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A Survey of Driver Education Teachers: Opinions and Practices of Driver Training Programs in Pennsylvania

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A SURVEY OF DRIVER EDUCATION TEACHERS: OPINIONS AND PRACTICES OF DRIVER EDUCATION TRAINING PROGRAMS IN PENNSYLVANIA

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Title: A Survey of Driver Education Teachers: Opinions and Practices of Driver Education Training Programs in Pennsylvania

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The purpose of this study was to examine the opinions and practices of driver education teachers in the state of Pennsylvania. Specifically, it addressed the following: to survey driver education teachers in the state of Pennsylvania who are certified by the Pennsylvania Department of Education, concerning their educational training, practices in their driver education programs, opinions toward college driver education instructor preparation courses, and opinions toward higher certification standards for driver education teacher training. The following research questions where analyzed: 1. What is the educational training of driver education teachers in the state of Pennsylvania? 2. What type of driver education practices are driver education teachers using in the state of Pennsylvania? 3. What are the driver education teachers' opinions toward college courses in driver and traffic safety? 4. What are the driver education teachers' opinions toward higher certification requirements in teaching driver education?

The results from this study indicate that in the next 10 years over half of the driver education teachers in the state will be of retirement age and 80% of driver education teachers are male. The following statistical differences were found: 1. The age of driver educators plays a significant role in their opinions toward their driver education practices and higher certification standards for driver education teacher training. 2. The type of license held by driver educators plays a significant role in their opinions toward college

driver education instructor preparation courses and higher certification standards for driver education teacher training. 3. The years as a teacher play a significant role in their opinions toward college driver education instructor preparation course and higher certification standards for driver education teacher training. 4. The years as a driver education teacher play a significant role in their opinions toward college driver education instructor preparation courses and higher certification standards for driver education teacher training. This study indicates that support from the Pennsylvania Department of Education and legislators is needed to mandate all public schools in Pennsylvania to offer driver education programs and for students to successfully complete driver education prior to graduating.

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CHAPTER I

INTRODUCTION

In the United States private motor vehicles are the primary mode of transportation and it is not surprising that obtaining a driver's license is an important milestone in most teenagers' lives (Simons-Morton, 2002). Driving a motor vehicle for all ages is a high risk activity, especially for young drivers 15-20 years of age, which is the leading cause of death and injury for their age group (Simons-Morton, 2002). A good training program, such as driver education, is invaluable in teaching these complex skills and has the potential to be an effective tool in the preparation of novice drivers (Smith, 1994).

Over the years research has shown that novice driver education and university level driver education teacher certification programs have been slowly vanishing. According to Smith (2001), "Whereas close to 80 percent of eligible high schools participated in school courses in the 1960s and 1970s, far less than half did in the 1990s and currently the proportion continues to decline" (p. 10).

Driver education is not a new topic in public schools. Prior to 1920 some type of driver education was implemented in the public schools, but it was not until the mid-1930s driver education became better organized (Aaron & Strasser, 1977). In 1933 the first course called driver education was conducted at a high school in State College, Pennsylvania (Aaron & Strasser, 1977). Since 1933 driver education has been implemented in the Pennsylvania public schools. Over the years, driver education has constantly been evaluated and critiqued for its effectiveness in reducing car collisions (Aaron & Strasser, 1977).

The origin of driver education has been perceived as a social issue, mainly with causes of traffic collisions (Aaron & Strasser, 1977). According to Aaron and Strasser (1977), driver education was seen as a basic solution in educating the younger driver population. Problems arose in the preparation of teachers in providing the educational experiences and developing instructional materials (Aaron & Strasser, 1977).

> A problem parallel to financing driver education programs has been supplying an adequate number of qualified teachers. After World War II, the public interest in the program was almost explosive in force. Not only was there an insufficient number of teachers to train the students, but there were very few colleges and universities equipped to prepare the teachers. (Carr, 1958, p. 68)

Aaron and Strasser (1977) state, driver educators were not the first to identify the need for driver education, even though it was an educational issue. Those who recognized the problem were police officers, driver's license administrators, and insurance companies who were in contact with young people on a daily basis (Aaron & Strasser, 1977).

Background

The understanding of adolescent driving behavior has become more robust and nuanced, but also more complex (Keating, 2007). According to Keating (2007), "the pathways, through which adolescents arrive at positive outcomes of health, achievement, and social competence, or conversely encounter significant problems in one or more domains, are both multifaceted and responsive to a wide range of contextual factors" (p. 147).

> According to Raymond, Johns, Golembiewski, Seifert, Nichols and Knoblauch (2004), driving a motor vehicle is a complex task–one that requires knowledge, specific motor skills, specific perceptual skills, judgment, and maturity. Traditional driver licensing systems expose young drivers to many of the most difficult driving tasks very early in their learning process. This exposure to potentially risky situations has resulted in an unfortunate number of deaths and injuries. (Keating, 2007, p. 4)

The interventions of behavioral science are recommended to be ground in theories (William & Ferguson, 2002). Theories such as social learning theory and problem behavior theory can certainly be applied to novice drivers but other concepts and frameworks are needed to explain novice drivers' actions (William & Ferguson, 2002). Through development of needed knowledge, skills, and attitudes, driver education can cause behavioral changes which lead to safer driving (McKnight, 2006). "More suitable for driver education courses are beliefs which support the specific various elements of driving that make up the course objectives" (McKnight, 2006, p. 5). Despite the shortfalls existing driver education programs do cover at least some of the psychomotor, perceptual awareness, and cognitive skills that have been shown to place young drivers at increased risk of collision (Mayhew & Simpson, 2002). In the absence of instruction, novice drivers will acquire such attitudes through exposure to high risk situations. Bringing novice drivers into driver education programs requires a means of safely exposing novices to situations which are capable of altering beliefs and behavior (McKnight, 2006).

According to James (1982), the struggle for affective compliance involves the driver's motivation, disposition, and principles; it is a matter of the driver's good will or bad will. Driver's rationality and understanding is part of the cognitive skills that all drivers must perfect. Sensorimotor compliance involves the driver's performance ability and perceptual awareness of the surrounding traffic environment (James, 1982). James (1982) states:

> Even further levels of internalization are theoretically possible as shown by the work of Kohlberg (1976) on moral reasoning. Applying this approach to driving behavior, we can expect expression of mutual concern, altruism, and religious values in connection with one's driving experiences. (p. 7)

Statement of the Problem

Since the early 1990s, the number of driver education programs that were typically offered in secondary schools has been slowly declining. The decline in driver education was mainly due to the disappointing findings of the landmark driver education study funded by the National Highway Transportation Safety Administration. This study better know as the "Dekalb Study," conducted in Dekalb County, Georgia, was a controlled study on the effectiveness of driver education (Lonero, 2005).

> The DeKalb County study was a major experimental field trial of the safety impact of a specially developed, intensive driver education program. When it failed to show a net safety benefit, much support for driver education in North America was lost in the 1980s. Some jurisdictions and private organizations continued to develop their programs, but overall driver education suffered a decline of support after the DeKalb report. (Lonero, 2005, p. 2)

The issue facing driver training and education is how to develop programs that will reduce the crashes of novice drivers and improve driving efficiency within the transportation system of today and the future. The quality, amount, and skills necessary obtained from classroom and behind-the-wheel instruction alone are not sufficient in that the novice driver becomes a safe driver of a motor vehicle (American and Driver Traffic Safety Education Association [ADTSEA], 2002). Driver education programs must be enhanced so the content is certifiable as comprehensive and meets acceptable established standards. Programs should be periodically evaluated and certified as meeting established standards (ADTSEA, 2002).

Another problematic component of driver education is the driver education teacher. As Robinson (2003) stated during the National Transportation Safety Board--Public Forum on Driver Education and Training:

> Most driver education teachers are of retirement age. In addition, driver education teachers have not stayed current with existing driver education concepts, let alone progressed to new theories of training young drivers. New teachers have not entered the field because job prospects have been limited. Colleges and universities have dropped teacher training programs for driver education, and many state education offices do not require training standards nor do they provide supervision and guidance to the driver education programs for young drivers. (p. 37)

In the state of Pennsylvania there has been a steady decline in the number of colleges and universities that provide and train driver education teachers. At one time there were approximately 20 programs in Pennsylvania. Today, Indiana University of

Pennsylvania remains one of the two higher education institutions providing training and leadership for driver education teachers in the state. There is a dire necessity to reincarnate and stress the importance of training programs not only in Pennsylvania but the whole country. According to Smith (2001), the mobility and safety issues of the highway transportation system in the United States need to be addressed in driver education programs. The public must be educated that young novice driver crashes are a public health problem and are unacceptable at current levels. The public must also accept that resources will be needed and everyone (parents, novice drivers, public and private sector organizations) has a specific role and must be involved in solving the young driver crash problem and reducing traffic accidents. (Smith, 2001)

Purpose of the Study

The purpose of this study was to examine the opinions and practices of driver education teachers in the state of Pennsylvania. Specifically, it addressed the following: to survey driver education teachers in the state of Pennsylvania that are certified by the Pennsylvania Department of Education, concerning their educational training, practices in their driver education programs, opinions toward college driver education instructor preparation courses, and opinions toward higher certification standards for driver education teacher training.

Definition of Terms

The definitions of the following terms guided this investigation:

1. Accident: An unplanned event resulting in death, injury, or property damage involving the use of a motor vehicle (Matthias, 1971).

2. Approved course: "The driver education course of instruction that is approved by the state agency designated with the responsibility for approving such course" (ADTSEA, 2002, p. 3).
3. After school program: "The driver education program taught exclusively after regular school hours" (Hansen, 1980, p. 9).
4. Behind-the-wheel instruction: "A portion of the driver education laboratory instruction where the enrollee is actually seated behind the wheel of a vehicle or simulated vehicle, operating it either in real or simulated traffic situations, through the direct guidance of a certified driver education teacher" (ADTSEA, 2002, p. 3).
5. Certified driver education teacher: Persons authorized by the state agency responsible for administering the driver education program to conduct any and all phases of the approved driver education course (ADTSEA, 2002).
6. Classroom instruction: "A portion of the driver education program, occurring in a classroom environment, under the direct guidance of a certified driver education teacher that enables student learning to occur through varied instructional methodology" (ADTSEA, 2002, p. 3).
7. Concurrent scheduling: "Scheduling the driver education course so that there is no significant break of instruction between the classroom and laboratory phases" (ADTSEA, 2002, p. 3).
8. Driver Education Content and Performance Expectations: "Describes what driver education students should know and be able to do at the end of the thirty-hour classroom theory and the six-hour behind-the-wheel instruction" (Pennsylvania Department of Education [PDE], 2007, p. 1).

9. Driving range instruction: "A portion of the driver education laboratory instruction that enables the certified driver education teacher, positioned outside multiple cars using electronic or oral communication, to teach and supervise several students simultaneously, each of whom is operating a car on an off-street driving range designed specifically for such instruction" (ADTSEA, 2002, p. 4).
10. Observation time: "The time an enrollee in a driver education course spends in the vehicle, under the direct guidance of a certified driver education teacher, observing another driver operating the controls of the vehicle" (ADTSEA, 2002, p. 4).
11. Public school program: "An approved driver education program, offered in a public school, by a non-profit agency that is supported in whole or part by public education" (ADTSEA, 2002, p. 4).
12. Driving simulation instruction: "A system of vehicle simulator units with an instructor unit that is used in a driver education laboratory phase (ADTSEA, 2002, p. 4).
13. State supervisor: The state supervisor of safety/driver education within the Pennsylvania Department of Education.
14. Summer program: "The driver education program taught in the school district during the summer" (Matthias, 1971, p. 12).

Research Questions

This study focused on driver education teachers whom have been approved by the Pennsylvania Department of Education. The questions asked were: 1. What is the educational training of driver education teachers in the state of Pennsylvania? 2. What type of driver education practices are driver education teachers using in the state of

Pennsylvania? 3. What are the driver education teachers' opinions toward college courses in driver and traffic safety? 4. What are the driver education teachers' opinions toward higher certification requirements in teaching driver education? As part as analyzing these research questions additional data were available addressing the following: gender; age; level of education obtained; major field; and, the type of driver education teaching licenses held by driver educators.

Significance of the Study

In the United States the social and economic structure is based upon a functional dependence on motor vehicles (Strasser, Aaron, & Bohn, 1981). The automobile has flourished but has brought serious physical threats to the lives of motorists, especially to young drivers (Strasser, et al., 1981).

Evans (1991) states, anyone who lives in a motorized society can fail to consider the enormous human, economic, and environmental cost of traffic crashes. Young drivers in the United States are prone to collisions with rates four times higher than those in their 20s which affect not only the driver who is at fault but all parties involved (William & Ferguson, 2002).

> Traffic crashes are perhaps the number one public health problem in the United States and in other motorized countries; more years of productive life lost are due to traffic crashes than from the combined effects of the two leading diseases, cancer and heart disease. (Evans, 1991, p. xiii)

In the United States, between 5,000 and 6,000 individuals ages 16-20 years, were killed every year for the past decade in motor vehicle collisions (The Allstate Foundation, 2005). No other kind of hazard or behavior comes close to claiming as many teen lives

as driving. In addition to the number of teens killed each year, some 300,000 are injured (The Allstate Foundation, 2005). Annually, traffic collisions worldwide are responsible for killing about a half a million people (Evans, 1991).

> This is not surprising because driving is a complex, self paced activity involving a myriad of basic tasks (for example, steering, braking) and higher order skills (for example, hazard perception, problem solving), many of which are essential to safe vehicle operation. (Mayhew & Simpson, 2002, p. ii3)

Even though statistics, for some years, can show that automobile fatalities are being lowered, traffic safety problems demand greater attention than ever before (Matthias, 1971). "An improved driver education program, conducted by competent driver educators, offers a great potential toward the improvement of the traffic problem" (Matthias, 1971, p. 8-9).

Limitations of this Study

Although there are other components of driver education programs, this research only surveyed driver education teachers and their driver education programs in the state of Pennsylvania. It included both public and private driver training teachers. Because it only researched driver education teachers and their driver education programs in the state of Pennsylvania, similar studies should be done in all states. A larger study would be more representative of driver education teachers' practices and their opinions. This may result in the way driver education preparation courses are administered and determine which driver education programs are effective in reducing injuries and fatalities.

Summary

The problem concerning driver education teacher preparation programs and current trends in driver education curricula was discussed. The need for more driver education teacher preparation programs at the university level and a well designed driver education curricula for implementation for novice drivers was considered. The research procedures used in this study and the development of the instrumentation were presented.

A comprehensive review of literature is reported in Chapter II. The historical perspective of driver education, driver education teacher certification requirements, and other state driver education programs are discussed.

CHAPTER II

REVIEW OF RELATED LITERATURE

The literature review for this study will first describe the driver education programs both past and present. Secondly, it will look at specific issues such as teacher preparation courses and teacher certification standards from a national perspective and within the state of Pennsylvania.

Historical Overview of Driver Education

Origin of Driver Education

"Public school driver education ultimately was founded on considering adolescence as a distinct period in the life course" (Albert, 1997, p. 230). The education philosophy which driver education was constructed from is to help students adapt to society in which they live (Albert, 1997).

High school driver education programs began in the early 1930s with isolated instances of teaching in the public schools prior to 1920 (Aaron & Strasser, 1977). According to Albert (1997), prior to the 1930s there is minimal information on driver education training that could be actually called driver education. An organized driver education movement did not appear until the mid-1930s (Aaron & Strasser, 1977). This timing coincides with the increased concerns over traffic collisions and the expansion of the transportation safety structure (Albert, 1997). In 1932, Dr. Herbert J. Stack, introduced and organized a program of classroom instruction in driver education in the Bergen County, New Jersey high schools (Aaron & Strasser, 1977). This was a short 10 hour course taught in three schools in the county (Stack, 1966). The first course called

driver education was conducted in a high school in State College, Pennsylvania in 1933 by Amos E. Neyhart (Aaron & Strasser, 1977). During this time period, New Hampshire, Pennsylvania, Ohio, Delaware, and many other states created courses of study in driver education and implemented them into their high schools (Stack, 1966). By 1940 there were well over 20 state courses of study (Stack, 1966).

In 1957-1958 it was found that the mean classroom phase of driver education was 36 hours with an additional 6 hours of behind-the-wheel training (Albert, 1997).

> Typically a course would be offered a few days a week for a single summer. Many state laws required driver education as a condition of licensing by the 1950's so that students were rotated into the course as they reached a specific age (usually fifteen and one half years old). Classroom instruction, constituting eight-five percent of course time, was probably more dynamic than the typical traditional courses with its use of media such as film strips, films, and variety of models, props and driver testing gizmos. (Albert, 1997, p. 208)

Promotion of Driver Education

The field of driver education did not experience major growth until the 1930s and 1940s with attempts to standardize courses (Mayhew, 2007).

> Enrollment in high school driver education in the United States increased from about 200,000 students (in 3,000 public schools) in 1947, to about 1,300,000 students (in nearly 12,000 public schools) in 1964. This rapid expansion was also fueled by insurance companies offering premium discounts for successful completion of driver education (first by Allstate Insurance in 1952) and by states

> requiring driver education as a condition for licensing under age 18 (first by Michigan in 1957). (Mayhew as cited in Nichols, 2003, p. 230)

Driver education was promoted by two organizations--the Association of Casualty and Surety Companies and the American Automobile Association (Aaron & Strasser, 1977). Within the Association of Casualty and Surety Company, Dr. Herbert Stack managed the driver education activities and was titled the educational director (Aaron & Strasser, 1977). Dr. Stack also conducted driver education teacher preparation courses for potential teachers and in 1938 Dr. Stack became the first director for the Center of Safety Education at New York University (Stack, 1966).

The American Automobile Association (AAA) has had a long time interest in all the problems associated with driving and retained the services of Professor Amos Neyhart of Pennsylvania State College as an educational consultant (Aaron & Strasser, 1977). According to Aaron and Strasser (1977), AAA developed instructional materials in the field of driver education and conducted numerous college driver education teacher preparation courses for teachers throughout the United States (Aaron & Strasser, 1977).

During World War II the Quartermaster General of the United States Army realized the potential value of driver education in schools and colleges (Stack, 1966). "It was felt that every enlisted man should be able to operate a vehicle" (Stack, 1966, p. 18).

> The Quartermaster General of the Army was compelled to call upon the State Superintendents of Public Instruction to conduct pre-induction driver-training programs to provide as much background knowledge as necessary or possible for these young people to assume their responsibility in handling motorized equipment. (Aaron & Strasser, 1977, p. 32)

Early instructor manuals for the pre-induction of driver education programs in both public schools and colleges, which assisted teachers in providing information to young drivers, were developed by the armed services (Aaron & Strasser, 1977). The early development of such driver education programs were also contributed to several organizations in the United States besides the armed forces (Aaron & Strasser, 1977). Stack (1966) states, "These groups included, among others, the National Safety Council, the Auto-Industries Highway Safety Committee, parent-teacher organizations, insurance companies, automobile dealers, public officials, service groups, fraternal organizations, and local safety councils" (p. 29).

