A STUDY TO DETERMINE THE CORRELATION BETWEEN THE LENGTH OF FORMALIZED TRAINING AND THE DRIVING/SAFETY RECORDS OF COMMERCIAL TRUCK DRIVERS

By

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ABSTRACT

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The purpose of this study was to determine if there is a direct correlation between the length of formalized training received by truck drivers and the driving record of those drivers. This research further sought to determine if there is a point where formal training is no longer relevant to the driving records of truck drivers due to actual length of time driving (years behind the wheel).

This research was done, by examining the training and driving records of 300 drivers from three separate trucking companies in Wisconsin, in November 2001. These drivers were selected at random. The population for this research was all drivers employed by the selected companies, at the time of this research. The sample, 300 drivers, was then

selected using the table of Ten Thousand Random Numbers, according to the book *Statistical Methods*, by George W. Snedecor and William G, Cochran. This information was then analyzed, and correlations of relevant information were determined, according to the charts in Chapter IV of this study.

A direct relationship between length of training and driving records of commercial drivers was found by this research as well as a determination as to the relevance of training to driving records in connection with the length of driving for the subjects of this study. This relationship and relevance is described in detail in the following chapters as well as the conclusions and recommendations of the researcher as they relate to the data developed from this research.

ACKNOWLEDGMENTS

The author wishes to thank many people, but in particular Thor Burntvedt who without his guidance, leadership, and coaching this research would not have been possible. To those individuals and companies who helped with this research, but have asked to remain unnamed for confidentiality reasons, I just want to say thank you. I hope this information is in some way beneficial to you and your colleagues throughout the trucking industry.

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Chapter I

Background

Introduction

It is widely recognized that driving certain commercial motor vehicles requires special skills and knowledge. Prior to implementation of the Commercial Driver's License (CDL) Program, in a number of states and the District of Columbia, any person licensed to drive an automobile could also legally drive a tractor-trailer or a bus. Even in many states that did have a classified licensing system, a person was not skills tested in a representative vehicle. As a result, many drivers were operating motor vehicles that they may not have been qualified to drive. In addition, many drivers were able to obtain driver's licenses from more than one state and hide or spread convictions among several driving records (http://www.fmcsa.dot.gov/safety/cdl.htm).

The Commercial Motor Vehicle Safety Act (CMVSA) of 1986 created a national Commercial Driver's License (CDL) program by requiring the U.S. Department of Transportation (DOT) to establish national minimum testing and licensing standards for commercial drivers (Federal Motor Carrier Safety Administration Report [FMCSA], October 2000). This act also corrected the situation existing prior to 1986 by making it illegal to hold more than one license and by requiring states to adopt testing and licensing standards for truck and bus drivers to check a person's ability to operate the type of vehicle he/she planned to operate. While testing and licensing standards were established nationwide to ensure uniformity and consistency, driver licensing remained a state function.

The CMVSA established two goals: First, to improve highway safety by ensuring that drivers of large trucks and buses are qualified to operate those vehicles. Second, to remove unsafe and/or unqualified drivers from the nation's highways. The U.S. Department of Transportation established national minimum testing and licensing standards as required by the CMVSA, however no standardized training in relationship to curriculum, course length, and methodology has ever been established to assure uniform national training in obtaining a CDL.

Currently, in order to obtain a CDL, a person must pass a general knowledge test and a basic skills test. The knowledge test must contain at least 30 questions and the applicant must get at least 80% of these questions correct. To pass the skills test, applicants must successfully perform a series of basic skills as listed in the Commercial Driver's License Manual, 49 CFR 383.113. The skills test must be taken in a vehicle representative of the type of vehicle that the applicant operates or expects to operate.

In Wisconsin, as well as in all other states, a person wanting to gain knowledge in driving a commercial vehicle may do so in a variety of ways. There are driving schools for commercial vehicles, both public and private, that have programs running from 5 days to 2 years, and ranging in cost from $500.00 to over $5,000.00. There are also what are called "CDL mills" that promise a potential driver "all the training necessary" in as little as one weekend, if you are willing to pay the price (Farrar, 2000). Some trucking companies have their own driving schools. They hire new drivers, pay them a reduced wage while in training, and then require them to ride with a trainer for varying lengths of time. If the new driver quits while in training or within the first year or two of driving, they must pay the company for the training received, at what usually is a greatly inflated

rate. Anyone with a CDL may also "train" another person to drive a commercial vehicle. Since there is no Federal or State requirement that establishes a minimum level of demonstrated competency or training, such as a Commercial Vehicle Driver's Education Program, a person may obtain their CDL with as little or as much training as they choose. As stated before, all they have to do is pass the test. Some would certainly say this is not sufficient, since according to the National Highway Traffic Safety Administration, there were 475,000 large trucks involved in traffic crashes in the United States in 1999. These crashes resulted in 5,362 deaths and 142,000 injuries.13 percent of all traffic fatalities reported in 1999 involved large trucks, but yet, large trucks only make up 3 percent of all registered vehicles (National Center for Statistics and Analysis, 1999).

This problem is compounded by the fact that several studies have suggested that the trucking industry will require as many as 80,000 new drivers a year for the foreseeable future to keep pace with demand for highway transportation. In addition, the hours of service regulations recently proposed by the Department of Transportation could impose a need for an additional 49,000 drivers a year (Farrar, 2001). As the need for more drivers increases, the State and Federal governments are faced with this question; how do we assure that qualified drivers of commercial vehicles are obtaining their CDL, and not just anyone who can past the tests?

