I hope you will take time to chat with Beth while in Portland and offer her your assistance whenever and wherever you might find yourself being able to offer and provide assistance.

Before ending this article I do feel it is also of value to share with you some things that did not have closure before submission of this article. One of those is the results or final report of the NTSB National Forum on Driver Education and Training. However, at the time of the article submission there has been no indication of what might be in the NTSB final report.

Another significant event or item I wish we could report on is the status of driver education language that was introduced in the US

Senate version of the Transportation/ Highway Safety Reauthorization Act. The Senate version differed significantly from the House version. The Senate version passed and included language in it that would establish an Office of Driver Education in the NHTSA, along with requirements of establishing national driver education standards and evaluation of such standards. The House version did not include any of this language.

A conference committee was established and will work on crafting a final bill both legislative bodies and the President will support. Many individuals have provided much time and attention in contacting legislators, urging support of inclusion of the driver education-related language and components in the final bill. Unfortunately, we have no idea what the results of our effort will be at this time.

The year has presented numerous challenges and opportunities. When facing an opportunity ADTSEA responded and was fortunate to have so many provide their time and talents to help in the response. Regardless of the event or challenges, I believe they were faced with a very high degree of attention and commitment. A good example of how our organization responds is our efforts to improve the Teacher-of-the-Year (TOY) Process.

Last year in Charlotte, it became apparent that although the intent of the TOY is truly genuine, the process that was being used seemed to result in some undesirable situations, emotions and feelings. A special recognition and thanks needs to go to those individuals who worked on the TOY Committee. Their strength in sharing thoughts, feelings and emotions that needed to be shared to modify and improve the process. I'm sure it was not easy, nor for some, comfortable, however time and attention was given and recommendations made on how the TOY process might be modified to help attract nominations and how to have a process that recognizes all TOY candidates as winners. I extend my sincerest gratitude to all who have served on the ADTSEA TOY committee.

My time and tenure as President is nearing the end. However, it's not the attention to the end that I will remember, it's the journey that I will always hold close. I am extremely thankful to all of you for having given me this wonderful opportunity. I wish the same wonderful journey for Beth, and hope that you will consider being more involvement with ADTSEA in the future. ADTSEA needs you as much as you need ADTSEA. Remember, ADTSEA's full potential is limited only by what we put into ADTSEA. See you in Portland!

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