Decline of Driver Education

Two significant events took place that changed the driver education movement and they still have lingering effects today (Crabb, 1994). The first event was a study conducted by the National Highway Traffic Safety Administration in the late 1960s, better known as the DeKalb study conducted in DeKalb County, Georgia. The DeKalb project remains the largest and most well designed test of the effectiveness of driver education (Mayhew, 2007). The DeKalb study reported evidence of a small short term decline in crash rates among novice licensed drivers (Peck, 2006). This was eventually interpreted to mean that driver education was not effective and added more momentum to the decline of driver education (Crabb, 1994). "The results of the DeKalb study certainly did not enhance the status of driver education; on balance, the findings contributed more to the continued skepticism about the safety benefits of driver education" (Mayhew, 2007, p. 230).

According to Crabb (1994) the second event was in 1977 when the Insurance Institute for Highway Safety (IIHS) in 1977 questioned the effectiveness of driver education. The IIHS stated that if driver education was eliminated from public schools, 16-17 year olds would have to wait until age 18 to obtain a drivers license. This sentiment promoted headlines across the nation which has had an effect on the public's attitude toward driver education (Crabb, 1994).

Issues also developed concerning the driver education instructor due to the popular demand of driver education programs (Smith, 1994).

> Teachers were borrowed from other disciplines to teach driver education and many teachers only taught because of the extra money. Many received little, if any, training in teaching driver education. Besides affecting the potential quality of instruction, it also caused driver education in many states to be viewed as less important than more traditional high school courses. (Smith, 1994, p. 3)

Conceptual Framework of Driver Education

Car fatalities clearly indicate that driving is a serious public health problem, one that is very complex when all its influences are considered (Shope, 2006). It is also well known that young drivers, 15-20 year olds, have much higher crash rates than any other age group which result in fatalities and injuries (Arnett, 2002). According to the National Highway Traffic Safety Administration (2007), yearly economic cost of police reported crashes for ages 15-20 is estimated around $40.8 billion.

The causes of young driver crashes can be contributed to many variables but night driving and transporting peers are two leading causes of crashes (Preusser & Tison, 2007). Young driver crashes are higher at night and when transporting peers but other

high risk behaviors such as drinking, speeding, and emotions can also compound the problem. Crash rates for young drivers at night are much higher than other age groups, which simply maybe just because of limited visibility. But other factors may combine with the nighttime driving, such as recreational driving with peers, which can lead to risk taking behaviors. The social dynamics of teens driving with peers is directly related to high crash rates, especially when there are two or more passengers in the vehicle and driving at night (Arnett, 2002). It may be the absence of parents, environmental settings, in-car distractions, risk perception, or the sense that young drivers know they are not being monitored which leads to collisions. Unfortunately, there is virtually no information to explain this phenomenology, young drivers riding around in a vehicle together and crashing (Arnett, 2002).

Theories such as the social learning theory and the problem behavioral theory can be applied to driver education but they cannot fully encompass all the variables that are involved with driving. Bandura's (1977) social learning theory emphasizes the importance of observing and modeling the behaviors, emotional reactions, and attitudes of others. The social learning theory explains human behavior as a continuous reciprocal interaction between cognitive, behavioral, and environmental influences (Bandura, 1977). The problem behavioral theory states that all behavior is the result of a person-environment interaction which encompasses health-compromising and health-enhancing behavior (Jessor, 1991). But according to Foot, Chapman, and Wad (1981) vehicular accidents are not behavioral events, but the outcomes still involve processes that include behavior. Driver responses to accident avoidance need a specific theory that focuses on the driver actions (Foot, et al., 1981). "Training and education can be effective only to

the extent that the learner can be casually efficient in maintaining safety through his or her behavior" (Foot, et al., 1981, p. 220). According to Smith (1994) education clearly plays an important role in addressing the traffic safety problems of young drivers and early involvement of young drivers in motor-vehicle crashes underscores the need for driver education prior to their driving years.

A conceptual framework is needed to guide the understanding of young people's crash risk and the interventions that can reduce this risk. Figure 1 illustrates the variables that are involved which can increase or decrease risk for a young driver.

"The pathways through which adolescents arrive at positive outcomes of health, mental health, achievement, and social competence, or conversely encounter significant problems in one or more domains, are both multifaceted and responsive to a wide range of contextual factors" (Keating, 2007, p. 147). The manner in which young people drive is influenced by many factors such as driving ability, social, personality, behavioral development, and the driving environment (Shope, 2006). Shope (2006) describes pathways as: "potential interventions to prevent youthful driving behavior that may lead to collisions can target driving behavior directly, or target one or more of the factors that influence the driving behavior" (p. 7).

> Most novice drivers' motivation and responsibility can likely be enhanced, given a sufficiently intense education and influence program. Peer influences, community education programs, and incentives can probably contribute to a stronger impact on many novice drivers behavior, however, some novice drivers display deviant and problem behaviors through various aspects of their lives, and

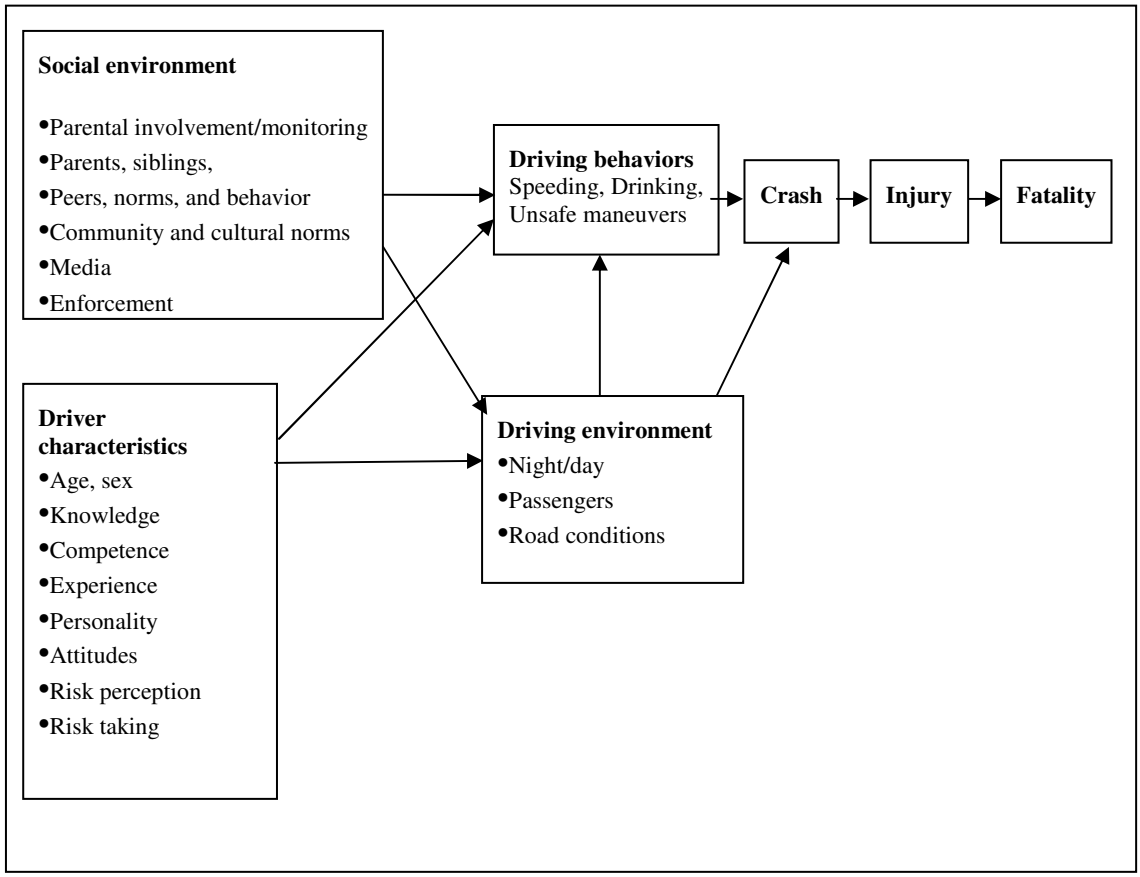

Figure 1. Conceptual framework of factors that influence driver behavior (William & Ferguson, 2002, p. ii5).

> they are likely at high risk on the roads at well. (Lonero as cited in Bierness, 1995, p. 4)

Driver education may facilitate learning of cognitive and psychomotor skills but desirable and lasting influences over behavior are much harder to accomplish (Loreno, 2001). Because driver education is designed to change behavior, the content and method of the delivery must be well planned (Loreno, 2005).

> Driver education may not provide the most appropriate or adequate venue for influencing negative safety attitudes, and perhaps more importantly, negative health behaviors related to driving, because such programs may not have the time nor expertise needed to alter deeply ingrained attitudes and behaviors. (Mayhew, 2007, p. 234)

Even though driver education programs may lack time needed to teach all skills, the Pennsylvania Department of Education (2008) has identified 14 essential driving skills that may reduce crashes if properly taught and executed correctly. These skills are listed as: (1) judging speed going around curves; (2) identifying stopped vehicles in their lane; (3) staying in their lane; (4) scanning while starting from a stop; (5)making a left turn while crossing on-coming traffic; (6) searching the environment ahead; (7) braking in response to traffic hazards; (8) scanning before pulling from driveways or intersections; (9) judging the speed and distance of approaching vehicles; (10) driving at night; (11) driving in rain; (12) driving in snow; (13) identifying traffic signals, road signs, and pavement markings in advance; and, (14) entering traffic with a sufficient gap.

Colleges and Universities in Pennsylvania

Role of Universities and Colleges

The role of colleges and universities must provide leadership in many ways when establishing driver and traffic and safety programs (Stack, 1966).

> They must employ qualified persons to develop substantial programs of teacher preparation from the undergraduate through the graduate levels. It is also their responsibility to direct and encourage research in the traffic safety field, conduct seminars, provide conference leadership, develop publications, and consult with schools in initiating or upgrading their high school courses. A strong program in colleges and universities can be the focal point in the development of a strong program of driver and traffic safety education within the state. (Stack, 1966, p. 39)

According to ADTSEA (1980), colleges and universities must prepare personnel to work in both the public and private driver training school sectors and expand present curriculum offerings to include a wide range of training opportunities. In-service training programs for professional development should be an accepted practice in the field of driver education (Aaron & Strasser, 1977).

> These programs differ greatly, from the highly structured credit courses offerings of colleges and universities to the more informal nature of activities in counties and smaller districts in the nation. State or regional conventions are held in most states providing opportunities for special driver education meetings. Regardless of the types of program, they are all designed for the purpose of professional

betterment of teachers actively engaged in the profession. (Aaron & Strasser, 1977, p. 41)

Pennsylvania Colleges and Universities with Driver Education Certification

Currently the PDE (2007) web page only lists the following universities for certification in safety/driver education: California University of Pennsylvania, East Stroudsburg University of Pennsylvania, Indiana University of Pennsylvania/Main, and Lock Haven University/Main. Upon contacting the Pennsylvania Department of Education, only Indiana University of Pennsylvania and East Stroudsburg are currently offering certification for safety/driver education certification. This represents an 80% reduction of college certification programs in safety/driver education since 1958 in the state of Pennsylvania.

Status of Driver Education Teacher Certification Programs

A concern with safety/driver education certification programs in Pennsylvania is the loss of the driver education teacher preparation programs. According to the National Commission on Safety Education (1958), the following universities and colleges in Pennsylvania from 1956-1958, offered course(s) in traffic and safety education: Gannon College, Geneva College, Pennsylvania State University, State Teachers College (California), State Teachers College (Clarion), State Teachers College (East Stroudsburg), State Teachers College (Edinboro), State Teachers College (Indiana), State Teachers College (Kutztown), State Teachers College (Lock Haven), State Teachers College (Mansfield), State Teachers College (Millersville), State Teachers College

(Slippery Rock), State Teachers College (West Chester), Temple University, University of Philadelphia, University of Pittsburgh, and Wilkes College.

Few states had special requirements for certification until 1940 and colleges were slow in introducing credit courses (Stack, 1966). According to Schneider in 1939, courses in driver education for teachers were reported in 59 colleges (as cited in Stack, 1966, p. 28). In the 1950s, newly developed university driver education and traffic programs flooded the high school market with teachers equipped with driver education credentials (Crabb, 1994).

> By 1953, according to Safety Courses for Teachers, over 250 colleges were offering some 600 courses in safety education and driver education. In addition, the second National Conference on Driver Education, held in 1953, urged teacher education institutions to explore the possibilities of offering a minor in safety education. (Stack, 1966, p. 28)

Teacher Certification

"The quality of instruction in any area is dependent upon the ability and dedication of the teacher who is conducting the course" (Aaron & Strasser, 1977, p. 39). A driver education teacher's ability to conduct a successful driver education course depends on the preparation he or she has had in a driver education certification program (Aaron & Strasser, 1977).

In 1965 at the National Driver Education Conference on teacher preparation, Agnus B. Rothwell stated that low certification requirements prevail in numerous states and a wide range of variances exist from state to state (Hales, 1975). Rothwell also suggested that many driver education teacher preparation courses were offered more as

an after thought and that this weakness in preparing driver education teachers had a direct effect on student performance.

National Education Association

The National Education Association of the United States is the voice of education professionals with a mission to prepare students in the public schools to succeed in a diverse and interdependent world.

The National Education Association lists a series of qualifications for selecting driver education teachers, preparing them to teach, and certification requirements. The National Education Association (1964) states that teachers of driver and traffic safety education should: hold a bachelor's degree from an accredited university or college, have a teaching certificate in secondary schools with a supplemental twelve credit hours in traffic safety and driver education, possess the physical qualities validated by a health certificate and have a valid drivers license and acceptable driving record.

State departments of education should also promulgate standards for driving records of driver education teachers (National Education Association, 1964). The National Education Association (1964) recommends the following guidelines:

1. Beginning teachers should have a valid driver license without a conviction for a moving violation or without a chargeable accident on record for the two-year period immediately prior to employment.
2. Conviction for a moving violation for which a driver license is suspended or revoked should call for automatic suspension of authorization to teach.

3. Those whose authorization to teach has been suspended should be required to maintain a driving record free of convictions for moving violations or chargeable accidents for a period of two years before reinstatement. (p. 14)

American Driver and Traffic Safety Education Association

This section consists of recommendations that apply to all individuals that apply for the certification of driver education (ADTSEA, 2002). Driver education courses should be made available through colleges/universities, community colleges, technical colleges, or a national driver education teacher certification/credentialing organization such as the American Driver and Traffic Safety Education Association (ADTSEA, 2002). ADTSEA (2002) recommends the following:

1. College Credits – A prospective driver education teacher should complete at least the equivalent of nine (9) semester credits in driver education teacher preparation coursework.
2. Continuing Education Units (CEUs) – A prospective driver education teacher should complete at least 14.4 continuing education units (144 contact hours) in driver education preparation coursework.
3. The following guidelines identify the courses of instruction that prospective driver education teachers should complete:
    a. A driver task analysis course or equivalent in the safe operation of a motor vehicle (3 credits or 4.8 CEUs).
    b. A Developing Vehicle Operational Skills course or equivalent in how to teach behind-the-wheel instruction (3 credits or 4.8 CEUs).

c. A Developing Classroom Knowledge course or the equivalent in how to teach driver education classroom instruction (3 credits or 4.8 CEUs). (ADTSEA, 2002, p. 7)

ADTSEA also recommends including additional coursework that may be required by the state agency responsible for the driver education certification programs (ADTSEA, 2002).

Pennsylvania Department of Education

The requirements for driver education certification in Pennsylvania are defined in section 1519 of the Pennsylvania Public School Code of 1949. The Pennsylvania Department of Education (2008) requires that teachers who are adding driver education to an existing teaching license complete the following requirements: complete four university--level courses in Driver and Safety Education, pass the PRAXIS exam for Safety/Driver Education, apply for certification of Safety/Driver Education through the university where the courses were taken, or pass only the Praxis exam for Safety/Driver education and apply to the Pennsylvania Department of Education for the certificate.

Teacher aides may only teach the practical driving phase and must possess first a Provisional Letter of Eligibility and then obtain a Letter of Eligibility. In order to obtain a Provisional Letter of Eligibility, the Pennsylvania Department of Education (2008) requires teachers aides to submit to the Pennsylvania Department of Education the following documentation: possess a high school diploma, submit a recent photograph with the Application for Teacher Aide signed by the school superintendent and notarized, successfully complete a three credit course in driver education and submit official university transcript, have a driving record free of violations and collisions, pass a driving

theory examination administered by the Pennsylvania Department of Education (passing score is 75%), and successfully pass the driving examination at an official Pennsylvania Testing Driver Examination Center. According to the Pennsylvania Department of Education (2008), obtaining a Letter of Eligibility to maintain certification, one must complete additional university courses for a total of 12 credit hours in driver and traffic safety education within 3 years from the issuance date of the Provisional Letter of Eligibility.

Pennsylvania Content and Performance Expectations for Driver Education

"The Driver Education Content and Performance Expectations describe what students should know and be able to do at the end of a thirty hour classroom and six-hour behind the wheel instruction" (Pennsylvania Department of Education, 2007, p. 3). The six major content areas that need to be taught in driver education programs are as follows: Pennsylvania law and regulations; knowledge of vehicle operations; perceptual skills development; decision-making/risk reduction; driving conditions; and, influences upon driver performances (Pennsylvania Department of Education, 2007).

Act 23 of 1999, part of the young driver legislation, established 14 essential driving skills that could significantly reduce crashes when taught and executed properly (Pennsylvania Department of Education, 2007). These 14 essential skills can be taught in any of the six major content areas under the Driver Education Content and Performance Expectations. They are listed as: judging speed going around a curve; recognizing a stopped vehicle; staying in driving lane; starting from a stop; making a left turn into traffic; scanning environment and staying in driving lane; recognizing when to brake;

looking before pulling out from driveway or stop sign; judging speed and distances of on-coming traffic; driving at night; driving in the rain; driving in the snow; identifying lights, signs, and road markings; and, selecting a sufficient gap to enter traffic (Pennsylvania Department of Education, 2007).

State Driver Education Studies

In the search of the literature there have been little to no driver education studies done on driver education teachers' attitudes or practices in the state of Pennsylvania. Minnesota and Hawaii have conducted similar surveys concerning driver education teacher's attitudes and practices in their perspective states.

Minnesota

In 1971, Howard E. Matthias did a survey on driver education in the public schools of Minnesota. His research was developed around the attitudes of driver education teachers and state supervisors and their driver education programs.

Some of his findings are as follows: driver education had not been accepted as an integral part of the school curriculum by the majority of the public school districts. Driver education classroom theory was seldom taught more than the minimum of 30 hours (Matthias, 1971). There were a large number of uncertified teachers teaching driver education (Matthias, 1971). Instructors were often teaching with minimal driver education preparation. Over 80% of the driver education instructors indicated an interest in taking basic simulation and range courses (Matthias, 1971). He found an absence of coursework available at colleges and universities in the state of Minnesota and a need for more professional preparation in driver education in the field.

Hawaii

Earl Hansen (1980) surveyed the driver education teachers and their programs in the state of Hawaii. His research goals were to ascertain the state-of-the-art of driver education programs and determine a profile of driver education teachers.

Hansen found in his study of Hawaii driver education teachers that the majority of them had at least a bachelor's degree and favored an increase in the driver education certification requirements. This would tend to show the need for the development of more traffic safety education programs and courses. He also found that respondents in the state had very little interest in simulation or driving range programs (Hansen, 1980).