There is currently a bill under consideration that would allow 18 year olds to obtain a CDL. The current minimum age is 21 (Lewis, 2001). The driving force behind this bill is the shortage of drivers mentioned above. Passage of this bill however, would be tied to extensive training requirements. The Truckload Carriers Association, a national organization that focuses on education and training for commercial vehicle operators, has

proposed a 48-week training program for all 18-year-olds. This training would consist of 22 weeks in an approved truck driving school, eight weeks in a motor carrier's driver finishing program, and 18 weeks of driving in a team with an older, more experienced driver (Farrar, 2001). Although this is a tremendous start toward standardized training, the fact remains that if a person is over 21, there is no standard method or level of training required to obtain a CDL. Why should training be so stringent for one age group, but non-existent for all others?

Although there are many methods of commercial vehicle training available in Wisconsin, it has not been determined what is the most appropriate method of training that assures the standards of the CDL are being met. Furthermore, it has not been determined which, if any, of these programs accurately qualify a person to drive a commercial vehicle in Wisconsin, and the United States. Most importantly, it has never been determined if there is a correlation between lengths of formal training and driving results (accident records). In other words, it has not been determined what is the correct length of training needed to produce the type of driver as determined by the CMVSA, safe and qualified.

Statement of Problem

There is a Federal CDL requirement that establishes minimum testing and licensing standards for commercial drivers, but there is no Federal CDL training to determine that those requirements have been met and are valid. No study has been done to determine the correlation between amount (length) of formal training, and driving records of truck drivers, therefore there is little documentation that proves that any certain

length of formalized training satisfies the original guidelines established by the CMVSA of removing all unsafe and/or unqualified truck drivers from our nation's roads. This problem is compounded further by the fact that a surprisingly high number, 95 percent, of would-be truckers pass their CDL exam coming out of training schools because the schools only teach the test, not real life driving (Shanoff, 1998). This number is biased even further by the fact that in many states, the driving instructors are allowed to administer the driving test to their own students. Therefore, it is not known if the length of formalized training has any relevance to the driving records of truck drivers what so ever.

Purpose of the Study

The purpose of this research was to determine if there is a direct correlation between the length of formalized training received by truck drivers and the driving records of those drivers. This research further sought to determine if there is a point where formal training is no longer relevant to the driving records of truck drivers due to actual length of time driving (years behind the wheel).

This research was done, by examining the training and driving records of 300 drivers from three separate trucking companies in Wisconsin, in November 2001. These drivers were selected at random. The population for this research was all drivers employed by the selected companies, at the time of this research. The sample, 300 drivers, was then selected using the table of Ten Thousand Random Numbers, according to the book *Statistical Methods*, by George W. Snedecor and William G. Cochran. This information was then analyzed, and a correlation matrix was developed.

Research Questions

This study sought answers to the following questions:

- What is the most effective length of training available to assure that the goals of the Federal CDL program are being met?
- Is there a standardized minimum length of training that could, and should, be used in the training of commercial drivers?
- Should the passing of the DOT licensing exam be the sole determination as to the level of competence needed to operate a commercial motor vehicle?
- Is there a point where the length of formalized training is no longer relevant to a driver's driving record, due to actual number of years driving commercial vehicles?
- Can it be determined that there is a direct correlation between the length of formalized training obtained by truck drivers, and the driving records of those drivers?

Significance of the Study

The following list identifies the significance of this study and who some of the organizations are
that might benefit from this research:

- The results of this research will determine the validity of the Federal CDL program and its goals. These results will determine the length of standardized training necessary to satisfy the original goals set forth by the CMVSA in 1986.

- This information will be particularly useful to all current and future providers of commercial vehicle driver training, in their development of proper curriculum in order to meet the requirements of the CDL.
- Commercial driving schools, Instructors, and trucking companies will be able to use this information to evaluate the relevance of training for 18-year-olds toward the federal CDL program.
- Other institutions, such as State Departments of Transportation, The Federal Department of Transportation, American Trucker's Association, and various law enforcement agencies will be able to access this information and use it in evaluation of driving programs and licensing standards.

Limitations of the Study

The following is a list of limitations that the researcher has predetermined, could have an impact
on this research:

- Since there is no current survey that the researcher is aware of, that will accurately obtain the information needed for this study, the researcher will have to develop a specific survey for this purpose. This self-developed survey could be a limitation due to the possibility of irrelevant or misunderstood questions causing inaccurate answers and statistics.
- Currently, there is very limited material written about the subject of this study. Most of the resources for information are from industry periodicals, government reports and reviews, and personal observation of professionals in the field.

- The exact intentions of the Federal government in the implementation of the CDL program may be difficult to quantify. It is clear in the wording, as to what the end result should be, however it is very unclear as to how that end result should be obtained and measured.
- Because the research will be conducted through safety departments of trucking companies using information on their own drivers, the people surveyed may try to bias their answers to promote their own companies' performance records in light of comparison with other companies. If a company, based on this data, feels that it will not "measure up" to others who are surveyed, they may attempt to answer the survey questions inaccurately for their benefit.
- It may be determined that the three companies, whose information was used to support this research, are not representative of the entire trucking industry, creating the need for further research.