Washington

Ronald Hales research goals were to develop and validate an extensive list of cognitive and psychomotor statements for teachers of traffic safety education in the state of Washington (Hales, 1975).

A recommendation derived from the Hales (1975) study was colleges that are involved in the preparation of traffic safety education teachers should have specific cognitive and psychomotor statements to guide the development of the curriculum for pre-service and in-service education. He also concluded that measurable statements of performance would be the basis for certification (Hansen, 1980). Finally, he recommended major emphasis should be placed on superior driving knowledge and ability as a prerequisite for preparation and certification of traffic safety education teachers (Hansen, 1980).

Summary

The review of literature was conducted to better understand the history of driver education, causes of novice driver crashes, and the certification of teachers. There were little if any studies conducted in the state of Pennsylvania on driver education teachers' practices and opinions. There were related studies performed in other states regarding driver education teachers and programs. Pennsylvania program content, performance expectations, and certification for driver education programs were reviewed along with national and teacher driver organizations.

Most of the information from studies pertained to other states which demonstrated the need for investigation into the practices and opinions of driver education teachers in the state of Pennsylvania.

Chapter III presents the methods of the procedures and analysis for this study.

CHAPTER III

RESEARCH AND DESIGN METHODOLOGY

This chapter identifies the design of the study, sample selection, method of selecting the population, the instrument used in data collection, and the procedures used in evaluating the information. This study was quantitative by design and identified driver education teachers' practices and opinions toward driver education programs in Pennsylvania.

Statement of the Problem

In the late 1960s driver education was evaluated for its effectiveness in reducing collisions and fatalities. Because of the "Dekalb" study, which showed driver education had only short term benefits in reducing collisions, many schools in the United States started to eliminate their driver education programs.

In the 1980s the National Highway Traffic Safety Administration decided driver education was not a federal priority and cut program funding. Subsequently, driver education programs in general began disappearing from both public schools and higher education curricula. The lack of funding also had an effect on state departments of education which monitored driver education at the high school level and universities which conducted teacher certification training programs.

State education departments no longer enforced driver education programs which caused many states to lower their standards for driver education teacher certification. In some cases perspective driver education teachers were not required to take specific courses in the field of driver education and traffic safety for certification. Universities

and colleges which once offered driver education teacher certification training were also affected, which caused many to eliminate their driver education programs. Teachers already certified continued to teach but few new teachers came into the system. Driver education teachers entering into the field were left to decipher content and adapt theories which have not progressed since the 1960s.

Survey Design

The researcher developed an instrument to collect data about driver education teachers' educational training, practices in their programs, opinions toward driver college driver education instructor courses, and opinions toward higher certification standards in driver education teacher training in the state of Pennsylvania. The surveys were sent via bulk mail through the United States Postal Office.

Teacher Criteria and Sample

Teacher Criteria

The researchers study surveyed driver education teachers in Pennsylvania. The requirement for driver education certification is defined in section 1519 of the Pennsylvania Public School Code of 1949. Section 1519 required existing licensed teachers to complete 4 university level courses totaling 12 credits in Safety/Driver Education and pass the PRAXIS exam for Safety/Driver Education. In 2003, the Pennsylvania Department of Education made a revision for teachers who already held an existing teaching license. Under this new revision, licensed teachers could add safety/driver education to their teaching licenses without taking the required four

university courses in safety/driver education. They are only required to pass the safety/driver education PRAXIS exam to add driver education to their teaching license.

Individuals, who do not carry a Pennsylvania teacher license and are classified as teacher aides, must also complete 4 college courses totaling 12 credits. Teacher aides must pass a safety/driver exam administered by the Pennsylvania Department of Education and pass a driving exam at a Pennsylvania Testing and Driver Examination Center. Driver education teachers surveyed have completed the requirements under section 1519. Driver education teachers who have met these requirements and have applied for driver education certification are kept on file at the Pennsylvania Department of Education. Driver education teachers were selected from this database obtained from the Pennsylvania Department of Education from October 1, 2008 to December 31, 2009.

Sample Selection

Pennsylvania Driver Education teachers sampled are certified to teach driver education as defined by section 1519 of the Pennsylvania Public School code of 1949 and registered in The Pennsylvania Department of Education database. This database represents the most current, active driver education teachers in the state of Pennsylvania. The Pennsylvania Department of Education database has 1,133 approved driver education teachers from October 1, 2008 to December 31, 2009. From this database of 1,133 driver education teachers, 629 are certified for public schools and 504 are certified for private driver training schools. Out of the 629 public school teachers, 529 are male and 100 are female. Out of the 504 private driver training school teachers, 391 are male and 113 are female. Surveys for this study were sent to every driver education teacher in

this database. A follow-up survey was mailed two weeks after the initial mailing to increase the return rate.

Technique for Data Collection

Step 1: Mr. Harry Sherman, School Safety Education, Bureau of Teaching and Learning Support, Pennsylvania Department of Education, 333 Market Street, 8th Floor, Harrisburg, Pennsylvania 17126, was contacted by phone. Mr. Harry Sherman is the state supervisor for driving education programs in Pennsylvania. An explanation of the research design was provided to Mr. Sherman for conducting this research. Permission was asked to use the Pennsylvania Department of Education database for information regarding the home and school addresses of current certified driver education teachers. Permission was granted to use the database and Mr. Sherman provided it in an electronic format.

Step 2: A meeting was held with the Director of the Indiana University of Pennsylvania Highway Safety Center, Dr. Allen Robinson to request funding for this research. Funding was granted to support only the mailing of the survey and post survey.

Step 3: An application was submitted to the university Institutional Review Board (IRB) for the Protection of Human Subjects and approved for conducting this study.

Step 4: Surveys were mailed to 1,133 driver education teachers in the state of Pennsylvania. After three weeks from the initial mailing a follow-up survey was mailed to induce a higher return rate.

Step 5: Surveys returned were recorded into SPSS 16.0.1 and the data were processed.

Development of Instrument

This study required the development of questions to obtain information concerning Pennsylvania driver education teachers' educational training, practices in their programs, opinions toward college driver education instructor courses, and opinions toward higher certification standards in driver education teacher training. A review of the related literature was completed to determine the content of the questions and survey design. The review of the literature consisted of textbooks, periodicals, journal articles, and dissertations pertaining to safety education and driver education. Similar studies regarding surveying driver education teachers and their programs were used as the main sources for development.

After reviewing the literature and other studies similar in nature, a survey (see Appendix A) was used to collect data for this study. The survey questions were designed from Howard Matthias' Dissertation, "A Survey of Driver Education in the Public Schools of the State of Minnesota." A 37 item survey was constructed which contains both demographic and attitude questions using a six-point Likert scale. The survey was constructed so that participants were required to circle their responses on the actual questionnaire. The survey was mailed to the participants with a return stamped envelope. This design was chosen to obtain a higher response rate. The survey was created with four separate categories consisting of the following: educational training; description of their practices; opinion toward college courses in driver and traffic safety; and, opinions toward higher certification standards in driver education.

Key Resources

Two key resources were reviewed that match this study and the research questions that were being asked. These key resources were utilized in developing the instrument for this study. They are listed as follows:

1. Dissertation from Michigan State University, "A Survey of Driver Education in the Public Schools of the State of Minnesota" by Howard E. Matthias, 1971.
2. Dissertation from Oklahoma State University, "A Survey of Driver Education in the Public Schools of Hawaii" by Earl E. Hansen, 1980.

The importance of these studies is that their survey questions were adapted to this research. Also, the data collection procedures for these dissertations were designed in the same manner as this study. Both dissertations used an individual instructor questionnaire with questions that are still relevant today in the field of driver education. The method of analysis and conclusions derived from these dissertations provided a platform for this research.

Development of Questions

The process of selecting questions from existing instruments was completed by matching existing questions that are relevant for this study. Many of the questions used in existing surveys were outdated and needed to be re-written and structured to match the current time frame. Questions regarding demographics, program structure, and attitudes toward driver education were selected from existing questionnaires. Besides demographics, survey questions were created around a six-point Likert-type scale.

Survey questions were selected from the instructor questionnaire from the dissertation, A Survey of Driver Education in the Public Schools of the State of

Minnesota, by Howard E. Matthias. In attempting to receive permission to use Howard E. Matthias's survey, it was learned from others that he had passed away.

Survey questions 1 and 2 ask basic gender and age demographics. Survey questions 3, 4, 5, 6, 7, 8, and 9 were constructed from the individual instructor questionnaire of the Matthias dissertation. These questions represent the teachers' educational training. Survey questions 10, 11, 12, 13, 14, 15, 16, 17, 18, and 19 were used from the program information questionnaire of the Matthias dissertation. These specific questions represent the driver education teachers' practices that were incorporated into the survey. Survey question 20-26 were developed from state specific information regarding teaching licensures from Pennsylvania Department of Education literature. These questions ask driver teachers' opinions regarding college driver education instructor preparation courses. Survey questions 26-38 were designed from the review of literature regarding driver education teachers' opinions toward higher certification standards for driver education in the state of Pennsylvania.

Organization of Instrument Questions

The organization of the questions was placed into groups which pertained to the following research categories: 1. Driver education teachers' educational training. 2. The type of driver education practices they are currently using for novice driver training. 3. Their opinions toward college courses in driver and traffic safety. 4. Their opinions toward higher certification requirements in teaching driver education.

Validity of the Instrument

The questionnaire was sent to three safety and driver education experts to determine content validity. These individuals were selected because of their educational experience in the field of safety and driver education. Individuals who were selected had the following criteria. They must: (1) have taught driver education in either a public or private driver training school setting for at least five years; (2) presented at national or state conferences on driver education and traffic safety issues; and, (3) hold a masters or doctoral degree in highway safety, driver's education, or a related field in traffic safety.

Individuals were first contacted by letter and then a phone call describing the purpose of this study. A letter (Appendix B) with a copy of the instrument and self-addressed stamped return envelope was sent to each individual willing to participate in the pilot study. These individuals were asked to review the instrument questions for clarity, identify redundant questions, add questions that would better represent the research questions, and make suggestions on survey structure or design. Participants were asked to return their instrument within a three week period from when it was received.

Reliability of Instrument

The questionnaire was sent to 17 individual driver education teachers in the state of Pennsylvania. All 1,133 driver education teachers' names and addresses were entered into a Microsoft Excel spread sheet. An extra column was added to the spreadsheet for a random selection number. The random selection feature in Microsoft Excel was used and the first 17 names were selected for the pilot survey. The driver education teachers selected were sent a letter (Appendix C) describing the research along with a copy of the

instrument. A self-addressed stamped return envelope was provided. These individuals were asked to complete the questionnaire and return their instrument within a three week period once it is received.

Questionnaire information was entered into SPSS 16.0.1 for Windows and a Cronbach's Alpha of .734 was calculated for reliability.

Method of Analysis

After all the surveys were returned, the data were entered into the SPSS 16.0.1 for Windows. The survey responses were analyzed using frequencies, descriptive, inferential, and intermediate statistics. Frequencies and descriptive statistics were used to analyze questions 1-18. A t-test was used to analyze gender with opinions toward college courses in driver and traffic safety, and opinions toward higher certification requirements in teaching driver education. One-way analysis of variance was used to analyze the type of driver education teaching license individuals hold with opinions toward college courses and higher education certification in teaching driver education. A two-way analysis of variance was used to analyze age and the type of driver education teaching license individuals hold toward their opinions on college courses and higher education certification in teaching driver education. Tables were constructed to summarize the results.

Summary

This chapter identifies research design, teacher criteria and sampling, development of instrument design, pilot study, and method of analysis. Chapter IV

outlines the results of the completed surveys and data analysis using SPSS 16.0.1 for Windows.

CHAPTER IV

RESULTS OF DATA ANALYSIS

Introduction

The purpose of this study was to examine the opinions and practices of driver education teachers in the state of Pennsylvania. Specifically, it addressed the following: to survey driver education teachers in the state of Pennsylvania who are certified by the Pennsylvania Department of Education, concerning their educational training, practices in their driver education programs, opinions regarding college driver education instructor preparation courses, and opinions regarding higher certification standards for driver education teacher training.

The findings of this study were based upon data gathered from public and private driver trainer school certified education teachers in the state of Pennsylvania. Specifically, the educational training, opinions, and practices of driver education teachers in the state of Pennsylvania were analyzed from data obtained through a questionnaire during the spring of 2009. This chapter is divided into the following sections which correspond to the research questions stated in Chapter I: (a) descriptive statistics describing the background of the respondents and their educational training; (b) analysis of the driver education practices of respondents; (c) analysis of the opinions of respondents toward college driver education instructor preparation courses; and, (d) analysis of the opinions of respondents toward higher certification standards for driver education teacher training. In many cases, the analysis parallels the questionnaire that was used for this study.

Demographics of the Respondents and Educational Training

This section answers the following research question: What is the educational training of driver education teachers in the state of Pennsylvania? At the time of this study, 1,114 questionnaires were mailed to all public and private driver trainer school driver education teachers that were certified to teach driver education and registered in the Pennsylvania Department of Education database. A total of 69 questionnaires were not deliverable and returned to sender. From this mailing, 306 questionnaires were returned. Excluding the 69 questionnaires returned to sender from the original total of 1,114, a total of 1,045 questionnaires represent the mailing sent to the driver education teachers. This represents a return rate of 29% and as such, a follow-up survey was not needed due to the relatively high return rate. Out of the 1,114 driver education teachers sent questionnaires, 920 were male (82%) and 213 were female (19%). As shown in Table 1, the majority (80.1%) of the respondents were male with 245 participating and females (19.9%) represented 61 respondents in the study. These percentages are representative of the sample population (1,114) from the Pennsylvania Department of Education database.

Table 1

Gender Description of Respondents

	Frequency	Percent
Male	245	80.1
Female	61	19.9
Total	306	100.0

Age of the Participants

Table 2 illustrates the age of the participants. The majority of the respondents were 51-60 in age (36.9%) which represented 113 of the respondents. The age group 41-50 (21.6%) represented 66 respondents followed by the 61 and above age group (18.6%) with 57 respondents. The age group 21-30 (8.2%) only had 25 respondents who were the lowest frequency out of all the age groups.

Table 2

Age of Respondents

	Frequency	Percent
21-30	25	8.2
31-40	45	14.7
41-50	66	21.6
51-60	113	36.9
61-Above	57	18.6
Total	306	100.0

Educational Training

To help determine the educational training the respondents received in the past, they were asked to identify how much education they had completed which is represented in Table 3. The majority of the driver education teachers who responded had either a bachelor's degree (45.8%) or a master's degree (48.4%). Out of the 306 respondents, only 5 had a doctorate degree (1.6%) and 13 respondents had less than a bachelor's degree (4.2%).

Table 3

Amount of Educational Training Completed

	Frequency	Percent
Less that a Bachelor's Degree	13	4.2
Bachelor's Degree	140	45.8
Master's Degree	148	48.4
Doctorate Degree	5	1.6
Total	306	100.0

Major Field in College

Table 4 provides information regarding the respondent's major field in college. The majority of respondents (48.4%) majored in health and physical education with a frequency of 148. Social sciences/history represented 17.3% of the respondent's major field with a frequency of 53. Only 3.3% of the respondents did not have a bachelor's degree which represented 10 participants. The major fields which had the least respondents were agriculture (.7%), foreign language (.7), and guidance and counseling (1.0%). Thirteen respondents selected "other" (4.2%) for their major field. Of the 13 who responded "other," one filled in art education and two respondents filled in special education as their major field.

Table 4

Driver Education Teachers' Major Field

	Frequency	Percent
Administration	10	3.3
Agriculture	2	.7
Business Education	13	4.2
Elementary Education	23	7.5
English	5	1.6
Foreign Language	2	.7
Guidance and Counseling	3	1.0
Social Sciences/History	53	17.3
Industrial Arts	9	2.9
Mathematics	9	2.9
Health and Physical Education	148	48.4
Sciences	6	2.0
Other	13	4.2
I do not have a Bachelor's Degree	10	3.3
Total	306	100.0

Driver Education Certification

The respondents were asked what type of driver education certification they held which is illustrated in Table 5. The majority of the respondents (67.3%) held a public school license to teach driver education. Respondents who were licensed to teach in both public and private driver trainer schools (20.9%) were the second largest group. Private driver trainer certified teachers had a frequency of 33 which represented only 10.8% of the respondents. The group with the least respondents was the emergency certified (1.0%) which only had a frequency of three.

Table 5

Type of License Held by Driver Educators

	Frequency	Percent
Public School	206	67.3
Private Driver Trainer School Certified	33	10.8
Both Public and Private Driver Trainer School Certified	64	20.9
Emergency Certified	3	1.0
Total	306	100.0

College Credit and Credit Hours Taken in Driver Education

Table 6 illustrates the last year the respondents had taken college credits in driver education. Twenty-seven percent of the respondents responded the last year they received college credit for any driver education course was before 1983. Fifty-two of the respondents responded the last year they received college credit for a driver

Table 6

Last Year of College Credit Taken

	Frequency	Percent
2004-2008	52	17.0
2000-2003	39	12.7
1996-1999	36	11.8
1992-1995	24	7.8
1988-1991	24	7.8
1984-1987	15	4.9
Before 1983	84	27.5
I have never taken college coursed in DE	32	10.5
Total	306	100.5

education course was from 2004-2008. There were 32 respondents (10.5%) who had never taken a college course in driver education. The respondents who had never taken a college course in driver education are also represented in Table 7 where 32 responded they had taken zero credits in driver education courses. The number of credit hours taken in driver education is shown in Table 7. Predominantly 55.6% of the respondents reported they had taken 10-12 credits in driver education courses. Eighty-one of the respondents (26.5%) reported they had taken 13 or more credits and only 6 responded (2.0%) thety had taken 1-3 credits.

Table 7

Credit Hours Taken in Driver Education Courses

	Frequency	Percent
0	32	10.5
1-3	6	2.0
4-6	9	2.9
7-9	8	2.6
10-12	170	55.6
13 or More	81	26.5
Total	306	100.0

Teaching Experience

In Table 8, which illustrates the number of years the respondents had been teachers, 112 responded or 36.6% had been teacher for 26 or more years. The next highest percentages (16.3%) were respondents who reported being teachers for 11-15 years. Seven respondents (2.3%) had been teachers for less than one year.

Table 8

Years as a Teacher

	Frequency	Percent
Less than 1	7	2.3
1-5	36	11.8
6-10	33	10.8
11-15	50	16.3
16-20	40	13.1
21-25	28	9.2
26 or More	112	36.6
Total	306	100.0

Driver Education Teacher Experience

The data in Table 9 reveals 140 of the respondents (45.8%) have been driver education teachers for 1-10 years. Eighty-one of the respondents (26.5%) have been driver education teachers for 11-20 years, and 74 respondents (24.2%) had 21 or more years as a driver education teacher. Only 11 respondents (3.6%) had responded that they had less than one year as a driver education teacher.