Definition of Terms

- Accident (Also referred to as crash or collision) – an occurrence involving a commercial motor vehicle on a public road in interstate or intrastate commerce which results in: A fatality, injury to a person requiring immediate treatment away from the scene or, disabling damage to a vehicle requiring it to be towed from the scene (FMCSR – 49CFR Part 40 subsection 390.5).
- CMVSA – Commercial Motor Vehicle Safety Act.

- CDL – Commercial Driver's License, required by law for all operators of commercial motor vehicles, and is classified according to the vehicle weights driven.
- DOT – Department of Transportation.
- FMCSR – Federal Motor Carrier Safety Regulations.
- Commercial Driver – Any person in the business of transporting products for the purpose of monetary gain, whether it is interstate or intrastate.
- Intrastate – within a states border.
- Interstate – throughout the United States and Canada.
- Commercial Motor Vehicle – Any vehicle used in the business of transporting products.
- Hours of Service – The maximum amount of time a commercial vehicle operator is allowed to drive his/her vehicle each day and week, before taking time off. Currently 10 hours driving must be followed by an 8-hour break, and a commercial driver may not drive more than 70 hours in an 8-day period.
- Formalized Training – That training which includes a predetermined amount of time in classroom study as well as a predetermined amount of time in hands-on (behind the wheel) training (P.T.D.I.A., 2000).
- Moving Violation – any violation, which results in a fine and/or assessment of points based on the actions of the vehicle and driver I.E. speeding, unsafe lane change, etc (Department of Transportation, 1999).

All definitions not designated otherwise, come from the Wisconsin Department of Transportation, Motor Vehicle Laws Manual, 1999.

CHAPTER II

Review of Literature

Through this review of literature, the researcher attempted to provide a picture of the trucking industry, past, present, and future, and how licensing and training of truck drivers has evolved to its current state.

The Past

America, at the end of the nineteenth century, was still relatively young. It was a continent of adventurers seeking the benefits of gold, oil and agriculture. With government stimulation, the railroad had opened up vast tracts of previously uninhabited land, encouraged the establishment of new settlements and, more than anything else, sped the movement of passengers and freight to such an extent that the pony express and stagecoach became obsolete overnight (History of Trucking, 2000). The railroad had one problem however. Even though it did play a major role in the distribution of passengers and freight, the final delivery point was rarely at the rail yard. What was needed was a compromise between the railroad's speed and efficiency and the so far unequalled flexibility of the horse. That compromise came in the form of the automobile in 1872, and followed with the invention of the first American freight truck 10 years later (Gibbins, 1978). This truck was coupled to a previously horse-drawn wagon, and this signaled the start of the American legend: the long-haul trucker.

Initially, there was skepticism on all sides. Objections from horse lovers, financial backers of the railroad, and the government, also a major backer of the railroad, were numerous and far reaching. However, just as the railroad gave birth to its folk heroes back in the 1800's, trucking spawned its own characters and began to display its own brand of excitement and glamour. Truck driving, even in the early days, was becoming the vocation of the cowboy, the former railroader and the adventurer (History of Trucking, 2000). There were no steel rails to guide the vehicle and in many areas, there were no roads at all; also there was certainly no comfort. As a trucker, you were at the mercy of the elements, you sat on rough boards, you drove over rough, undeveloped ground, and you either slept on the ground, or in amongst the freight, what ever that might have been. Still, the early trucker was known for adventure and excitement, and looked forward to every new trip into uncharted territory. During this time, there was also little to no regulation. Since this was a brand new industry, everything was being done "first time". Rules were made as you went, freight rates were negotiated on a case-by-case basis, between driver and producer, and the work was sometimes long, hard, and lonely (Dunn, 2001).

With the advent of diesel engines, the first major regulation was enacted in 1935 pertaining to truck driving. This was the Motor Carriers Act of 1935, which sought to establish control of interstate freight movement but in fact enabled big business to take over control, hiring and firing drivers at will, and engaging in wide spread corruption. It proved to be a great error to attempt to limit the truck driver's freedom, however, the government did not learn from its past mistakes, and in 1940 the recommendation for the introduction of the ten hour driving day was presented, thus the beginning of the driver's log book (History, 2000). To save time and money, drivers began sleeping with their trucks even

more than before and, with these new regulations, a two man crew became common place in the long haul industry, so that one driver could sleep while the other one drove. These initial sleeper cabs, also called “suicide boxes”, were crude at best, with the sleeping area bolted directly to the frame of the truck, or even below the chassis. Although the modern day sleeper resembles much more lavish surroundings, the desire to always push the driver further for the sake of profit, rather than allow for adequate rest, has plagued the trucking industry since its conception (Dunn, 2001).