Table 9

Years as a Driver Education Teacher

	Frequency	Percent
Less the 1	11	3.6
1-10	140	45.8
11-20	81	26.5
21 or More	74	24.2
Total	306	100.0

Driver Education Teacher Practices

This section corresponds to the research question that asked: What type of driver education practices are driver education teachers using in the state of Pennsylvania? Specifically, this section covers what practices are they using in their driver education programs, their opinions on driver education curriculums, the use of driving simulators and multiple car driving ranges, and opinions pertaining to mandating driver education programs in Pennsylvania Public Schools. The analysis of these variables was compared using an independent t-test and a one-way analysis of variance.

Time Spent Teaching Driver Education

Respondents were asked how much time during the day they spend teaching both the classroom and behind-the-wheel components of their driver education program. As seen in Table 10, data revealed that out of 300 respondents, 45% with a frequency of 139, responded they spend 3 hours or more teaching both the classroom and behind-the-wheel components of a their driver education. Responses for less than 59 minutes and 2 hours – 2 hour 59 minutes revealed a frequency of 60 (19.6%) for the amount of time during the day they spend teaching both the classroom and behind-the-wheel components of their driver education program.

Table 10

Time During the Day Teaching Driver Education

	Frequency	Percent
Less than 59 Minutes	60	19.6
1 Hour – 1 Hour 59 Minutes	41	13.4
2 Hours – 2 Hours 59 Minutes	60	19.6
3 Hours or More	139	45.4
	300	98.0
Missing	6	2.0
Total	306	100.0

Summer Driver Education

Table 11 illustrates the number of days per week the respondents taught driver education in the summer. From a total of 304 responding, the data reveals 30.4% of the respondents did not teach driver education in the summer (0 hours). The second highest percentage (25.5%) with a frequency of 78, responded they taught driver education five days a week during the summer.

Table 11

Days Per Week Teaching Driver Education in the Summer

	Frequency	Percent
Did not teach DE this summer (0 hours)	93	30.4
1	3	1.0
2	20	6.5
3	32	10.5
4	40	13.1
5	78	25.5
6	25	8.2
7	13	4.2
Total	304	99.3
Missing	2	.7
Total	306	100.0

The lowest percentage of respondents (1.0%) responded they teach driver education only one day a week during the summer. Twenty-five respondents (8.2%) taught driver education six days a week and 13 respondents (4.2%) taught driver education 7 days a week.

Driver Education After or Before School

Table 12 illustrates whether the respondents are teaching driver education either before or after school during the current school year. There were 183 respondents (59.8%) who were teaching driver education either before or after school during the current school year, and 123 respondents (40.2%) not teaching driver education either before or after school during the current school year.

Table 12

Number Teaching Driver Education After or Before School

	Frequency	Percent
Yes	183	59.8
No	123	40.2
Total	306	100.0

Driver Education on Weekends During the School Year

Table 13 illustrates whether the respondents are teaching driver education on weekends during the current school year. There were 135 respondents (44.1%) who were teaching driver education on weekends during the current school year and 171 respondents (55.9%) not teaching driver education on weekends during the current school year.

Table 13

Number Teaching Driver Education on Weekends During the School Year

	Frequency	Percent
Yes	135	44.1
No	171	55.9
Total	306	100.0

Teaching Another Subject Besides Driver Education

Table 14 illustrates whether or not the respondents were teaching another subject besides driver education during the normal school year. There were 186 respondents (60.8%) who were teaching another subject besides driver education during the normal school year and 120 respondents (39.2%) who were not teaching another subject besides driver education during the normal school year.

Table 14

Number Teaching Another Subject Besides Driver Education

	Frequency	Percent
Yes	186	60.8
No	120	39.2
Total	306	100.0

Program Enhancements

Table 15 shows the number of respondents using or not using a multiple-car driving range to teach novice drivers. Out of the 305 who responded, one missing, a majority of the respondents (86.3%) were not using a multiple-car driving range to teach novice drivers. Only 41 of the respondents (13.4%) reported they were using a multiple-car driving range to teach novice drivers.

Table 15

Number Using a Multiple Car Range to Teach Novice Drivers

	Frequency	Percent
Yes	41	13.4
No	264	86.3
Total	305	99.7
Missing	1	.3
Total	306	100.0

Table 16 shows the number of respondents using or not using a driving simulation system to teach novice drivers. A majority of the respondents (93.5%) were not using a driving simulation system to teach novice drivers. Only 20 respondents (6.5%) reported they were using a driving simulation system to teach novice drivers.

Table 16

Number Using a Driving Simulation System to Teach Novice Drivers

	Frequency	Percent
Yes	20	6.5
No	286	93.5
Total	306	100.0

Table 17 provides information on the number of respondents who are certified by the Pennsylvania Department of Transportation to administer the on-road examination for licensing. Out of the 305 respondents, one missing, 147 of the respondents (48%) responded they were certified by the Pennsylvania Department of Transportation to administer the on-road examination for licensing. One hundred fifty-eight of the respondents (51.6%) responded they were not certified by the Pennsylvania Department of Transportation to administer the on-road examination for licensing.

Table 17

Number Certified to Administer the On-Road Examination for Licensing

	Frequency	Percent
Yes	147	48.0
No	158	51.6
Total	305	99.7
Missing	1	.3
Total	306	100.0

Type of Driver Education Curriculum

Respondents were asked which curriculum they use to teach driver education. This data is represented in Table 18. Responding to this question were 300 respondents with 6 not responding. One hundred thirty-five responded (44.1%) they were using the Pennsylvania Enhanced Driver Education Curriculum while another 83 responded (27.1%) they were using combinations of the American Driver and Traffic Safety Education Association Driver Education Classroom and In-Car Curriculum Versions 1.0 or 2.0 and Pennsylvania Enhanced Driver Education Curriculum.

Table 18

Driver Education Curriculum Being Used

	Frequency	Percent
ADTSEA Curriculum	26	8.5
PA Enhanced	135	44.1
Combination A and B	83	27.1
Other	56	18.3
Total	300	98.0
Missing	6	2.0
Total	306	100.0

Only 26 responded (8.5%) they were using the American Driver and Traffic Safety Education Association Driver Education Classroom and In-Car Curriculum Versions 1.0 or 2.0. Fifty-six of the respondents (18.3%) selected "other." Respondents who responded "other" filled in the following responses as to which driver education curriculum they use: 16 responded "Drive Right textbook," 8 listed "Responsible Driver

Textbook," 8 responded "Automobile Association of Americas License to Drive," 3 stated "they developed their own version," 1 stated "no specific curriculum—combination of different things," 1 stated "custom designed," 1 responded "Tomorrows Driver," 1 responded "wrote their own based available materials," 1 stated "PA Enhanced and Carlisle Area School District Curriculum," 1 stated "combination of PA Enhanced and own which we devised for our particular situation," 1 responded "combination of several," 1 stated "they are using PowerPoint's from the Texas and Montana Curriculums," 1 stated "modified from Oregon Traffic Safety Education Association," 1 listed "Safe Driving," and 1 responded "not sure."

An independent sample t-test was performed to determine if there was a significant difference between male and female driver education teachers' opinions toward if the Pennsylvania Enhanced Driver Education Curriculum adequately covers the content needed to teach driver education. As shown in Table 19, a *p* value of .97 was found which is greater than *p* .05. Thus, there is not a statistical significant difference between male and female driver education teachers' opinions toward if the Pennsylvania Enhanced Driver Education Curriculum adequately covers the content needed to teach driver education. A mean value of 2.13 was found for both genders that showed both genders "agreed" that the Pennsylvania Enhanced Driver Education Curriculum adequately covers the content needed to teach driver education.

Table 19

Independent Samples T-Test: Comparison of Teachers' Gender and Opinions Toward the Pennsylvania Enhanced Driver Education Curriculum Adequately Covers Content

	Gender	N	Mean	SD	t	p
Pennsylvania Curriculum Adequately Covers Content	Male	232	2.13	.875	.03	.97
	Female	54	2.13	.802		

A one-way ANOVA test was run on the type of driver education teaching licenses the respondents hold and opinions toward if the Pennsylvania Enhanced Driver Education Curriculum adequately covers the content needed to teach driver education. As shown in Table 20, a *p* value of .314 was recorded against an alpha of <.05. Thus, the type of driver education teaching licenses the respondents hold does not seem to play a significant role in respondent's opinions toward if the Pennsylvania Enhanced Driver Education Curriculum adequately covers the content needed to teach driver education. When a Post Hoc test was run to investigate differences among subgroups, it was found there is not a significant difference between the type of driver's education teaching license the respondents hold and their opinions toward if the Pennsylvania Enhanced Driver Education Curriculum adequately covers the content needed to teach driver education. Public school certified (M = 2.09), private driver trainer certified (M = 2.18), and both public and private driver trainer school certified (M = 2.26) all "agree" that the Pennsylvania Enhanced Driver Education Curriculum adequately covers the content needed to teach driver education.

Driving Simulation

An independent samples t-test was performed to determine if there was a significant difference between male and female driver education teachers' opinions toward if the incorporation of driver simulation instruction into a driver education

Table 20

ANOVA Test: Comparison of Type of Driver Education License and Opinions Toward the Pennsylvania Enhanced Driver Education Curriculum Adequately Covers Content

	Pennsylvania Curriculum Adequately Covers Content				
	Sum of Squares	df	Mean Square	F	p
Between Groups	2.634	3	.878	1.189	.314
Within Groups	208.317	282	.739		
Total	210.951	285			

program can be a benefit to novice drivers. As shown in Table 21, a *p* value of .41 was found which is greater than *p* .05. Thus, there is not a statistical significant difference between male and female driver education teachers' opinions toward if the incorporation of driver simulation instruction into a driver education program can be a benefit to novice drivers. A mean value of 2.07 for males and 1.95 for females was found that showed both genders "agree" that the incorporation of driver simulation instruction into a driver education program can be a benefit to novice drivers.

Table 21

Independent Samples T-Test: Comparison of Teachers' Gender and Opinions Toward Driver Simulation Can Be a Benefit to Novice Drivers

	Gender	N	Mean	SD	t	p
Incorporation of Simulation Can Be Benefit	Male	237	2.07	1.033	.81	.41
	Female	58	1.95	1.067		

A one-way ANOVA test was run on the age of the respondents and the incorporation of driver simulation instruction into a driver education program can be a benefit to novice drivers. As shown in Table 22, a *p* value of .003 was recorded against an alpha of <.05. Therefore age does seem to play a significant role in respondents'

Table 22

ANOVA Test: Comparison of Teachers' Age and Opinions Toward Driver Simulation Can Be a Benefit to Novice Drivers

	Incorporation of Simulation Can Be Benefit				
	Sum of Squares	df	Mean Square	F	p
Between Groups	16.840	4	4.210	4.063	.003
Within Groups	300.495	290	1.036		
Total	317.336	294			

opinions toward driver simulation instruction into a driver education program can be a benefit to novice drivers. When a Post Hoc test was run, illustrated in Table 23, to investigate differences among subgroups, it was found there is a significant difference between respondents' age of 31-40 and 61 and above. Respondents between the ages 31-40 "strongly agree" (M = 1.67) and ages 61 above "agree" (M = 2.40) that driver simulation instruction into a driver education program can be a benefit to novice drivers.

Multiple-Car Driving Ranges

An independent samples t-test was performed to determine if there was a significant difference between male and female driver education teachers' opinions toward if the incorporation of a multiple-car driving range into a driver education program can be a benefit to novice drivers. As shown in Table 24, a *p* value of .72 was found which is greater than *p* .05. Thus, there is not a statistical significant difference between male and female driver education teachers' opinions toward if the incorporation of a multiple-car driving range into a driver education program can be a benefit to novice drivers. A mean value of 2.12 for males and 2.07 for females was found that showed both genders "agree" that the incorporation of a multiple-car driving range into a driver education program can be a benefit to novice drivers.

Table 23

Post Hoc Test: Comparison of Teachers' Age and Opinions Toward Driver Simulation Can Be a Benefit to Novice Drivers

		Incorporation of Simulation Can Be Benefit		
(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	p
21-30	31-40	.173	.254	.977
	41-50	-.065	.241	.999
	51-60	-.325	.226	.722
	61-Above	-.556	.247	.283
31-40	21-30	-.173	.254	.977
	41-50	-.238	.199	.838
	51-60	-.498	.180	.109
	61-Above	-.730*	.206	.015
41-50	21-30	.065	.241	.999
	31-40	.238	.199	.838
	51-60	-.260	.161	.625
	61-Above	-.491	.190	.155
51-60	21-30	.325	.226	.722
	31-40	.498	.180	.109
	41-50	.260	.161	.625
	61-Above	-.231	.170	.765
61-Above	21-30	.556	.247	.283
	31-40	.730*	.206	.015
	41-50	.491	.190	.155
	51-60	.231	.170	.765

Note. *The mean difference is significant at the 0.05 level.

Table 24

Independent Samples T-Test: Comparison of Teachers' Gender and Opinions Toward Multiple Car Driving Ranges Can Be a Benefit to Novice Drivers

	Gender	N	Mean	SD	t	p
Incorporation of Multiple-Car Range Can Be Benefit	Male	236	2.07	1.055	.35	.72
	Female	58	1.95	1.074		

A one-way ANOVA test was run on the age of the respondents and the incorporation of a multiple-car driving range into a driver education program can be a benefit to novice drivers. As shown in Table 25, a *p* value of .005 was recorded against an alpha of <.05. Therefore age does seem to play a significant role in respondents' opinions toward the incorporation of a multiple-car driving range into a driver education program can be a benefit to novice drivers. When a Post Hoc test was run, illustrated in Table 26, to investigate differences among subgroups, it was found there is a significant difference between respondents' age of 31-40 and 61 and above. Respondents between the ages 31-40 "strongly agree" to "agree" (M = 1.76) and ages 61 above "mildly agree" (M = 2.43) the incorporation of a multiple-car driving range into a driver education program can be a benefit to novice drivers.

Table 25

ANOVA Test: Comparison of Teachers' Age and Opinions Toward Multiple Car Driving Ranges Can Be a Benefit to Novice Drivers

	Incorporation of Multiple-Car Range Can Be Benefit				
	Sum of Squares	df	Mean Square	F	p
Between Groups	16.163	4	4.041	3.753	.005
Within Groups	311.133	289	1.077		
Total	327.296	293			

Table 26

Post Hoc Test: Comparison of Teachers' Age and Opinions Toward Multiple Car Driving Ranges

		Incorporation of Multiple-Car Range Can Be Benefit		
(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	p
21-30	31-40	.044	.259	1.000
	41-50	-.200	.245	.955
	51-60	-.448	.230	.437
	61-Above	-.631	.253	.187
31-40	21-30	-.044	.259	1.000
	41-50	-.244	.202	.832
	51-60	-.492	.184	.131
	61-Above	-.676*	.212	.040
41-50	21-30	.200	.245	.955
	31-40	.244	.202	.832
	51-60	-.248	.163	.681
	61-Above	-.431	.195	.300
51-60	21-30	.448	.230	.437
	31-40	.492	.184	.131
	41-50	.248	.163	.681
	61-Above	-.184	.176	.896
61-Above	21-30	.631	.253	.187
	31-40	.676*	.212	.040
	41-50	.431	.195	.300
	51-60	.184	.176	.896

Note. *The mean difference is significant at the 0.05 level.

A one-way ANOVA test was run on the years the respondents had been driver education teachers and the incorporation of a multiple-car driving range into a driver education program can be a benefit to novice drivers. As shown in Table 27, a *p* value of <.001 was recorded against an alpha of $p < .05$. Therefore, years as a driver education teacher does appear to play a significant role in respondents' opinions toward the incorporation of a multiple-car driving range into a driver education program can be a benefit to novice drivers. When a Post Hoc test was run, illustrated in Table 28, to investigate differences among subgroups, it was found there is a significant difference between respondents' who had taught driver education 1-10 years and those who had taught driver education 21 or more years. Respondents who had taught drivers education 1-10 years "strongly agree" to "agree" (M = 1.94), and those who taught driver education for 21 or more years "mildly agree" to "agree" (M = 2.55) that the incorporation of a multiple-car driving range into a driver education program can be a benefit to novice drivers.

Table 27

ANOVA Test: Comparison of Years as a Driver Education Teacher and Opinions Toward Multiple Car Driving Can Be a Benefit to Novice Drivers

	Incorporation of Multiple-Car Range Can Be Benefit				
	Sum of Squares	df	Mean Square	F	p
Between Groups	17.842	3	5.947	5.573	.001
Within Groups	309.454	290	1.067		
Total	327.296	293			

Table 28

Post Hoc Test: Comparison of Years as a Driver Education Teacher and Opinions Toward Multiple Car Driving Can Be a Benefit to Novice Drivers

		Incorporation of Multiple-Car Range Can Be Benefit		
(I) Years as a Driver Education Teacher	(J) Years as a Driver Education Teacher	Mean Difference (I-J)	Std. Error	p
Less than 1	1-10	.151	.324	.975
	11-20	.066	.332	.998
	21 or More	-.460	.335	.598
1-10	Less than 1	-.151	.324	.975
	11-20	-.085	.146	.953
	21 or More	-.610*	.153	.001
11-20	Less than 1	-.066	.332	.998
	1-10	.085	.146	.953
	21 or More	-.526*	.170	.024
21 or More	Less than 1	.460	.335	.598
	1-10	.610*	.153	.001
	11-20	.526*	.170	.024

Note. *The mean difference is significant at the 0.05 level.

Driver Education in the Public Schools

An independent samples t-test was performed to determine if there was a significant difference between male and female driver education teachers' opinions if driver education programs should be mandated in Pennsylvania public schools. As shown in Table 29, a *p* value of .22 was found which is greater than *p* .05. Thus, there is not a statistically significant difference between male and female driver education teachers' opinions toward if driver education programs should be mandated in Pennsylvania public schools. A mean value of 1.42 for males and 1.59 for females was found that showed both genders "strongly agree" that driver education programs should be mandated in Pennsylvania public schools.

Table 29

Independent Samples T-Test: Comparison of Teachers' Gender and Opinions Toward Mandating Driver Education in Public Schools

	Gender	N	Mean	SD	t	p
Driver Education Programs Should Be Mandated	Male	245	1.42	.896	-1.21	.22
	Female	61	1.59	1.160		

A one-way ANOVA test was run on the type of driver education teaching licenses the respondents hold and if driver educations programs should be mandated in Pennsylvania public schools. As shown in Table 30, a *p* value of <.001 was recorded against an alpha of <.05. Thus, the type of driver education teaching licenses the respondents hold does seem to play a significant role in respondents' opinions toward if

Table 30

ANOVA Test: Comparison of Teachers' License and Opinions Toward Mandating Driver Education in Public Schools

	Driver Education Programs Should Be Mandated				
	Sum of Squares	df	Mean Square	F	p
Between Groups	57.376	3	19.125	26.186	<.001
Within Groups	220.572	302	.730		
Total	277.948	305			

driver educations programs should be mandated in Pennsylvania public schools. When a Post Hoc test was run, illustrated in Table 31, to investigate differences among subgroups, it was found there is a significant difference between respondents that were private driver trainer school certified, public school certified, and both public and private driver trainer school certified. Respondents who were private driver trainer school certified "mildly agree" (M = 2.61) while the public school certified (M = 1.23) and both public and private driver trainer school certified (M = 1.56) "strongly agree" to "agree" that driver education programs should be mandated in Pennsylvania public schools.