Throughout the 1950’s, 60’s, and 70’s, individual state regulations pertaining to length and weight restrictions, speeds, hours of service, and others began to become a huge burden on the truck driver and the trucking industry. It was not uncommon for a trucker to find himself or herself spending as much time on bureaucratic paperwork and checking his or her legality as they did actually driving. Not only were regulations different between states, but also truckers themselves were divided into categories. If you compared a trucker from the East Coast with their counter part from the West Coast, the differences became very apparent. The Eastern trucker was invariably a steady worker, more often than not in the employ of a freight company, working hard to make a living. They wore ordinary clothes, and were glad to be home every night, since their runs were relatively short. This would prove to be the development of the short-haul trucker. The West Coast driver, on the other hand, was the image of the true American cowboy, right down to the cowboy boots, Stetson hat, and jeans (History, 2000). They were quite often an independent trucker, an owner-operator, and proud to have their own “rig”, always eager to move. Their outgoing personality was reflected in their truck, often decked out in extra chrome, lights, decals, and gleaming paint. They would rather be on the road than home; indeed their truck was their

home. Although this may seem somewhat of a stereotype, it is based on evidence throughout the trucking world (2000).

The 1980's and 1990's brought much varying legislation to the trucking industry. The Motor Carrier Act of 1980 was an attempt to promote competition in the trucking industry by substantially reducing Federal motor carrier regulation. This "partial deregulation" was not widely accepted, since continuing provisions still required motor carriers to file interstate tariffs with the Interstate Commerce Commission. Furthermore, some carriers would negotiate "better" rates than those established by the regulations, in order to take care of their best customers (Boyce, 2001). This law had far reaching consequences, causing price competition and lowering profit margins, forcing a continuing need for efficiency in the industry, often at the expense of the driver.

When the Commercial Motor Vehicle Act of 1986 was enacted, the goal of the Act was to improve highway safety by attempting to determine that drivers of large trucks and buses were qualified to operate those vehicles and to remove unsafe and unqualified drivers from the highways. The Act established minimum national standards, which states must meet when licensing commercial motor vehicle drivers. The Act made it illegal to hold more than one license, a method of "hiding" violations used up to this point, and required states to adopt testing and licensing standards for truck and bus drivers (FMCSA, 2000). This Act however, did not establish any minimum training standards for commercial vehicle operators. It only established minimum testing standards in order to obtain a commercial vehicle operators license, here in called a CDL.

The Motor Carrier Safety Improvement Act of 1999 followed the CMVA Act of 1986. This Act established the Federal Motor Carrier Safety Administration and had the

goals of reducing the number and severity of large-truck involved crashes through more commercial motor vehicle and driver inspections, stronger enforcement, expedited completion of rules, sound research, and effective commercial driver's license testing, record keeping, and sanctions (FMCSA, 2001). Once again, this Act still has not established any minimum training requirements for commercial drivers, only minimum testing requirements.

This brings us to the trucking industry of today and the problems and challenges that the modern day truck driver is faced with across the country.

The Present

Over worked, under paid, pushed past their limits. These are phrases spoken by truck drivers today. Deregulation, poor training, outdated regulations. These are the reasons that drivers give as to why the truck driver, the "white knight" of the highway from the past, has become the "killer truck driver" of today (Belzer, 2000).

It is hard to underestimate the importance of deregulation, which basically set aside virtually all of the industry's economic controls that had been in place since 1935. The Motor Carrier Act of 1980 eliminated the need for government-issued authority to haul goods over specific routes, relaxed entry requirements and gave carriers more freedom to set prices. Trucking was, in effect, reborn on July 1, 1980. One indication of the sea of change in the trucking environment as a result of deregulation is the growth in the number of freight haulers (Berth, 2001). In 1979, the Interstate Commerce Commission identified 17,542 motor carriers with operating authority. Today, there are over 59,000 trucking companies operating in the United States, with more than 56,000 showing revenue of less than 1 million dollars; A jump from 12,000 in 1978 (Belzer, 2000).

This growth, according to Belzer and Berth, has been good for the consumer, but very bad for the truck driver. Belzer went on to say that, "all competitive forces have focused on the weakest link in the transportation chain in order to profit, and this link is the truck driver. Those are the people with the least market power". What he meant by this was that even though the trucking industry has grown substantially due to deregulation, the individual driver has seen lees and less potential for profit, and has been saddled with more regulations that contradict the needs of the industry. Truck drivers of today are referred to as "America's most dangerous" (Schultz, 1998) because of the number and severity of truck related accidents on the highway. This however, is the result of antiquated logbook rules, and the continual pushing by shippers, receivers, and trucking companies, for the driver to exceed their safe driving limits (Schultz, 1998). Truck drivers of today are still operating under the regulations set forth for safe driving standards, as determined by their logbooks, that were established in 1935. In most every piece of current literature that this researcher found, there was some mention of the outdated logbook rules and how they do not apply to the trucks and roads of today. Belzer's article led the reader to believe that this problem has a solution, but no one is in any hurry to correct it. It is not profitable to make truck driving safer (Belzer, 2000). According to his article, the government has been attempting to "fix" the regulation for more than 10 years, and is nowhere closer to a solution now, than they were when they started.

Some might say that if you can't change regulations, than get better-trained truck drivers. This seems to be the other concern of trucking today. Amazement may describe the reaction of the American public if it knew how easy it was to become a truck driver today (Shanoff, 1998). In this article, Shanoff paints a picture of fly-by-night driving schools

driven by the demand for more truck drivers. He points out that students don't learn to drive; they learn to pass a test. Almost 95% of would-be truckers pass the CDL exam, according to a 1996 survey of 18,000 students in 33 training schools (FMCSA, 1999). Shanoff, in his article, interviewed a newly licensed driver who stated that he was very surprised he even passed the course. Ernesto G. (in this article) stated, "I couldn't do the maneuvers. I almost crushed a car carrying four passengers." Still, he graduated and is now driving a truck.