A one-way ANOVA test was run on the type of driver education teaching licenses the respondents hold and if students should have to take a driver education program in order to graduate from high school. As shown in Table 32, a p value of <.001 was recorded against an alpha of p <.05. Thus, the type of driver education teaching licenses the respondents hold does seem to play a significant role in respondents' opinions toward if students should have to take a driver education program in order to graduate from high school. When a Post Hoc test was run, illustrated in Table 33, to investigate differences among subgroups, it was found there is a significant difference between respondents who were private driver trainer school certified, public school certified, and both public and private driver trainer school certified. Respondents who were private driver trainer school certified "mildly agree" (M = 3.03) while the public school certified (M = 1.63), and both public and private driver trainer school certified (M = 2.09) "strongly agree" to "agree" that students should have to take a driver education program in order to graduate from high school.

Table 31

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Mandating Driver Education in Public Schools

		Driver Education Programs Should Be Mandated		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Public School	Private Driver Trainer School Certified	-1.378*	.160	<.001
	Both Public and Private Driver Trainer School Certified	-.334	.122	.060
	Emergency Certified	-1.105	.497	.178
Private Driver Trainer School Certified	Public School	1.378*	.160	<.001
	Both Public and Private Driver Trainer School Certified	-1.044*	.183	<.001
	Emergency Certified	.273	.515	.964

Table 31 (Continued)

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Mandating Driver Education in Public Schools

		Driver Education Programs Should Be Mandated		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Both Public and Private Driver Trainer School Certified	Public School	.334	.122	.060
	Private Driver Trainer School Certified	-1.044*	.183	<.001
	Emergency Certified	-.771	.505	.508
Emergency Certified	Public School	1.105	.497	.178
	Private Driver Trainer School Certified	-.273	.515	.964
	Both Public and Private Driver Trainer School Certified	.771	.505	.508

Note. *The mean difference is significant at the 0.05 level.

Table 32

ANOVA Test: Comparison of Teachers' License and Opinions Toward Students Taking Driver Education to Graduate from High School

	Students Should Take Driver Education to Graduate High School				
	Sum of Squares	df	Mean Square	F	p
Between Groups	59.989	3	19.996	12.813	<.001
Within Groups	471.292	302	1.561		
Total	531.281	305			

Table 33

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Students Taking Driver Education to Graduate from High School

		Students Should Take Driver Education to Graduate High School		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Public School	Private Driver Trainer School Certified	-1.404*	.234	<.001
	Both Public and Private Driver Trainer School Certified	-.468	.179	.079
	Emergency Certified	-.040	.726	1.000
Private Driver Trainer School Certified	Public School	1.404*	.234	<.001
	Both Public and Private Driver Trainer School Certified	.937*	.268	.007
	Emergency Certified	1.364	.753	.353

Table 33 (Continued)

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Students Taking Driver Education to Graduate from High School

		Students Should Take Driver Education to Graduate High School		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Both Public and Private Driver Trainer School Certified	Public School	.468	.179	.079
	Private Driver Trainer School Certified	-.937*	.268	.007
	Emergency Certified	.427	.738	.953
Emergency Certified	Public School	.040	.726	1.000
	Private Driver Trainer School Certified	-1.364	.753	.353
	Both Public and Private Driver Trainer School Certified	-.427	.738	.953

Note. *The mean difference is significant at the 0.05 level.

College Driver Education Instructor Preparation Course

This section corresponded to the research question that asked: What are the driver education teachers' opinions toward college courses in driver and traffic safety? Specifically, it analyses the driver educators' opinions that pertain to driver education courses offered at universities, on-line driver education preparation courses, college course requirements for certification, and the use of program enhancements such as simulation and multiple car driving ranges. The analysis of these variables was compared using an independent sample t-test and a one-way analysis of variance.

Driver Education College Preparation Courses

An independent samples t-test was performed to determine if there was a significant difference between male and female driver education teachers' opinions toward if colleges and universities should be the sole provider of driver education teacher preparation courses in Pennsylvania. As shown in Table 34, a *p* value of .01 was found which is less than *p* .05. Thus, there is a statistical significant difference between male and female driver education teachers' opinions toward if colleges and universities should be the sole provider of driver education teacher preparation courses in Pennsylvania. A mean value of 2.47 for males and 3.03 for females showed males "agree" and females "mildly agree" that colleges and universities should be the sole provider of driver education teacher preparation courses in Pennsylvania.

Table 34

Independent Samples T-Test: Comparison of Teachers' Gender and Opinions Toward Colleges and Universities Being the Sole Provider of Driver Education Courses

	Gender	N	Mean	SD	t	p
College Sole Provider of Driver Education Courses	Male	245	2.47	1.588	-2.402	.01
	Female	61	3.03	1.835		

A one-way ANOVA test was run on the years the respondents had been a driver education teacher and if colleges and universities should be the sole provider of driver education teacher preparation courses in Pennsylvania. As shown in Table 35, a *p* value of< .001 was recorded against an alpha of <.05. Therefore, years as a driver education teacher does appear to play a significant role in respondents' opinions toward if colleges and universities should be the sole provider of driver education teacher preparation courses in Pennsylvania. When a Post Hoc test was run, illustrated in Table 36, to investigate differences among subgroups, it was found there is a significant difference between respondents who had taught driver education 1-10 years and those who had taught driver education 21 or more years. Respondents who had taught drivers education 1-10 years "mildly agree" to "agree" (M = 2.96) and those that taught driver education for 21 or more years "strongly agree" to "agree" (M = 1.89) colleges and universities should be the sole provider of driver education teacher preparation courses in Pennsylvania.

Table 35

ANOVA Test: Comparison of Years as a Driver Education Teacher and Opinions Toward College Being the Sole Provider of Driver Education Courses

	Colleges Sole Provider of Driver Education Courses				
	Sum of Squares	df	Mean Square	F	p
Between Groups	59.721	3	19.907	7.780	<.001
Within Groups	772.737	302	2.559		
Total	832.458	305			

Table 36

Post Hoc Test: Comparison of Years as a Driver Education Teacher and Opinions Toward College Being the Sole Provider of Driver Education Courses

		Colleges Sole Provider of Driver Education Courses		
(I) Years as a Driver Education Teacher	(J) Years as a Driver Education Teacher	Mean Difference (I-J)	Std. Error	p
Less than 1	1-10	.225	.501	.977
	11-20	.700	.514	.603
	21 or More	1.290	.517	.103
1-10	Less than 1	-.225	.501	.977
	11-20	.476	.223	.211
	21 or More	1.065*	.230	<.001
11-20	Less than 1	-.700	.514	.603
	1-10	-.476	.223	.211
	21 or More	.590	.257	.157
21 or More	Less than 1	-1.290	.517	.103
	1-10	-1.065*	.230	<.001
	11-20	-.590	.257	.157

Note: *The mean difference is significant at the 0.05 level.

A one-way ANOVA test was run on the type of driver education teaching licenses the respondents hold and if colleges and universities should be the sole provider of driver education teacher preparation courses in Pennsylvania. As shown in Table 37, a *p* value of <.001 was recorded against an alpha of <.05. Thus, the type of driver education teaching licenses the respondents hold does seem to play a significant role in respondents' opinions toward if colleges and universities should be the sole provider of driver education teacher preparation courses in Pennsylvania. When a Post Hoc test was run, illustrated in Table 38, to investigate differences among subgroups, it was found there is a significant difference between respondents who were private driver trainer school certified, public school certified, and both public and private driver trainer school certified. Respondents who were private driver trainer school certified "mildly disagree" to "disagree" (M = 4.55) while the public school certified (M = 2.35) and both public and private driver trainer school certified (M = 2.28) "agree" that colleges and universities should be the sole provider of driver education teacher preparation courses in Pennsylvania.

A one-way ANOVA test was run on the type of driver education teaching licenses the respondents hold and if teachers should be allowed to teach any phase (classroom, behind-the-wheel, simulation, multiple-car driving range) of a driver's education program even if they have not completed a total of 12 credits in driver and traffic safety. As shown in Table 39, a *p* value of <.001 was recorded against an alpha of *p* <.05. Thus, the type of driver education teaching licenses the respondents hold does seem to play a significant role in respondents' opinions if teachers should be allowed to teach any phase

Table 37

ANOVA Test: Comparison of Teachers' License and Opinions Toward Colleges Being the Sole Provider of Driver Education Courses

	Colleges Sole Provider of Driver Education Courses				
	Sum of Squares	df	Mean Square	F	p
Between Groups	145.837	3	48.612	21.381	<.001
Within Groups	686.621	302	2.274		
Total	832.458	305			

Table 38

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Colleges Being the Sole Provider of Driver Education Courses

		Colleges Sole Provider of Driver Education Courses		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Public School	Private Driver Trainer School Certified	-2.196*	.283	<.001
	Both Public and Private Driver Trainer School Certified	.068	.216	.992
	Emergency Certified	-.984	.877	.739
Private Driver Trainer School Certified	Public School	2.196*	.283	<.001
	Both Public and Private Driver Trainer School Certified	2.264*	.323	<.001
	Emergency Certified	1.212	.909	.620

Table 38 (Continued)

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Colleges Being the Sole Provider of Driver Education Courses

		Colleges Sole Provider of Driver Education Courses		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Both Public and Private Driver Trainer School Certified	Public School Private Driver Trainer School Certified	-.068	.216	.992
	Emergency Certified	-2.264*	.323	<.001
Emergency Certified	Public School Private Driver Trainer School Certified	-1.052	.891	.707
	Both Public and Private Driver Trainer School Certified	.984	.877	.739
		1.212	.909	.620
		-1.052	.891	.707

Note. The mean difference is significant at the 0.05 level.

Table 39

ANOVA Test: Comparison of Teachers' License and Opinions Toward Allowing Teachers to Teach Any Phase of Driver Education Program without College Credits

	Driver Education Teachers Allowed to Teach Without 12 Credits				
	Sum of Squares	df	Mean Square	F	p
Between Groups	151.228	3	50.409	26.390	<.001
Within Groups	576.877	302	1.910		
Total	728.105	305			

(classroom, behind-the-wheel, simulation, multiple-car driving range) of a driver education program even if they have not completed a total of 12 credits in driver and traffic safety. When a Post Hoc test was run, illustrated in Table 40, to investigate differences among subgroups, it was found there is a significant difference between respondents who were private driver trainer school certified, public school certified, and both public and private driver trainer school certified. Respondents who were private driver trainer school certified "agree" to "mildly agree" (M = 2.76) while the public school certified (M = 5.02) and both public and private driver trainer school certified (M = 4.97) "disagree" to "mildly disagree" if teachers should be allowed to teach any phase (classroom, behind-the-wheel, simulation, multiple-car driving range) of a drivers education program even if they have not completed a total of 12 credits in driver and traffic safety.

A one-way ANOVA test was run on the years the respondents had been a driver education teacher and if the driver/traffic safety education courses they had taken prepared them to teach the subject. As shown in Table 41, a p value of <.001 was recorded against an alpha of p <.05. Therefore, years as a driver education teacher does seem to play a significant role in respondents' opinions toward if the driver/traffic safety education courses they had taken prepared them to teach the subject. When a Post Hoc test was run, illustrated in Table 42, to investigate differences among subgroups, it was found there is a significant difference between respondents' who had taught driver education 1-10 years and those who had taught driver education 11-20 years and 21 or

Table 40

ANOVA Test: Comparison of Teachers' License and Opinions Toward Allowing Teachers to Teach Any Phase of Driver Education Program without College Credits

		Driver Education Teachers Allowed to Teach Without 12 Credits		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Public School	Private Driver Trainer School Certified	2.267*	.259	<.001
	Both Public and Private Driver Trainer School Certified	.056	.198	.994
	Emergency Certified	1.024	.804	.654
Private Driver Trainer School Certified	Public School	-2.267*	.259	<.001
	Both Public and Private Driver Trainer School Certified	-2.211*	.296	<.001
	Emergency Certified	-1.242	.833	.528

Table 40 (Continued)

ANOVA Test: Comparison of Teachers' License and Opinions Toward Allowing Teachers to Teach Any Phase of Driver Education Program without College Credits

		Driver Education Teachers Allowed to Teach Without 12 Credits		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Both Public and Private Driver Trainer School Certified	Public School	-.056	.198	.994
	Private Driver Trainer School Certified	2.211*	.296	<.001
	Emergency Certified	.969	.816	.704
Emergency Certified	Public School	-1.024	.804	.654
	Private Driver Trainer School Certified	1.242	.833	.528
	Both Public and Private Driver Trainer School Certified	-.969	.816	.704

Note. The mean difference is significant at the 0.05 level.

Table 41

ANOVA Test: Comparison of Years as a Driver Education Teacher and Opinions Toward Driver Education Courses Preparing Them to Teach

	Driver Education Courses Have Prepared to Teach Driver Education				
	Sum of Squares	df	Mean Square	F	p
Between Groups	44.412	3	14.804	5.603	.001
Within Groups	797.918	302	2.642		
Total	842.330	305			

Table 42

Post Hoc Test: Comparison of Years as a Driver Education Teacher and Opinions Toward Driver Education Courses Preparing Them to Teach

		Driver Education Courses Have Prepared to Teach Driver Education		
(I) Years as a Driver Education Teacher	(J) Years as a Driver Education Teacher	Mean Difference (I-J)	Std. Error	p
Less than 1	1-10	-.629	.509	.677
	11-20	.062	.522	1.000
	21 or More	.216	.525	.982
1-10	Less than 1	.629	.509	.677
	11-20	.690*	.227	.028
	21 or More	.845*	.234	.005
11-20	Less than 1	-.062	.522	1.000
	1-10	-.690*	.227	.028
	21 or More	.154	.261	.950
21 or More	Less than 1	-.216	.525	.982
	1-10	-.845*	.234	.005
	11-20	-.154	.261	.950

Note. *The mean difference is significant at the 0.05 level.

more years. Respondents who had taught drivers education 1-10 years "mildly agree" to "agree" (M = 2.63) and those who taught driver education for 11-20 years (M = 1.94), and 21 or more years (M = 1.78) "strongly agree" to "agree" that the driver/traffic safety education courses they had taken prepared them to teach the subject.

On-Line Driver Education

An independent samples t-test was performed to determine if there was a significant difference between male and female driver education teachers' opinions toward if on-line (internet) novice driver education programs can be a valuable means of teaching driver education. As shown in Table 43, a *p* value of .74 was found which is less than $\alpha = .05$. Thus, there is not a statistically significant difference between male and female driver education teachers' opinions toward on-line (internet) novice driver education programs can be a valuable means of teaching driver education. A mean value of 3.78 for males and 3.85 for females showed males and females "mildly agree" to "mildly disagree" on-line (internet) novice driver education programs can be a valuable means of teaching driver education.

Table 43

Independent Samples T-Test: Comparison of Teachers' Gender and Opinions Toward On-Line Driver Education Courses for Novice Drivers are a Valuable Means of Teaching

	Gender	N	Mean	SD	t	p
On-Line Courses are Valuable Means	Male	245	3.78	1.408	-.338	.74
	Female	61	3.85	1.470		

A one-way ANOVA test was run on the type of driver education teaching licenses the respondents hold, and if on-line (internet) novice driver education programs can be a valuable means of teaching driver education. As shown in Table 44, a *p* value of .061 was recorded against an alpha of <.05. Thus, the type of driver education teaching licenses the respondents hold does not seem to play a significant role in respondents' opinions toward if on-line (internet) novice driver education programs can be a valuable means of teaching driver education. When a Post Hoc test was run to investigate differences among subgroups, it was found there is not a significant difference between the types of driver's education teaching license the respondents hold and their opinions toward if on-line (internet) novice driver education programs can be a valuable means of teaching driver education. Respondents who were public school certified (M = 3.90), private driver trainer school certified (M = 3.18), both public and private driver trainer school certified (M = 3.78), and emergency certified (M = 4.0) "mildly agree" to "mildly disagree" that on-line (internet) novice driver education programs can be a valuable means of teaching driver education.

A one-way ANOVA test was run on the type of driver education teaching licenses the respondents hold and if universities and colleges in Pennsylvania should offer driver education courses on-line as an alternate way of teaching driver education preparation programs. As shown in Table 45, a *p* value of .0384 was recorded against an alpha of <.05. Thus, the type of driver education teaching licenses the respondents hold does seem to play a significant role in respondents' opinions toward if universities and colleges in Pennsylvania should offer drivers education courses on-line as an alternate

Table 44

ANOVA Test: Comparison of Teachers' License and Opinions Toward On-Line Driver Education Courses are Valuable Means of Teaching Novice Drivers

	On-Line Courses are Valuable Means				
	Sum of Squares	df	Mean Square	F	p
Between Groups	14.732	3	4.911	2.477	.061
Within Groups	598.706	302	1.982		
Total	613.438	305			

Table 45

ANOVA Test: Comparison of Teachers' License and Opinions Toward Colleges and Universities Offering On-Line Driver Education Courses for Certification

	College Should Offer On-Line as Alternative				
	Sum of Squares	df	Mean Square	F	p
Between Groups	19.597	3	6.532	2.852	.038
Within Groups	689.386	301	2.290		
Total	708.984	304			

way of teaching driver education preparation programs. When a Post Hoc test was run, illustrated in Table 46, to investigate differences among subgroups, it was found there is a significant difference between respondents that were private driver trainer school certified, public school certified, and both public and private driver trainer school certified. Respondents who were private driver trainer school certified "mildly agree" (M = 3.18) while the public school certified (M = 3.93), and both public and private driver trainer school certified (M = 4.10) "mildly disagree" that universities and colleges in Pennsylvania should offer drivers education courses on-line as an alternate way of teaching driver education preparation programs.

Colleges Using Driver Simulation and Multiple-Car Driving Ranges

A one-way ANOVA test was run on the age of the respondents and if colleges that use a driver simulation component in driver education teacher preparation program produce more effective teachers. As shown in Table 47, a *p* value of .001 was recorded against an alpha of <.05. Therefore age does appear to play a significant role in respondents' opinions that colleges using a driver simulation component in driver education teacher preparation program produce more effective teachers. When a Post Hoc test was run, illustrated in Table 48, to investigate differences among subgroups, it was found there is a significant difference between respondents' age of 21-30 and the age groups of 51-60 and 61 and above. Respondents between the ages 21-30 "agree" (M = 2.16) while the age groups 51-60 (M = 3.12), and 61 and above (M = 3.34) "mildly agree" colleges that use a driver simulation component in driver education teacher preparation programs produce more effective teachers.

Table 46

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Colleges and Universities Offering On-Line Drive Education Courses for Certification

		Colleges Should Offer On-Line as Alternative		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Public School	Private Driver Trainer School Certified	.750*	.284	.043
	Both Public and Private Driver Trainer School Certified	-.163	.218	.877
	Emergency Certified	-.068	.880	1.000
Private Driver Trainer School Certified	Public School	.750*	.284	.043
	Both Public and Private Driver Trainer School Certified	-.913*	.325	.027
	Emergency Certified	-.818	.913	.807

Table 46 (Continued)

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Colleges and Universities Offering On-Line Drive Education Courses for Certification

		Colleges Should Offer On-Line as Alternative		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Both Public and Private Driver Trainer School Certified	Public School	.163	.218	.877
	Private Driver Trainer School Certified	.913*	.325	.027
	Emergency Certified	.095	.894	1.000
Emergency Certified	Public School	.068	.880	1.000
	Private Driver Trainer School Certified	.818	.913	.807
	Both Public and Private Driver Trainer School Certified	-.095	.894	1.000

Note. The mean difference is significant at the 0.05 level.

Table 47

ANOVA Test: Comparison of Teachers' Age and Opinions Toward Colleges Using Driver Simulation Produce Effective Teachers

	Colleges that Use Simulation Produce Effective Teacher				
	Sum of Squares	df	Mean Square	F	p
Between Groups	33.914	4	8.479	4.866	.001
Within Groups	507.001	291	1.742		
Total	540.916	295			

Table 48

ANOVA Test: Comparison of Teachers' Age Toward Colleges Using Driver Simulation Produce Effective Teachers

		Colleges that Use Simulation Produce Effective Teacher		
(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	p
21-30	31-40	-.408	.331	.822
	41-50	-.888	.312	.091
	51-60	-.960*	.293	.032
	61-Above	-1.179*	.317	.009
31-40	21-30	.408	.331	.822
	41-50	-.479	.259	.492
	51-60	-.552	.236	.245
	61-Above	-.771	.266	.081
41-50	21-30	.888	.312	.091
	31-40	.479	.259	.492
	51-60	-.073	.209	.998
	61-Above	-.292	.242	.836
51-60	21-30	.960*	.293	.032
	31-40	.552	.236	.245
	41-50	.073	.209	.998
	61-Above	-.219	.217	.907
61-Above	21-30	1.179*	.317	.009
	31-40	.771	.266	.081
	41-50	.292	.242	.836
	51-60	.219	.217	.907

Note. *The mean difference is significant at the 0.05 level.

A one-way ANOVA test was run on the type of driver education teaching licenses the respondents hold and if colleges using a driver simulation component in driver education teacher preparation programs produce more effective teachers. As shown in Table 49, a *p* value of <.001 was recorded against an alpha of *p* <.05. Thus, the type of driver education teaching licenses the respondents hold does seem to play a significant role in respondents' opinions toward colleges using a driver simulation component in driver education teacher preparation programs produce more effective teachers. When a Post Hoc test was run, illustrated in Table 50, to investigate differences among subgroups, it was found there is a significant difference between respondents who were public school certified, private driver trainer school certified, and both public and private driver trainer school certified. Respondents who were public school certified (M = 2.71) and both public and private driver trainer school certified (M = 3.34) "agree" to "mildly agree" while the private driver trainer school certified mildly disagree (M = 4.00) that colleges using a driver simulation component in driver education teacher preparation programs produce more effective teachers.

A one-way ANOVA test was run on the age of the respondents and if colleges that use a multiple–car driving range component in driver education teacher preparation program produce more effective teachers. As shown in Table 51, a *p* value of <.001 was recorded against a confidence interval at *p* <.05. Therefore age does seem to play a significant role in respondents' opinions that colleges using a multiple–car driving range component in driver education teacher preparation program produce more effective teachers. When a Post Hoc test was run, illustrated in Table 52, to investigate

Table 49

ANOVA Test: Comparison of Teachers' License and Opinions Toward Colleges Using Driver Simulation Produce Effective Teachers

	Colleges that Use Simulation Produce Effective Teacher				
	Sum of Squares	df	Mean Square	F	p
Between Groups	55.468	3	18.489	11.121	<.001
Within Groups	485.448	292	1.662		
Total	540.916	295			

Table 50

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Colleges Using Driver Simulation Produce Effective Teachers

		Colleges that Use Simulation Produce Effective Teacher		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Public School	Private Driver Trainer School Certified	-1.293*	.249	<.001
	Both Public and Private Driver Trainer School Certified	-.637*	.185	.009
	Emergency Certified	-.293	.750	.985
Private Driver Trainer School Certified	Public School	1.293*	.249	<.001
	Both Public and Private Driver Trainer School Certified	.656	.282	.147
	Emergency Certified	1.000	.780	.650

Table 50 (Continued)

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Colleges Using Driver Simulation Produce Effective Teachers

		Colleges that Use Simulation Produce Effective Teacher		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Both Public and Private Driver Trainer School Certified	Public School	.637*	.185	.009
	Private Driver Trainer School			
	Certified	-.656	.282	.147
	Emergency Certified	.344	.762	.977
Emergency Certified	Public School	.293	.750	.985
	Private Driver Trainer School			
	Certified	-1.000	.780	.650
	Both Public and Private Driver Trainer School			
	Certified	-.344	.762	.977

Note. The mean difference is significant at the 0.05 level.

Table 51

ANOVA Test: Comparison of Teachers' Age and Opinions Toward Colleges Using Multiple Car Ranges Produce Effective Teachers

	Colleges that Use Multiple Car Ranges Produce Effective Teacher				
	Sum of Squares	df	Mean Square	F	p
Between Groups	52.043	4	13.011	6.723	<.001
Within Groups	561.259	290	1.935		
Total	613.302	294			

Table 52

Post Hoc Test: Comparison of Teachers' Age and Opinions Toward Colleges Using Multiple Car Ranges Produce Effective Teachers

		Colleges that Use Multiple Car Ranges Produce Effective Teacher		
(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	p
21-30	31-40	-.655	.348	.475
	41-50	-1.091*	.328	.028
	51-60	-1.191*	.309	.006
	61-Above	-1.575*	.335	<.001
31-40	21-30	.655	.348	.475
	41-50	-.436	.272	.634
	51-60	-.536	.249	.331
	61-Above	-.920*	.280	.031
41-50	21-30	1.091*	.328	.028
	31-40	.436	.272	.634
	51-60	-.100	.220	.995
	61-Above	-.484	.255	.461
51-60	21-30	1.191*	.309	.006
	31-40	.536	.249	.331
	41-50	.100	.220	.995
	61-Above	-.384	.230	.593
61-Above	21-30	1.575*	.335	<.001
	31-40	.920*	.280	.031
	41-50	.484	.255	.461
	51-60	.384	.230	.593

Note. *The mean difference is significant at the 0.05 level.

differences among subgroups, it was found there is a significant difference between respondents' age of 21-30 and the other age groups. Respondents between the ages 21-30 "strongly agree" to "agree" (M = 1.80) while the age groups 31-40 (M = 2.45), 41-50 (M = 2.89) , 51-60 (M = 2.99), and 61 and above (M = 3.38) "mildly agree" that colleges which use a multiple–car driving range component in driver education teacher preparation programs produce more effective teachers.

A one-way ANOVA test was run on the type of driver education teaching licenses the respondents hold and if colleges using a multiple-car driving range component in driver education teacher preparation program produce more effective teachers. As shown in Table 53, a *p* value of <.001 was recorded against an alpha of <.05. Thus, the type of driver education teaching licenses the respondents hold does seem to play a significant role in respondents' opinions toward colleges using a multiple-car driving range component to produce more effective teachers. When a Post Hoc test was run, illustrated in Table 54, to investigate differences among subgroups, it was found there is a significant difference between respondents who were private driver trainer school certified and public school certified. Respondents who were private driver trainer school certified "mildly disagree" (M = 3.90) while the public school certified (M = 2.60) "agree" that colleges using a multiple-car driving range component in driver education teacher preparation programs produce more effective teachers.

Table 53

ANOVA Test: Comparison of Teachers' License and Opinions Toward Colleges Using Multiple-Car Driving Ranges Produce Effective Teachers

	Colleges that Use Multiple Car Ranges Produce Effective Teacher				
	Sum of Squares	df	Mean Square	F	p
Between Groups	52.594	3	17.531	9.098	<.001
Within Groups	560.708	291	1.927		
Total	613.302	294			

Table 54

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Colleges Using Multiple Car Driving Ranges Produce Effective Teachers

		Colleges that Use Multiple-Car Driving Ranges Produce Effective Teacher		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Public School	Private Driver Trainer School Certified	-1.300*	.268	<.001
	Both Public and Private Driver Trainer School Certified	-.542*	.202	.068
	Emergency Certified	-.730	.807	.845
Private Driver Trainer School Certified	Public School	1.300*	.268	<.001
	Both Public and Private Driver Trainer School Certified	.758	.305	.106
	Emergency Certified	.570	.839	.927

Table 54 (Continued)

Post HOC Test: Comparison of Teachers' License and Opinions Toward Colleges Using Multiple-Car Driving Ranges Produce Effective Teachers

		Colleges that Use Multiple-Car Driving Ranges Produce Effective Teacher		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Both Public and Private Driver Trainer School Certified	Public School	.542	.202	.068
	Private Driver Trainer School Certified	-.758	.305	.106
	Emergency Certified	-.188	.821	.997
Emergency Certified	Public School	.730	.807	.845
	Private Driver Trainer School Certified	-.570	.839	.927
	Both Public and Private Driver Trainer School Certified	.188	.821	.997

Note. The mean difference is significant at the 0.05 level.

Higher Certification Standards for Driver Education Teacher Training

This section corresponded to the research question that asked: What are the driver education teachers' opinions toward higher certification requirements in teaching driver education? Specifically, this section looks at driver educators' opinions toward the PRAXIS exam in safety/driver education, the Pennsylvania Department of Education offering workshops and mandating college courses for certification. The analysis of these variables was compared using an independent t-test and a one-way analysis of variance.

Safety/Driver Education PRAXIS Exam

An independent samples t-test was performed to determine if there was a significant difference between male and female driver education teachers' opinions toward if taking the PRAXIS exam only in safety/driver education, without coursework, is sufficient in preparing driver education teachers. As shown in Table 55, a p value of .68 was found which is greater than $\alpha = .05$. Thus, there is not a statistically significant difference between male and female driver education teachers' opinions toward if taking the PRAXIS exam only in safety/driver education, without coursework, is sufficient in preparing driver education teachers. It was found the males "mildly disagree" to "disagree" (M = 4.49) and females "disagree" (M = 5.02) that taking the PRAXIS exam only in safety/driver education, without coursework, is sufficient in preparing driver education teachers.

Table 55

Independent Samples T-Test: Comparison of Teachers' Gender and Opinions Toward the Taking the PRAXIS Exam Only for Certification in Driver Education

	Gender	N	Mean	SD	t	p
PRAXIS only is Sufficient in Preparing Driver Education Teacher	Male	241	4.94	1.329	-.416	.68
	Female	61	5.02	1.271		

A one-way ANOVA test was run on the age of the respondents and if the PRAXIS exam for public school teachers and/or the private driver trainer school teacher exam should be omitted from the driver education teacher certification process. As shown in Table 56, a *p* value of <.001 was recorded against an alpha of <.05. Therefore age does appear to play a significant role in respondents' opinions if the PRAXIS exam for public school teachers and/or the private driver trainer school teacher exam should be omitted from the driver education teacher certification process. When a Post Hoc test was run, illustrated in Table 57, to investigate differences among subgroups, it was found there is a significant difference between respondents' age of 31-40, 51-60, and 61 and above. Respondents between the ages 31-40 "mildly disagree" (M = 4.29) while the age of 51-60 (M = 3.12), and ages 61 above (M = 2.93) "agree" to "mildly agree" that the PRAXIS exam for public school teachers and/or the private driver trainer school teacher exam should be omitted from the driver education teacher certification process.

Table 56

ANOVA Test: Comparison of Teachers' Ages and Opinions Toward Omitting the PRAXIS Exam and Private Driver Trainer Exam

	Driver Education PRAXIS or Commercial Test Should be Omitted				
	Sum of Squares	df	Mean Square	F	p
Between Groups	67.920	4	16.980	5.832	<.001
Within Groups	861.881	296	2.912		
Total	929.801	300			

Table 57

Post Hoc Test: Comparison of Teachers' Ages and Opinions Toward Omitting the PRAXIS Exam and Private Driver Trainer Exam

		Driver Education PRAXIS or Commercial Test Should be Omitted		
(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	p
21-30	31-40	-.249	.426	.987
	41-50	.774	.402	.449
	51-60	.923	.378	.205
	61-Above	1.111	.410	.122
31-40	21-30	.249	.426	.987
	41-50	1.023	.332	.052
	51-60	1.172*	.302	.005
	61-Above	1.360*	.342	.004
41-50	21-30	-.774	.402	.449
	31-40	-1.023	.332	.052
	51-60	.149	.268	.989
	61-Above	-.337	.312	.884
51-60	21-30	-.923	.378	.205
	31-40	-1.172*	.302	.005
	41-50	-.149	.268	.989
	61-Above	.189	.280	.978
61-Above	21-30	-1.111	.410	.122
	31-40	-1.360*	.342	.004
	41-50	-.337	.312	.884
	51-60	-.189	.280	.978

Note. *The mean difference is significant at the 0.05 level.

A one-way ANOVA test was run on the type of driver education teaching licenses the respondents hold and if taking the PRAXIS exam only in safety/driver education, without coursework, is sufficient in preparing driver education teachers. As shown in Table 58, a *p* value of <.001 was recorded against an alpha of <.05. Thus, the type of driver education teaching licenses the respondents hold does appear to play a significant role in respondents' opinions toward taking the PRAXIS exam only in safety/driver education, without coursework, is sufficient in preparing driver education teachers. When a Post Hoc test was run, illustrated in Table 59, to investigate differences among subgroups, it was found there is a significant difference between respondents who were private driver trainer school certified, public school certified, and both public and private driver trainer school certified. Respondents who were private driver trainer school certified (M = 3.90) "mildly agree" to "mildly disagree" while the public school certified (M = 5.08) and both public and private driver trainer school certified (M = 5.10) "disagree" that taking the PRAXIS exam only in safety/driver education, without coursework, is sufficient in preparing driver education teachers.

A one-way ANOVA test was run on the years the respondents had been teaching driver's education and their opinions toward if the PRAXIS exam for public school teachers and/or the private driver trainer school teacher exam should be omitted from the driver education teacher certification process. As shown in Table 60, a *p* value of <.001 was recorded against an alpha of <.05. Therefore the years the respondents had been teaching driver's education seems to play a significant role in respondents' opinions if the PRAXIS exam for public school teachers and/or the private driver trainer school teacher exam should be omitted from the driver education teacher certification process. When a

Table 58

ANOVA Test: Comparison of Teachers' License and Opinions Toward Taking the PRAXIS Only for Driver Education Certification

	PRAXIS only is Sufficient in Preparing Driver Education Teachers				
	Sum of Squares	df	Mean Square	F	p
Between Groups	41.625	3	13.875	8.619	<.001
Within Groups	479.726	298	1.610		
Total	521.351	301			

Table 59

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Taking the PRAXIS Only for Driver Education Certification

		PRAXIS only is Sufficient in Preparing Driver Education Teachers		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Public School	Private Driver Trainer School Certified	1.179*	.244	<.001
	Both Public and Private Driver Trainer School Certified	-.014	.184	1.000
	Emergency Certified	1.083	.738	.542
Private Driver Trainer School Certified	Public School	-1.179*	.244	<.001
	Both Public and Private Driver Trainer School Certified	-1.194*	.279	<.001
	Emergency Certified	-.097	.767	.999

Table 59 (Continued)

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Taking the PRAXIS Only for Driver Education Certification

		PRAXIS only is Sufficient in Preparing Driver Education Teachers		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Both Public and Private Driver Trainer School Certified	Public School	.014	.184	1.000
	Private Driver Trainer School Certified	1.194*	.279	<.001
	Emergency Certified	1.097	.750	.545
Emergency Certified	Public School	-1.083	.738	.542
	Private Driver Trainer School Certified	.097	.767	.999
	Both Public and Private Driver Trainer School Certified	-1.097	.750	.545

Note. The mean difference is significant at the 0.05 level.

Table 60

ANOVA Test: Comparison of Years of Teaching Driver Education and Opinions Toward Omitting the PRAXIS Exam and Private Driver Trainer Exam

	Driver Education PRAXIS or Commercial Test Should be Omitted				
	Sum of Squares	df	Mean Square	F	p
Between Groups	94.779	3	31.593	11.237	<.001
Within Groups	835.022	297	2.812		
Total	929.801	300			

Post Hoc test was run, illustrated in Table 61, to investigate differences among subgroups, it was found there is a significant difference between respondents who had been teaching drivers education for 1-10 years, 11-20 years, and 21 or more years. Respondents who had taught driver education between 1-10 years "mildly disagree" (M = 3.94) while the years of 11-20 (M = 2.86) and years 21 and above (M = 2.75) "agree" to "mildly agree" the PRAXIS exam for public school teachers and/or the private driver trainer school teacher exam should be omitted from the driver education teacher certification process.

A one-way ANOVA test was run on the years the respondents had been teaching and their opinions toward if the PRAXIS exam for public school teachers and/or the private driver trainer school teacher exam should be omitted from the driver education teacher certification process. As shown in Table 62, a *p* value of <.001 was recorded against an alpha of <.05. Therefore the years the respondents had been teaching appears to play a significant role in respondents' opinions if the PRAXIS exam for public school teachers and/or the private driver trainer school teacher exam should be omitted from the driver education teacher certification process. When a Post Hoc test was run, illustrated in Table 63, to investigate differences among subgroups, it was found out that there is a significant difference between respondents who had been teaching for 6-10 years and the other age groups of 11-15 years, 16-20, 21-25 years, and 26 or more years. Respondents who had been teaching for 6-10 years "mildly disagree" to "disagree" (M = 4.79) while those teaching for 11-15 (M = 3.49), 16-20 (M = 3.18), 21-25 (M = 2.71) and 26 or more years (M = 2.94) "agree" to "mildly agree" the PRAXIS exam for public school teachers

Table 61

Post Hoc Test: Comparison of Years of Teaching Driver Education and Opinions Toward Omitting the PRAXIS Exam and Private Driver Trainer Exam

		Driver Education or Commercial Test Should Be Omitted		
(I) Years as a Driver Education Teacher	(J) Years as a Driver Education Teacher	Mean Difference (I-J)	Std. Error	p
Less than 1	1-10	-.117	.525	.997
	11-20	.957	.540	.371
	21 or More	1.068	.543	.278
1-10	Less than 1	.117	.525	.997
	11-20	1.074*	.236	<.001
	21 or More	1.185*	.243	<.001
11-20	Less than 1	-.957	.540	.371
	1-10	-1.074*	.236	<.001
	21 or More	.111	.273	.983
21 or More	Less than 1	-1.068	.543	.278
	1-10	-1.185*	.243	<.001
	11-20	-.111	.273	.983

Note. *The mean difference is significant at the 0.05 level.