In 1992, the federal government attempted to correct this situation, by limiting it's funding to trucker-training schools that offered at least 600 hours of instruction. As a result, the shorter programs and smaller schools shut down. Springing up to take their place were privately funded training schools known as "CDL mills" (Shanoff, 1998). These CDL mills are the latest fear of the trucking industry. The Commercial Vehicle Training Association and other related groups claim some schools train students with old or improper equipment and graduate them in as little as two days (Heine, 1999). In a Canadian television report, a reporter trained for and received his CDL in 10 hours, taking the skills test with a pickup and a horse trailer. This is the same CDL license that now allows that driver to operate full size tractor-trailer rigs on the roads and highways of our country. Even though this case was in Canada, a Canadian truck driver can operate freely on our highways without any additional training. His or her licensing is readily accepted when they cross the border.

The government has been urged to shut these CDL mills down by many industry leaders, but to no avail (Heine, 1999). Some articles report that the DOT is working on regulations for entry-level driver training. They also state that the DOT is considering the creation of a commercial license category akin to a learner's permit and a graduated

license. This permit would, for example, restrict solo or night driving by new licensees. At the writing of this paper, these regulations had not yet been passed.

Maybe the seriousness of this area of truck driving today could be summed up by an article written by Linda Longton entitled *Raising the bar*, in April 1999. In this article, Longton reports of an accident involving a truck at a rural railroad crossing in Illinois. The accident involved an Amtrak train carrying 217 passengers. Eleven of those passengers were killed, and more than 100 were injured. When the truck driver was asked why he hadn't stopped at the railroad crossing, his response was that during his 3 days of training to get his CDL license, no one had ever told him to stop at railroad crossings that didn't have stop arms. This one did not, so he did not stop. He supposedly had never seen a railroad crossing like this, and "assumed" it was safe. "Besides," he said, "I was late and my company told me I had to go" (Longton, 1999). Maybe another day or two of training would have covered this.

Although these problems have not been solved, the Government says they are working to make truck driving a safe well-trained profession for the future (Cullen, 2000).

The Future

What does the future of trucking hold? E-trucking, satellite vehicle tracking, computerized mapping, 18 year-olds, and foreign drivers. These are the words spoken when addressing the future of trucking.

The trucking industry in many ways is no different than any other industry in the next century. They use technology for everything from load tracking and vehicle availability to recruiting, vehicle performance tracking, computer directional mapping,

highway reports, driver to dispatcher communication, and the list goes on and on (Howells-Tierney, 2001). The trucking industry has not been left behind in the future of technology.

The concerns however, still revolve mainly around driver availability. According to an article in the July 2001 issue of *Overdrive*, there will be a need for more than 425,000 drivers to replace those who are retiring between 1998 and 2008. This coupled with estimates by the government of a need for more than half a million new truck drivers by 2010 to keep up with freight needs (FMCSA, 1999), has the industry trying to figure out new ways to obtain qualified drivers. Some of the ideas being discussed involve allowing 18 year-olds to obtain their CDL. Currently the law states that you must be 21 to engage in Interstate truck driving. Although most proposals in this area include extensive training for this age group, prior to licensing (Farrar, 2001), the industry is not welcoming this suggestion with open arms. As Boyce put it in his article, *Rock 'n' Roll,* in the 2001 issue of Traffic World, "The average parent of a teenage driver is likely to scream in protest at the suggestion that their child could be responsible enough to pilot an 80,000-pound truck down the interstate at 65 mph." The industry seems to share this sentiment.

According to many sources, 18 year-olds are not mature enough to handle the many tasks of being a safe truck driver. The average 18 year-old today has not experienced what it takes to care for this type of equipment (Kasicki, 2000). According to Kasicki, the typical attitude of a young driver is not conducent with handling an 80,000 vehicle safely on the highway. He uses the term "hot dog" to describe these actions. Researcher Marvin Zuckerman observed that driving probably represents the most common form of sensation seeking in young men (Nell, 1998). There is a wealth of data showing that the highest sensation seeking scores and the highest accident rates occur in men aged 16 to 20 (Nell).

Because of this, it is argued that the evolutionary urge to take risks must be understood and dealt with if the number of accidents caused by human factors is to be reduced. For evolutionary reasons, when young males reach the mating and fighting age, their sense of vulnerability, and with it their willingness to take high risks, increases even further (Nell). Is this the new truck driver of the future? Many say no. Even though the FMCSA says that they have researched this, and feel that a pilot study should be done, the Maryland State Police, the California Department of Motor Vehicles, Parents Against Tired Truckers (an activist group), as well as many other government agencies strongly oppose it sighting current age related accident statistics (Wislocki, 2001).

The Insurance Institute for Highway Safety of Arlington Virginia has also entered into discussions on this matter. They contend that three studies were conducted from the late 1980's to the mid-1990's that found that truck drivers between the ages of 21 and 30 were up to six times more likely than older drivers to be involved in a crash (Lewis, 2001). They further believe that truck drivers between 18 and 20 would be 2 to 3 times more likely to be involved in a crash than the previously listed group was. This is not good news for an industry already plagued with the perception of being "killer truck drivers."

Add to this, the desire of some industry leaders, to "open the borders" and let foreigners become the truck drivers of our future. The Immigration and Naturalization Service has been the best opponent of this approach (Ryder, 2000). Because of this, the establishment of a number of covert operations designed to import drivers illegally has become a growing concern. Drivers are recruited overseas through advertisements or word of mouth. Often there's a recruiting agent involved in the foreign country who receives a commission for each "warm body" he sends to the guy in the United States. The drivers are

lured by the promise of no hassles with immigration, big paychecks, and an easy life driving big fancy trucks across the country. They are pushed through the licensing process, and within a few days, are driving a truck in the US. Since they only have a temporary visa, they attempt to drive as much as 20,000 miles per month, twice the normal amount, making as much as they can in a short period of time because they will soon be caught and deported. Then the process starts all over again. The CDL mills discussed earlier gladly accept these "new students" since the tuition is usually paid in cash by the local recruiting agent (Ryder, 2000).

Does it matter how much training a driver has? Does a driver's age have any affect on their ability to handle a truck safely, if proper training has been accomplished prior to licensing? If a new driver is only receiving a few days training or even a few weeks, can they really be expected to know how to safely handle an 80,000 pound vehicle on the highway, and to be able to perform all the other functions that a truck driver of the future is responsible for? Does their driving record reflect these possible deficiencies, and can we as a society do anything about it? This was the main focus of this research and why there is the potential for future research in this area.

CHAPTER III

Methods and Procedures

Introduction

The purpose of this study was to determine if there is a direct correlation between the length of formalized training received by truck drivers and the driving records of those drivers.

Sources of Data

Data for this study was obtained through the safety departments of 3 trucking companies headquartered in Wisconsin. These companies were chosen because they are common carriers hauling general freight throughout the United States and Canada, which means they are representative of over 85 percent of all trucking companies operating in the United States.

100 drivers were chosen from each company. These drivers were chosen at random from the employee database of each company, with no regard to age, gender, length with current company, or total years driving. The population for this study was all drivers employed by the three companies in November 2001, the time when this study was conducted. . The sample, 300 drivers, was then selected using the table of Ten Thousand Random Numbers, according to the book *Statistical Methods*, by George W. Snedecor and William G. Cochran. To assure anonymity, the drivers' name, employee number, Social Security number, or Driver's License number were not used in any way.

Research Design

The following data was compiled for the purpose of this research:

- Amount of time in formal training, months/years
- Number of moving violations on driving record currently
- Number of accidents on driver safety record currently
- Driver Age
- Number years/months total, driving commercial vehicles

(See Appendix A for Data Collection Form)

Formal training was defined according to the Professional Truck Driver Institute of America as: any program, which has a predetermined amount of time in classroom study as well as a predetermined amount of time in hands-on (behind the wheel) training. Furthermore, this organization states that there must be a formal testing process administered to all students, and this testing should result in the issuance of a CDL based on a pass/fail system in accordance with State requirements for licensing.

Moving violation was defined by the Department of Transportation as: any violation, which results in a fine and/or assessment of points based on the actions of the vehicle and driver I.E. speeding, unsafe lane change, etc.

Accident (also referred to as crash or collision) was defined in the Motor Carrier Safety Regulations as: an occurrence involving a commercial motor vehicle on a public road in interstate or intrastate commerce which results in a fatality, injury to a person

requiring immediate treatment away from the scene or disabling damage to a vehicle requiring it to be towed from the scene.

It was the opinion of this researcher that this research instrument was considered content valid, based on the use of the above-mentioned definitions in the development of this data.

Once the data was compiled, correlation research was conducted to determine all pertinent relationships based on visual inspection of data, construction and interpretation of various spreadsheets and charts, and computation and interpretation of Correlation Coefficients.

Limitations/Unknowns

- Since there is no current survey that the researcher is aware of, that will accurately obtain the information needed for this study, the researcher will have to develop a specific survey for this purpose. This self-developed survey could be a limitation due to the possibility of irrelevant or misunderstood questions causing inaccurate answers and statistics.
- Currently, there is very limited material written about the subject of this study. Most of the resources for information are from industry periodicals, government reports and reviews, and personal observation of professionals in the field.
- The exact intentions of the Federal government in the implementation of the CDL program may be difficult to quantify. It is clear in the wording, as to what the end

result should be, however it is very unclear as to how that end result should be obtained and measured.

- Because the research will be conducted through safety departments of trucking companies using information on their own drivers, the people compiling the information may try to bias their answers to promote their own companies' performance records in light of comparison with other companies. If a company, based on this data, feels that it will not "measure up" to others who are surveyed, they may attempt to answer the survey questions inaccurately for their benefit.
- It may be determined that the three companies, whose information was used to support this research, are not representative of the entire trucking industry, creating the need for further research.

Data Analysis

(See Chapter IV)

CHAPTER IV

Findings

The purpose of this study was to determine the correlation between the length of formal training for truck drivers and the accident/safety records of those drivers.

The sample for this study consisted of 300 drivers (100 from each of 3 companies) that were employed at the time the data was collected, November 2001. These drivers were chosen by random sampling, using the table of random numbers, as described earlier. The population was all drivers employed by the 3 companies at the time the data was collected and this sample, 300 drivers, represents 10.7 % of the total population. Response was considered to be 100% since all information was secondary data collected from company records, not by survey.