Table 62

ANOVA Test: Comparison of Years of Teaching and Opinions Toward Omitting the PRAXIS and Private Driver Trainer Exam for Certification

	Driver Education PRAXIS or Commercial Test Should be Omitted				
	Sum of Squares	df	Mean Square	F	p
Between Groups	109.565	6	18.261	6.545	<.001
Within Groups	820.235	294	2.790		
Total	929.801	300			

Table 63

Post Hoc Test: Comparison of Years of Teaching and Opinions Toward Omitting the PRAXIS and Private Driver Trainer Exam for Certification

		Driver Education or Commercial Test Should be Omitted		
(I) Years as a Driver Education Teacher	(J) Years as a Driver Education Teacher	Mean Difference (I-J)	Std. Error	p
Less than 1	1-5	.052	.690	1.000
	6-10	-.931	.695	.937
	11-15	.367	.675	1.000
	16-20	.673	.687	.987
	21-25	1.143	.706	.854
	26 or More	.921	.651	.919
1-5	Less than 1	-.052	.690	1.000
	6-10	-.982	.403	.430
	11-15	.316	.367	.993
	16-20	.621	.388	.861
	21-25	1.091	.421	.350
	26 or More	.869	.321	.294
6-10	Less than 1	.931	.695	.937
	1-5	.982	.403	.430
	11-15	1.298	.376	.068
	16-20	1.604*	.397	.014
	21-25	2.074*	.429	.001
	26 or More	1.852*	.332	<.001
11-15	Less than 1	-.367	.675	1.000
	1-5	-.316	.367	.993
	6-10	-1.298	.376	.068
	16-20	.306	.361	.994
	21-25	.776	.396	.698
	26 or More	.553	.287	.714

Table 63 (Continued)

Post Hoc Test: Comparison of Years of Teaching and Opinions Toward Omitting the PRAXIS and Private Driver Trainer Exam for Certification

		Driver Education or Commercial Test Should be Omitted		
(I) Years as a Driver Education Teacher	(J) Years as a Driver Education Teacher	Mean Difference (I-J)	Std. Error	p
16-20	Less than 1	-.673	.687	.987
	1-5	-.621	.388	.861
	6-10	-1.604*	.397	.014
	11-15	-.306	.361	.994
	21-25	.470	.416	.973
	26 or More	.248	.314	.996
21-25	Less than 1	-1.143	.706	.854
	1-5	-1.091	.421	.350
	6-10	-2.074*	.429	.001
	11-15	-.776	.396	.698
	16-20	-.470	.416	.973
	26 or More	-.222	.354	.999
26 or More	Less than 1	-.921	.651	.919
	1-5	-.869	.321	.294
	6-10	-1.852*	.332	<.001
	11-15	-.553	.287	.714
	16-20	-.248	.314	.996
	21-25	.222	.354	.999

Note. *The mean difference is significant at the 0.05 level.

and/or the private driver trainer school teacher exam should be omitted from the driver education teacher certification process.

Pennsylvania Department of Education

A one-way ANOVA test was run on the type of driver education teaching licenses the respondents hold and their opinions toward if the Pennsylvania Department of Education should raise the number of college credits from 12 to 15 to certify driver education teachers. As shown in Table 64, a *p* value of .004 was recorded against an alpha of <.05. Thus, the type of driver education teaching licenses the respondents hold does seem to play a significant role in respondents' opinions toward if the Pennsylvania Department of Education should raise the number of college credits from 12 to 15 to certify driver education teachers. When a Post Hoc test was run, illustrated in Table 65, to investigate differences among subgroups, it was found there is a significant difference between respondents who were private driver trainer school certified, public school certified, and both public and private driver trainer school certified. Respondents who were private driver trainer school certified (M = 4.61)" mildly disagree" to "disagree" while public school certified (M = 3.60) and both public and private driver trainer school certified (M = 3.52) "mildly agree" the Pennsylvania Department of Education should raise the number of college credits from 12 to 15 to certify driver education teachers.

Table 64

ANOVA Test: Comparison of Teachers' License and Opinions Toward Taking and Raising the Number of College Credits

	Pennsylvania Department of Education Should Raise College Credit to 15				
	Sum of Squares	df	Mean Square	F	p
Between Groups	31.523	3	10.508	4.447	.004
Within Groups	706.543	299	2.363		
Total	738.066	302			

Table 65

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Taking and Raising the Number of College Credits

		Pennsylvania Department of Education Should Raise College Credit to 15		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Public School	Private Driver Trainer School Certified	-1.005*	.289	.008
	Both Public and Private Driver Trainer School Certified	.085	.220	.985
	Emergency Certified	-.399	.894	.978
Private Driver Trainer School Certified	Public School	1.005*	.289	.008
	Both Public and Private Driver Trainer School Certified	1.090*	.329	.013
	Emergency Certified	.606	.927	.934

Table 65 (Continued)

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Taking and Raising the Number of College Credits

		Pennsylvania Department of Education Should Raise College Credit to 15		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Both Public and Private Driver Trainer School Certified	Public School	-.085	.220	.985
	Private Driver Trainer School Certified	-1.090*	.329	.013
	Emergency Certified	-.484	.908	.963
Emergency Certified	Public School	.399	.894	.978
	Private Driver Trainer School Certified	-.606	.927	.934
	Both Public and Private Driver Trainer School Certified	.484	.908	.963

Note. The mean difference is significant at the 0.05 level.

A one-way ANOVA test was run on the type of driver education teaching licenses the respondents hold and their opinions toward if the Pennsylvania Department of Education should mandate all future driver education teachers be required to have a bachelor's degree in education to become certified in driver education. As shown in Table 66, a *p* value of <.001 was recorded against an alpha of <.05. Thus, the type of driver education teaching licenses the respondents hold does seem to play a significant role in respondents' opinions toward if the Pennsylvania Department of Education should mandate all future driver education teachers be required to have a bachelor's degree in education to become certified in driver education. When a Post Hoc test was run, illustrated in Table 67, to investigate differences among subgroups, it was found there is a significant difference among respondents in all four groups. Respondents who were private driver trainer school certified (M = 4.67) "mildly disagree" to "disagree" while public school certified (M = 1.96), both public and private driver trainer school certified (M = 2.56) and emergency certified (M = 2.33) "strongly agree" that the Pennsylvania Department of Education should mandate all future driver education teachers be required to have a bachelor's degree in education to become certified in driver education.

A one-way ANOVA test was run on the years the respondents had been teaching driver education and their opinions toward if the Pennsylvania Department of Education should raise the number of college credits from 12 to 15 to certify driver education teachers. As shown in Table 68, a *p* value of .006 was recorded against an alpha of <.05. Thus, the years the respondents had been teaching drivers education appears to play a significant role in respondents' opinions toward if the Pennsylvania Department of

Table 66

ANOVA Test: Comparison of Teachers' License and Opinions Toward Mandating Bachelor's for Driver Education Certification

	Pennsylvania Department of Education Should Mandate Bachelor's for Driver Education Teachers				
	Sum of Squares	df	Mean Square	F	p
Between Groups	211.669	3	70.556	43.278	<.001
Within Groups	492.357	302	1.630		
Total	704.026	305			

Table 67

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Mandating Bachelor's for Driver Education Certification

		Pennsylvania Department of Education Should Mandate Bachelor's for Driver Education Teachers		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Public School	Private Driver Trainer School Certified	-2.710*	.239	<.001
	Both Public and Private Driver Trainer School Certified	-.606*	.183	.013
	Emergency Certified	-.377	.743	.968
Private Driver Trainer School Certified	Public School	2.710*	.239	<.001
	Both Public and Private Driver Trainer School Certified	2.104*	.274	<.001
	Emergency Certified	2.333*	.770	.028

Table 67 (Continued)

Post Hoc Test: Comparison of Teachers' License and Opinions Toward Mandating Bachelor's for Driver Education Certification

		Pennsylvania Department of Education Should Mandate Bachelor's for Driver Education Teachers		
(I) Type of License	(J) Type of License	Mean Difference (I-J)	Std. Error	p
Both Public and Private Driver Trainer School Certified	Public School	.606*	.183	.013
	Private Driver Trainer School Certified	-2.104*	.274	<.001
	Emergency Certified	.229	.754	.993
Emergency Certified	Public School	.377	.743	.968
	Private Driver Trainer School Certified	-2.333*	.770	.028
	Both Public and Private Driver Trainer School Certified	-.229	.754	.993

Note. The mean difference is significant at the 0.05 level.

Table 68

ANOVA Test: Comparison of Years Teaching Driver Education and Opinions Toward Raising the Number of College Credits

	Pennsylvania Department of Education Should Raise College Credit to 15				
	Sum of Squares	df	Mean Square	F	p
Between Groups	29.745	3	9.915	4.185	.006
Within Groups	708.321	299	2.369		
Total	738.066	302			

Education should raise the number of college credits from 12 to 15 to certify driver education teachers. When a Post Hoc test was run, illustrated in Table 69, to investigate differences among subgroups, it was found out that there is a significant difference between respondents who had been teaching 1-10 years and those teaching 21 or more years. Respondents who had been teaching for 1-10 years "mildly disagree" (M = 3.97) and respondents teaching 21 or more years "mildly agree" (M = 3.22) the Pennsylvania Department of Education should raise the number of college credits from 12 to 15 to certify driver education teachers.

Summary

This chapter presented the analysis for the data obtained through the questionnaires mailed to the driver education teachers in the state of Pennsylvania. Chapter V will discuss the conclusions and recommendations derived from this study.

Table 69

Post Hoc Test: Comparison of Years Teaching Driver Education and Opinions Toward Raising the Number of College Credits

		Pennsylvania Department of Education Should Raise College Credit to 15		
(I) Years as a Driver Education Teacher	(J) Years as a Driver Education Teacher	Mean Difference (I-J)	Std. Error	p
Less than 1	1-10	.120	.482	.996
	11-20	.478	.495	.817
	21 or More	.875	.497	.379
1-10	Less than 1	-.120	.482	.996
	11-20	.359	.216	.434
	21 or More	.755*	.222	.010
11-20	Less than 1	-.478	.495	.817
	1-10	-.359	.216	.434
	21 or More	.396	.248	.468
21 or More	Less than 1	-.875	.497	.379
	1-10	-.755*	.222	.010
	11-20	-.396	.248	.468

Note. *The mean difference is significant at the 0.05 level.

CHAPTER V

SUMMARY, RECOMMENDATIONS, AND CONCLUSIONS

The following summary statements, conclusions, and recommendations are based on a questionnaire mailed to public and private certified driver education teachers in the state of Pennsylvania during the spring of 2009.

Summary

The purpose of this study was to examine the opinions and practices of driver education teachers in the state of Pennsylvania. Specifically, the following questions were: 1. What is the educational training of driver education teachers in the state of Pennsylvania? 2. What type of driver education practices are driver education teachers using in the state of Pennsylvania? 3. What are the driver education teachers' opinions toward college courses in driver and traffic safety? 4. What are the driver education teachers' opinions toward higher certification requirements in teaching driver education?

A review of literature was conducted which included the history of driver education, causes of novice driver crashes, and the certification process for teachers in the state of Pennsylvania. Related studies from other states were used regarding driver education teachers and programs.

One thousand one hundred fourteen questionnaires were mailed to all public and private driver education teachers who were certified to teach driver education in Pennsylvania. From this mailing, 306 questionnaires were returned. Excluding the 69 questionnaires returned to sender from the original total of 1,114, a total of 1,045 questionnaires represents the mailing sent to the driver education teachers. This

represents a return rate of 29%. A follow-up survey was not needed due to the high return rate. Analyses of the questions from the questionnaire were written and tables designed.

Major Findings of the Study

1. The majority of driver education teachers in the state of Pennsylvania are male (80%) and 19% are females.
2. Over 50% of the driver education teachers are 51 years and older in age. Eighteen percent of the driver education teachers in the state of Pennsylvania are 61 years of age and older.
3. The educational training of driver educators concluded that 45% completed a bachelor's degree and 48% had a master's degree. Only 13% of the driver educators reported that they had less than a bachelor's degree.
4. The majority of driver educators' major fields were in health and physical education (48.4%) and the social sciences/ history (17.3%).
5. The majority of driver educators hold a public school certification (67.3%) and 20.9% hold both a public and private driver school certification. Private driver school certification only represented 10% of the driver educators' survey for this study.
6. A large number of driver educators (27.5%) responded the last year they received college credit in driver education courses was before 1983. Seventeen percent of the driver educators responded the last year of college credits taken for driver education courses was from 2004-2008. A small

number of driver educators (10.5%) did not take any college credits in driver education courses.

7. The majority of driver educators (55.6%) have taken from 10-12 credits hours in driver education courses and 26% have had 13 or more credit hours.
8. Out of the 306 driver educators who responded, over one-third have been teachers for 26 or more years.
9. Out of the 306 driver educators who responded, the majority had been driver education teachers (140) for 1 to 10 years. Seventy-four of the driver educators (24.2%) had been teaching driver education for 21 or more years.
10. Driver education teachers reported (45.4%) they teach driver education three hours or more during the day.
11. Thirty percent of the driver education teachers did not teach driver education in the summer of 2008 while another 25% reported they taught driver education five days per week in the summer of 2008.
12. The majority of driver educators reported (59.8%) they are teaching driver education either before or after school.
13. Forty-four percent of driver educators are teaching driver education on weekends during the school year.
14. A majority of driver educators (60.8%) are teaching another subject besides driver education.
15. Only 13.4% of driver educators are using a multiple car range to teach novice drivers in their driver education programs.

16. Only 6.5% of driver educators are using a driver simulation system to teach novice drivers in their driver education programs.
17. Forty-eight percent of the driver educators are certified to administer the on-road examination for licensing in the state of Pennsylvania.
18. The majority of driver educators (44.1%) are using the Pennsylvania Enhanced Driver Education Curriculum to teach driver education.
19. The gender of the driver educators plays a significant role in teachers' opinions toward their driver education practices.
20. The age of driver educators plays a significant role in their opinions toward their driver education practices and higher certification standards for driver education teacher training.
21. The type of license held by driver educators plays a significant role in their opinions toward college driver education instructor preparation courses and higher certification standards for driver education teacher training.
22. The years as a teacher play a significant role in their opinions toward college driver education instructor preparation courses and higher certification standards for driver education teacher training.
23. The years as a driver education teacher play a significant role in their opinions toward college driver education instructor preparation course and higher certification standards for driver education teacher training.

Summary of Driver Education Teacher Demographics

A major concern for the discipline of driver education is the age of the driver education teachers in the state of Pennsylvania. In the next 10 years, the percentages indicate from this study that over half of the driver education teachers in the state will be of retirement age. Because driver education is not mandatory for public school curriculum in Pennsylvania a substantial reduction in the number of driver education programs could be eliminated by not replacing the driver education teacher. This concern can also be seen in the years of teaching experience, where 36.6% of the driver educators have been teaching for 26 or more years and 24.2% have been teaching driver education for 21 or more years. The percentage of driver education educators from 21-30 years of age (8.2%) also indicates that few teachers are being certified in driver education to replace those that are of retirement age.

Driver education teacher instructor programs have typically been attached to universities that offer health and physical education degrees. Due to the decline of instructor preparation programs in the state of Pennsylvania and with only two remaining universities offering driver education certification programs, Indiana University of Pennsylvania and East Stroudsburg University, driver education courses are typically found under Health and Physical Education Departments. The most common major field held by driver educators is health and physical education (48.4%) and social sciences /history (17.3%). Because driver education certification credit is only offered by universities it is reflected by the number of driver educators who have a public school license (67.3%) and those who are licensed as both public and private driver trainer school certified (20.9%).

Because driver education educators are not required by the Pennsylvania Department of Education to take updated courses for re-certification, a large portion of driver educators (27.5%) have not taken college credit driver education courses since 1983. It is also important to note that after 2003, teachers in Pennsylvania were not required to have taken 12 college credits for a driver education teaching certification. Because of state laws there are driver education teachers who have never taken (10.5%) driver education courses for college credit after 2003.

Summary of Driver Education Programs

The driver education programs in Pennsylvania are typically taught during the day ranging from one hour to three hours (80%) of instruction. Because driver education programs are not mandated to be part of the public school curriculum in Pennsylvania, it is common for driver educators to either instruct either before of after school or on weekends during the school year. Sixty-percent of driver educators are either teaching before or after school and 44.1% are teaching on weekends during the school year. These percentages show that driver education programs in the state are not an integral part of the public school curricula during regular school hours. Supporting this is the number of driver educators (60.8%) who teach another subject besides driver education. Driver educators who teach another subject may not have time to spend developing driver education topics or developing new instructional techniques for their driver education programs.

Program enhancements such as multiple car ranges and driving simulation systems are extremely expensive. With the current reimbursement of $35.00 from the Pennsylvania Department of Education for each student completing a state approved

driver education program there are insufficient funds to either buy or maintain supplemental teaching tools. There are only 13.4% driver educators using multiple car ranges and 6.5% using driving simulation systems in their driver education programs. These percentages may reflect that some driver educators are not familiar with multiple car ranges or simulation but the high cost is a major barrier. As one driver educator stated on the questionnaires, "ranges and simulator are too expensive."

A concern with driver education programs has always been selecting a driver education curriculum. The Pennsylvania Enhanced Driver Education and In-Car Curriculum were designed for driver educators to adopt and use in their programs. Even though this curriculum was not required by the Pennsylvania Department of Education for driver educators to use, it is however widely used with 44.1% of the driver educators teaching from it or various components of the curriculum. Twenty-seven percent of driver educators are using a combination of both the American and Driver Traffic Safety Association Driver Education Classroom and In-Car Instruction and the Pennsylvania Enhanced Driver Education Curriculum. A wide range of other curriculums (18.3%) are being used and several driver educators indicated they have developed their own curriculum.

Summary of Driver Education Practices

Previously it was noted that a majority of driver educators are using the Pennsylvania Enhanced Driver Education and In-Car Curriculum which is provided by the Pennsylvania Department of Education. This study gave insight into whether the curriculum provided by the state adequately covered the content needed to teach novice drivers. Regardless of gender or the type of the license the driver educators held, there

was agreement the Pennsylvania Enhanced Driver Education and In-Car Curriculum does cover the content needed to teach novice drivers. This is a positive opinion which may lead to mandating a standard driver education curriculum which all driver educators would need to follow in the state of Pennsylvania.

Even though driving simulation systems and multiple car ranges are expensive items, this study showed a positive opinion that the use of such systems in a driver education program can be a benefit to novice drivers. The younger age of driver educators, 31-40 years of age, showed there were stronger opinions than those of 61 and above that simulation and multiple car ranges were a benefit to novice drivers. These differences in opinions may reflect the amount of training or exposures to such training systems. Driver simulation systems alone have evolved over the years and more emphasis has been placed on the use and the training of these systems than the past. Because new driver educators are required to instruct novice drivers using driver simulation and multiple car ranges at Indiana University of Pennsylvania, this may cause positive attitudes toward technology than those of older driver educators who may not have had the opportunity to be properly trained in instructor preparation programs.

Mandating driver education programs in the public schools in Pennsylvania has always been a legislation issue for both driver educators and school administrators. As noted earlier, public schools in Pennsylvania are not required to offer driver education programs to students. Driver educators who were licensed as a private driver trainer school had different opinions than those licensed as a public or as both a public and private driver trainer school toward opinions mandating driver education in the public schools. Private trainer school certified mildly agreed, whereas public and both public

and private driver trainer certified strongly agreed to mandate driver education in public schools. These differences may be perceived that private driver school certified educators may suffer financial loss if the state mandates driver education in the public schools. It may also be viewed that private driver school certified educators would be required to obtain more training through legislation action in order to be contracted by a public school. Even though there appears to be differences between public and private driver school certified, both groups of driver educators share a positive opinion that students should be required to take driver education in order to graduate from high school.