All comparisons were of a numerical nature therefore the interval scale of measurement was used. The tables reported mean and standard deviation for each comparison, as well as correlation coefficient – R and probability – P. All relationships were examined using Pearson R analysis.

The tables used to document and analyze all information pertinent to this study follow this narration.

Weeks Training By Years Driving Commercial Vehicles, Listed By Number Of Violations

# Of Violations	Wks. of Training	Number of Years Driving Commercial Vehicles							
		00-01 yrs	02-03 yrs	04-05 yrs	06-07 yrs	08-09 yrs	10-11 yrs	12-36 yrs	Total
0 Violations	0 weeks	1	2	2	2	1	13	20	41
	1-3 weeks	1	3	2	2	5	5	10	28
	4-6 weeks	4	5	6	4	3	2	1	25
	7-9 weeks	28	29	24	19	8	4	2	114
1 Violation	0 weeks	0	0	2	0	1	3	8	14
	1-3 weeks	0	2	1	0	2	3	4	12
	4-6 weeks	1	0	4	1	0	0	0	6
	7-9 weeks	11	7	5	2	0	0	0	30
2-4 Violations	0 weeks	0	0	0	0	0	0	2	2
	1-3 weeks	0	0	0	0	0	0	0	0
	4-6 weeks	0	2	3	2	2	0	0	9
	7-9 weeks	3	3	3	5	0	5	0	19

1. For the 208 respondents with 0 violations, the mean weeks of training was 5.21 with a standard deviation of 3.41. The mean for years of driving was 6.68 with a standard deviation of 5.46
2. For the 62 respondents with 1 violation, the mean weeks of training was 4.61 with a standard deviation of 3.59. The mean years of driving was 7.15 with a standard deviation of 6.48.
3. For the 30 respondents with 2-4 violations, the mean weeks of training was 6.52, with a standard deviation of 2.22. The mean years of driving was 5.26, with a standard deviation of 3.10.

4. For all 300 respondents combined, the mean weeks of training was 5.22, with a standard deviation of 3.39, and the mean years of driving was 6.76 with a standard deviation of 5.60.

Weeks Training By Years Driving Commercial Vehicles, Listed By Number Of Accidents

# Of Accidents	Wks. of Training	Number of Years Driving Commercial Vehicles							
		00-01 yrs	02-03 yrs	04-05 yrs	06-07 yrs	08-09 yrs	10-11 yrs	12-36 yrs	Total
1-2 Accidents	0 weeks	1	1	1	1	0	2	5	11
	1-3 weeks	1	1	0	1	0	3	3	9
	4-6 weeks	1	0	1	0	0	0	0	2
	7-9 weeks	23	15	10	10	4	3	0	65
3 Accidents	0 weeks	0	1	1	0	1	4	9	16
	1-3 weeks	0	2	1	0	0	0	0	3
	4-6 weeks	0	0	0	1	1	0	0	2
	7-9 weeks	16	17	17	13	1	2	1	67
4 Accidents	0 weeks	0	0	1	0	0	3	5	9
	1-3 weeks	0	1	0	0	3	1	2	7
	4-6 weeks	2	6	7	3	2	2	1	23
	7-9 weeks	3	7	4	5	2	3	1	25
5-11 Accidents	0 weeks	0	0	1	1	1	7	11	21
	1-3 weeks	0	1	2	1	4	4	9	21
	4-6 weeks	2	1	5	3	2	0	0	13
	7-9 weeks	0	0	1	1	3	1	0	6

1. For the 87 respondents with 1-2 accidents, the mean weeks of training was 7.09 with a standard deviation of 1.61. The mean years of driving was 5.66 with a standard deviation of 5.64.
2. For the 88 respondents with 3 accidents, the mean weeks of training was 6.33 with a standard deviation of 3.22. The mean years of driving was 5.80 with a standard deviation of 5.55.
3. For the 64 respondents with 4 accidents, the mean weeks of training was 4.89 with a standard deviation of 3.00. The mean years of driving was 6.89 with a standard deviation of 4.69.
4. For the 61 respondents with 5-11 accidents, the mean weeks of training was 1.69 with a standard deviation of1.65. The mean years of driving was 12.07 with a standard deviation of 3.76.
5. For all 300 respondents combined, the mean weeks of training was 5.22 with a standard deviation of 3.39 and the mean years of driving was 6.76 with a standard deviation of 5.60.

Note: No respondents had 0 accidents.

PEARSON CORRELATION COEFFICIENT MATRIX

		weeks.trng.	years.drvng.	# violations	# accidents
weeks.trng.	Correlation	1	-0.626	0.068	-0.425
	Significance	0	0	0.242	0
years.drvng.	Correlation	-0.626	1	-0.003	0.354
	Significance	0.001	0	0.952	0
# violations	Correlation	0.068	-0.003	1	0.028
	Significance	0.242	0.952	0	0.626
# accidents	Correlation	-0.425	0.354	0.028	1
	Significance	0	0.001	0.626	0

1. There is a high negative correlation between years of driving and weeks of training
   at -.626.
2. There is a medium negative correlation between number of accidents and weeks of training at -.425.
3. There is a medium positive correlation between number of accidents and years of driving at +. 354.
4. There is no significant correlation between number of violations and weeks of training, and between number of violations and years of driving.

The significance of these relationships, as well as those established in charts 1 and 2 will be discussed in the following chapter of summary, conclusions, and recommendations.

CHAPTER V

Summary, Conclusions, Recommendations

Summary

The purpose of this study was to determine if there is any direct correlation between the length of formalized training received by truck drivers and the driving records of those drivers. This research further sought to determine if there is a point where formal training is no longer relevant to the driving records of truck drivers due to actual length of time driving (years behind the wheel).

This research was done, by examining the training and driving records of 300 drivers from three separate trucking companies in Wisconsin, in November of 2001. These drivers were selected at random. The population for this research was all drivers employed by the selected companies, at the time of this research. The sample, 300 drivers, was then selected at random, using the table of random numbers method. This information was then analyzed, and a correlation of relevant information was determined.

Research questions that were considered were:

1. What is the most effective length of training available to assure that the goals of the Federal CDL program are being met?
2. Is there a standardized minimum length of training that could, and should, be used in the training of commercial drivers?
3. Should the passing of the DOT licensing exam be the sole determination as to the level of competence needed to operate a commercial vehicle?

Conclusions

Based on the results of this study and its relationship to this particular sample, it can be concluded that there is a direct correlation between length of training and driving records of commercial drivers in that drivers with 7-9 weeks of training had the lowest percentage of accidents, while those with less training had comparably higher numbers of accidents. This study also found a direct relationship when comparing length of training to years of experience and their relationship to driving records. When comparing accident records, it can be said that a driver with 7-9 weeks of training and limited driving experience is relatively equal to a driver with 10 years of driving experience and no formal training.

In addressing the research questions as stated earlier:

1. If the goals of the Federal CDL program are in fact, to develop safe commercial drivers, then based on this research it could be concluded that the most effective length of training available at this time is a minimum of 7-9 weeks. The concern of this researcher pertaining to this question is, "what exactly is a safe commercial driver?"
2. In relationship to the second research question, "is there a standard minimum length of training that could, and should be used in the training of commercial drivers", the answer could possibly be best determined by the safety and recruitment departments of the trucking companies themselves. This research has shown that a driver with 7-9 weeks of training is relatively equal to a driver with 10 years experience in comparing their accident records. Based on this research, it could be

said that 7-9 weeks could and should be the minimum standard set for training of all new commercial drivers, if the accident record of a driver with 10 years experience is to be considered as the standard for the industry.

3. Based upon the findings of this research, this researcher feels that the answer to research question number three is absolutely not. The highest number of accidents and violations occurred with those respondents that had little or no training and little or no years of driving experience. This research supports the statement that very little practical knowledge can be gained by just passing the CDL exam, and the passing of this exam in no way qualifies a driver to operate commercial vehicles in a safe and proper manner for any significant period of time.

The overall conclusion of this research is yes, there is a direct correlation between the length of formal training and the driving records of those drivers receiving that training and furthermore, there is an additional relationship to the number of years driving commercial vehicles, and its relevance to the driving records of those drivers.

Recommendations Related to This Study

1. This research information should be used by the sample groups of this study as well as others, to determine hiring standards for their drivers, based on what their needs and desires are in relation to safety, company reputation, profitability, and overall concern for the public.
2. The Department of Transportation could and should use this information to determine if stricter standards relating to the issuing of commercial drivers licenses should be introduced.
3. Educational establishments that provide commercial truck driver training should evaluate the length of their programs to assure that they are providing adequate training to their students.

Recommendation Related to Future Study

1. Further study needs to be done to determine if longer training programs (in excess of 9 weeks) significantly improve the driving records of commercial truck drivers.
2. Additional study needs to be done to determine how variance in course content relates to the length of truck driver training programs, and if alternative methods of content delivery could enhance the learning capabilities of these drivers while keeping course lengths within the guidelines and expectations of the public.

3. Future study could also be done to determine if drivers who have driving experience, but minimum training, could benefit substantially by attending advanced training that allowed them to apply their skills already learned through hands-on experience with additional course content that is relative to their industry.

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APPENDICES

Appendix A

Dear Sir,

I would like to thank you in advance for allowing us to use your company for the purpose of gathering information necessary for our study on driver training and driving records. We feel that this research will be worthwhile to you as well as the entire motoring public, and hope that you feel the same.

As we discussed earlier, the identity of all drivers will be kept anonymous, since no information will be gathered according to driver name or employee number. Furthermore, your safety department, to further assure anonymity, will assemble the driver information. I will be arriving at your place of business on October 5th, at 1:00 P.M. and expect to be done compiling information by approximately 5:00 P.M. Attached, you will find a copy of the form which I will use to gather the needed information. Should you have any further questions or concerns, I will be glad to address them when I arrive.

Should you wish to have a summary of the report when it is completed, we will be glad to furnish you with one. I look forward to meeting and working with you soon.

Sincerely,

Timothy L. Evans
Graduate Research Student
University of Wisconsin – Stout

Attach.

Appendix B

Driver	Training mos./yrs.	Total Drvng. mos./yrs.	# Violations current	# Accidents current	Driver Age
1					
2					
3					
4					
5					
6					
7					
8					
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12					
13					
14					
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