Summary of College Driver Education

Instructor Preparation Courses

Standards set by the Pennsylvania Department of Education currently allow driver education credits to be offered through colleges and universities. With only two universities offering driver education college course credits in Pennsylvania, it has become increasingly difficult for teachers to obtain all 12 credits as required by the Pennsylvania Department of Education for certification in driver education. This study showed that both males and females have positive opinions toward colleges and universities being the sole provider of driver education teacher certification courses with males having the stronger opinions than females. There were also differences regarding years of teaching driver education and opinions reflected in this study toward universities being the sole provider of driver education teacher training courses. Driver educators with more years teaching drivers education had stronger opinions than those who had less

years teaching drivers education. These differences in opinions may be due to new driver educators having difficulty trying to obtain the credits for certification.

Driver educators who only held a private driver trainer school license were in disagreement that colleges and universities should be the sole provider of driver education teacher training courses in Pennsylvania. As noted before, state laws require these individuals to take 12 credits in driver education to become certified, but lack of certification programs in the state makes it difficult to become certified. As stated by one driver educator on the questionnaire, "there are too few universities offering driver education courses to become certified."

Differences in opinions are also seen in allowing teachers to teach any phase of driver education program without college credits. Private driver trainers are in agreement, whereas both public and private driver trainer school certified are in disagreement on allowing teachers to teach any phase of driver education program without college credits.

Relatively new to driver education programs in Pennsylvania is the use of on-line education. Regulated by the Pennsylvania Department of Education, driver educators have the option of applying to teach on-line theory driver education. In general, driver educators have a negative opinion toward on-line novice driver education programs being a valuable means of teaching driver education. Because on-line programs are new, driver educators may be stereotyping this type of learning platform. The lack of understanding of on-line education and what can or cannot be taught in an on-line driver education program may also be producing negative opinions toward this new style of teaching. In the past, driver education instructor preparation programs did not instruct or use this style

of learning. Only recently, have driver education instructor preparation courses been introducing this style of teaching. Even though new driver educators are being exposed to on-line driver education, those who are public or both public and private driver school certified disagree that universities and colleges in Pennsylvania should offer driver education courses on-line as an alternate way of teaching driver education preparation programs.

Summary of Higher Certification Standards for Driver Education Teacher Training

A major concern with driver education teacher training in Pennsylvania is the requirements for becoming certified. Driver educators, 51 and older, agree that the PRAXIS Exam for public school teachers and/or private driver trainer school teacher's exam should be omitted from the driver education teacher certification process. Because the PRAXIS Exam does not evaluate a teacher's ability to teach, older driver educators may view this as invalid to identify quality driver educators.

The differences in regulation that govern public school and private driver trainer school certification process are also another area of concern. In Pennsylvania, teachers who hold an existing teaching license for the public schools have the option of only taking the Safety/Driver Education PRAXIS Exam without coursework to be certified in driver education. Private driver school certification requires 12 college credits in driver education. Public school and both public and private driver trainer school certified disagree that taking the PRAXIS only in safety/driver education, without coursework, is sufficient in preparing driver education teachers, whereas private driver trainer school certified agree. These same opinions are also seen when asked if the Pennsylvania

Department of Education should mandate all future driver education teachers be required to have a bachelor's degree in education to become certified in driver education. Driver educators who are public or both private driver trainer school licensed may perceive any reduction in policies that govern driver education teacher training as lowering the standards. Lowering the standards may jeopardize teacher credibility and quality and minimize the ability for better training standards in the future. Negative opinions were also identified with private driver trainer school educators when responding to raising the college credits for certification from 12 to 15 credits, whereas public and both public and private driver trainer school licensed had positive opinions.

Recommendations

The following recommendations are based on the analyses and conclusions derived from this study:

1. An increase in the state reimbursement of $35.00 dollars to financially help support the basic funding of driver education programs, support use of driving simulation and multiple car ranges, technical support for implementation of on-line learning and to promote program training materials that would increase the knowledge base of novice drivers in the state of Pennsylvania.
2. Support from the Pennsylvania Department of Education and legislators is needed to mandate all public schools in Pennsylvania to offer driver education programs and for students to successfully complete driver education prior to graduating.

3. An increase is needed for colleges and universities to implement driver education teacher preparation programs in the state of Pennsylvania. Specifically, colleges and universities need to stress the importance of simulation, multiple car ranges, and to instruct new techniques for teaching driver education.
4. The development of in-service driver education workshops, supported by the Pennsylvania Department of Education and Pennsylvania Department of Transportation, is needed to encourage driver educators to restructure their current driver education programs with new materials and teaching strategies.
5. By eliminating the Safety/Driver Education PRAXIS Exam, but requiring all new driver educators to complete 12 credits in safety/driver education courses for certification regardless of prior teaching experience.
6. Universities and colleges in Pennsylvania need to encourage both education and non-education majors to acquire the 12 credits needed for certification in safety/driver education.
7. Driver educators need to take a more active role in state and national organizations that promote driver education. Driver educators need to also promote the importance of their driver education programs to parents, community members, legislators, and school administrators.

Recommendations for Further Research

The following recommendations for further research in the field of driver education were derived from the results of this study:

1. Other states should conduct similar studies pertaining to driver educators and their driver education programs.
2. Research should be conducted on the effectiveness of teachers that are public school certified vs. those that are private driver trainer school certified and driver educators who have not taken any course work in driver education.
3. Studies should be designed on the effectiveness of driver simulation and multiple car ranges that are used in instructor preparation as to determine whether they produce a more effective driver education teacher.
4. An in-depth study is needed on the Safety/Driver Education PRAXIS Exam effectiveness to evaluate a driver educator's ability to teach novice drivers.
5. An in-depth study is needed of on-line driver education program effectiveness vs. traditional methods of teaching driver education.

Conclusions

After conducting this study, the researcher has identified several areas in driver education that need support from both state and higher education levels.

The basic funding of driver education from the Pennsylvania Department of Education needs to be increased. In the past, driver education programs have met novice driver's needs with current materials and technology that are designed to help teach risk management skills. The loss of funding has caused driver educators to reduce and in some cases eliminate various components of their driver education programs such as

multiple-car ranges and driver simulation. The opinion of the researcher is that a loss of any component of a driver education program can greatly reduce the ability of the driver educator to teach safe driving habits to novice drivers.

The loss of driver education teacher preparation programs at the university level over the past several decades has caused the standards in Pennsylvania to be lowered to allow teachers to obtain the driver education teaching certification. Alternate methods of obtaining the driver education certification should not be allowed. The researcher holds the strong opinion that teachers need to take 12 college credits in safety/driver education to become certified which was originally established by the Pennsylvania Department of Education. Alternate methods of obtaining the driver education teaching certification will only undermine the effectiveness of a driver educator's ability to properly teach novice drivers.

The Pennsylvania Department of Education along with colleges and universities need to encourage teachers to become certified in driver education. Both entities need to establish yearly in-service driver education updates to keep driver educators current with changing trends in the discipline. The researcher does believe driver educators should be required to obtain a specific set amount of continuing education hours in driver education related topics to keep their driver education certification current.

Driver education should be mandated in the Pennsylvania public schools but needs strong legislative changes to occur in order for this to become a reality. If graduated driver licensure laws were changed in Pennsylvania to reflect that any novice driver successfully complete a driver education program to obtain a driver's license, this

would certainly give reason that driver education would become a mandatory part of the public schools regular curricula.

Regardless of age, operating a motor vehicle will always be a high risk activity with driver education being one of the ways to help combat traffic fatalities/injuries and lower the risk. Even though novice driver education programs have declined over the years in the public schools and at the university level there is still a need for properly trained competent driver educators in the state of Pennsylvania.

REFERENCES

Aaron, J. E., & Strasser, M. K. (1977). *Driver and traffic safety education* (2nd ed.). New York: Macmillan.

Albert, D. M. (1997). *Order out of chaos: Automobile safety, technology and society 1925 to 1965.* Unpublished doctoral dissertation, University of Michigan.

American Driver and Traffic Safety Education Association . (2000). *Traffic safety education life long learning process: Recommendations on the delivery of driver education*. Retrieved 5/20/2007 from http://adtsea.iup.edu/adtsea/pdf/Driver_Education_Delivery_Systems.pdf

American Driver and Traffic Safety Education Association. (1980). *Sixth national conference on safety education: Policies and guidelines for a school safety program* (Vol. 1). Washington, DC: American Driver and Traffic Safety Education Association.

Arnett, J. J. (2002). Developmental sources of crash risk in young drivers. *Injury Prevention: Reducing Young Drivers Crash Risk, 8*, ii17-ii23.

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs: Prentice Hall.

Carr, W. G. (1958). Education and the motor age [Electronic Version]. *Annals of the American Academy of Political Science and Social Science*, *320*, 63-72.

Crabb, O. (1994). *The future of driver education*. Retrieved 2/19/2007 from http://www.drivers.com/article/392/

Evans, L. (1991). *Traffic safety and the driver*. New York: Van Nostand Reinhold.

Foot, H. C., Chapman, A. J., & Wade, F. M. (Ed.). (1981). *Road safety and practice*. New York, NY: Praeger Publishers.

Hales, R. (1975). *The development and validation of competencies for traffic safety education teachers of Washington State*. Unpublished doctoral dissertation, Michigan State University.

Hansen, E. (1980). *A survey of driver education programs in the schools of Hawaii.* Unpublished doctoral dissertation, Oklahoma State University, Stillwater.

James, L. (1982). *Data on the private world of the driver in traffic: Affective, cognitive, and sensorimotor*. Retrieved 4/5/2007 from http://www.soc.hawaii.edu/leonj/leonj/leonpsy/instructor/driving1.html

Jessor, R. (1991). Risk behavior in adolescence: A psychosocial framework for understanding and action. *Journal of Adolescent Health, 12*, 597-605.

Keating, D. P. (2007). Understanding adolescent development: Implications for driving safety. *Journal of Safety Research, 38*(2), 266.

Lonero, L. P. (2005). *Reinventing driver education*. Retrieved 5/18/2007 from http://www.drivers.com/articles/859/

Loreno, P. (2001). Driver education content. *Transportation Research E-Circular: Driver Education at the Crossroads*, *39*. Retrieved 5/15/2007 from http://onlinepubs.trb.org/Onlinepubs/circulars/ec024.pdf

Matthias, H. E. (1971). *A survey of driver education in the public schools of the state of Minnesota*. Unpublished doctoral dissertation, Michigan State University

Mayhew, D. R. (2007). Driver education and graduated licensing in North America: Past, present, and future. *Journal of Safety Research, 38*(2), 229-235.

Mayhew, D. R., & Simpson, H. M. (2002). The safety value of driver education and training. *Injury Prevention: Reducing Young Drivers Crash Risk, 8*, ii3-ii8.

McKnight, J. A. (2006). Content of driver education. *Transportation Research Circular*, *18*. Retrieved November 1, 2007 from http://onlinepubs.trb.org/onlinepubs/circulars/ec101.pdf

National Education Association. (1958). *Courses in highway safety and highway traffic: A directory of college and university offerings*. Washington, DC: National Education Association.

National Education Association. (1964). *Policies and practices for driver and traffic safety education.* Washington, DC: National Commission on Safety Education.

National Highway Traffic Safety Administration. (2007). *Traffic safety facts: Young drivers*. Washington, DC: National Center for Statistics and Analysis.

Peck, R. C. (2006). Novice driver training effectiveness evaluation. *Transportation Research Circular*, *18*. Retrieved November 1, 2007 from http://onlinepubs.trb.org/onlinepubs/circulars/ec101.pdf

Pennsylvania Department of Education. (2007). *Content and performance expectations for driver education*. Retrieved 4/1/2007, 2007, from http://www.pde.state.pa.us/driver_ed/lib/driver_ed/Content_Expectations_for_Driver_Education_11-21-03_Nancy_Stekovich.pdf

Pennsylvania Department of Education. (2008). *Pennsylvania Department of Education-driver education*. Retrieved 2/4/2008, from http://www.pde.state.pa.us/driver_ed/

Preusser, D. F., & Tison, J. (2007). GDL then and now. *Journal of Safety Research, 38*, 159-163.

Raymond, P., Johns, M., Golembiewski, G., Seifert, R., Nichols, J., & Knoblauch, R. (2004). *Evaluation of Oregon's graduated driver licensing program: Center for Applied Research*.

Robinson, A. (2003). *Public forum on driver education and training*. Paper Presented at the NTSB Forum on Driver Education and Training. Washington, DC: National Transportation Safety Board.

Shope, J. T. (2006). Influences on youthful driving behavior and their potential for guiding interventions to reduce crashes. *Injury Prevention, 12*, i9-i14.

Simons-Morton, B. G. (2002). Reducing young driver crash risk. *Injury Prevention: Reducing Young Drivers Crash Risk, 8*, ii1-ii2.

Smith, M. F. (1994). *Research agenda for an improved novice driver education program*. Washington, DC: U.S. Department of Transportation National Highway Traffic Safety Administration.

Smith, M. F. (2001). Safety needs of novice drivers: Driving factors. *Transportation Research E-Circular: Driver Education at the Crossroads*, *39*. Retrieved 5/15/2007 from http://onlinepubs.trb.org/Onlinepubs/circulars/ec024.pdf

Stack, H. J. (1966). *History of driver education in the United States*. Washington, DC: National Commission on Safety Education.

Strasser, M. K., Aaron, J.E., & Bohn, R.C. (1981). *Fundamentals of safety education* (3rd ed.). New York: Macmillan Publishing.

The Allstate Foundation. (2005). *Chronic: A report on the state of teen driving 2005*. The Allstate Foundation.

Williams, A. F., & Ferguson, S. A. (2002). Rationale for graduated licensing and the risks it should address. *Injury Prevention: Reducing young drivers crash risk, 8*, ii9-ii16.

APPENDICES

Appendix A

Driver Education Teacher Survey

This questionnaire has been categorized pertaining to the research questions for this study. It is important that you answer every questions and that each question only be answered once. Be sure to read all the responses before answering the question.

Please circle the best response for each of the following questions.

1. What is your gender?
    a. Male
    b. Female

2. What is your age?
    a. 21-30
    b. 31-40
    c. 41-50
    d. 51-60
    e. 61 and above

3. What is the highest level of education you have completed as of January 2009?

    a. Less than a bachelors degree
    b. Bachelors degree
    c. Master degree
    d. Doctorate degree

4. What is your major field?

    a. Administration
    b. Agriculture
    c. Business Education
    d. Elementary Education
    e. English
    f. Foreign Language
    g. Guidance and Counseling
    h. Social Sciences/History
    i. Industrial Arts
    j. Mathematics
    k. Health or Physical Education
    l. Sciences
    m. Other
    n. I do not have a bachelor's degree

5. Which license(s) do you hold to teach driver education in the state of Pennsylvania?

    a. Public school certified
    b. Private driver trainer school certified
    c. Both public and private driver trainer school certified
    d. Emergency certified

6. When was the last year you received college credit for any driver education courses?

    a. 2004-2008
    b. 2000-2003
    c. 1996-1999
    d. 1992-1995
    e. 1988-1991
    f. 1984-1987
    g. Before 1983
    h. I have never taken any college courses in driver's education

7. How many credit hours have you earned in driver education or related traffic safety subjects?

    a. 0
    b. 1-3
    c. 4-6
    d. 7-9
    e. 10-12
    f. 13 or more

8. How many years have you been a teacher?

    a. Less than 1
    b. 1-5
    c. 6-10
    d. 11-15
    e. 16-20
    f. 21-25
    g. 26 or more

9. How many years have you been a driver education teacher?

    a. Less than 1
    b. 1-10
    c. 11-20
    d. 21 or more

10. How much time during the day do you spend teaching both the classroom and behind-the-wheel components of a driver education program?

    a. Less than 59 minutes
    b. 1 hour – 1 hour 59 minutes
    c. 2 hours – 2 hours 59 minutes
    d. 3 hours or more

11. How many days per week did you teach driver education during the summer of 2008?

    a. Did not teach driver education during the summer of 2008 (0 hours)
    b. 1
    c. 2
    d. 3
    e. 4
    f. 5
    g. 6
    h. 7

12. Are you teaching drivers education either before or after school during the current school year?

    a. yes
    b. no

13. Are you teaching drivers education on weekends during the current school year?

    a. yes
    b. no

14. Do you teach another subject besides driver education during the normal school year?

    a. yes
    b. no

15. Do you use a multiple-car driving range to teach novice drivers?

    a. yes
    b. no

16. Do you use a driving simulation system to teach novice drivers?

    a. yes
    b. no

17. Are you certified by the Pennsylvanian Department of Transportation to administer the on-road examination for licensing?

    a. yes
    b. no

18. Which driver education curriculum do you use?

    a. ADTSEA Driver Education Classroom and In-Car Curriculum Version 1.0 or 2.0
    b. Pennsylvania Enhanced Driver Education Curriculum
    c. Combination of both a and b
    d. Other (Please specify)_____

19. I feel the driver education curriculum I use adequately prepares novice drivers.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

20. The incorporation of driver simulation instruction into a driver education program can be a benefit to novice drivers.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

21. The incorporation of multiple-car driving range into a driver education program can be a benefit to novice drivers.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

22. Driver education programs should be mandated in Pennsylvania public schools.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

23. Students should have to take a driver education program in order to graduate from high school.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

24. The driver/traffic safety education courses you have taken have prepared you to teach the subject.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree
    g. I have not taken any driver education courses

25. Colleges and universities should be the sole provider of driver education teacher preparation courses in Pennsylvania.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

26. College courses should be completely omitted from the driver education certification process.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

27. The Pennsylvania Enhanced Driver Education Curriculum adequately covers the content needed to teach driver education.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

28. On-line (internet) novice driver education programs can be a valuable means of teaching driver education.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

29. Universities and colleges in Pennsylvania should offer drivers education courses on-line as an alternate way of teaching driver education teacher preparation programs.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

30. Teachers should be allowed to teach any phase (classroom, behind-the-wheel, simulation, multiple-car driving range) of a drivers education program even if they have not completed a total of twelve credits in driver and traffic safety.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

31. Colleges using a multiple-car driving range component in driver education teacher preparation program produce more effective teachers.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

32. Colleges using a driver simulation component in driver education teacher preparation program produce more effective driving teachers.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

33. Taking the PRAXIS exam only in Safety/Driver Education, without course work, is sufficient in preparing driver education teachers.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

34. The Pennsylvania Department of Education should offer more workshops in driver education and traffic safety issues.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

35. Driver education teachers should be required to take a course on traffic safety issues every two years to stay certified in driver education.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

36. The Pennsylvania Department of Education should raise the number of college credits from 12 to 15 to certify driver education teachers.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

37. The Pennsylvania Department of Education should mandate all future driver education teachers be required to have a bachelor's degree in education to become certified in driver education.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

38. The PRAXIS exam for public school teachers and/or the private driver trainer school teacher exam should be omitted from the driver education teacher certification process.

    a. Strongly agree
    b. Agree
    c. Mildly agree
    d. Mildly disagree
    e. Disagree
    f. Strongly disagree

Appendix B

Invitation to Participate in Study

Working title: "A Survey of Driver Education Teachers: Opinions and Practices of Driver Education Training Programs in Pennsylvania"

You are invited to participate in this research study. The following information is provided in order to help you to make an informed decision whether or not to participate. If you have any questions please do not hesitate to ask.

The purpose of this study is to survey driver education teachers' attitudes toward driver education programs in the state of Pennsylvania. Participation in this study will require twenty minutes of your time to respond to a survey. The survey will ask your educational training, practices of your driver education program, opinions toward college driver education courses and opinions toward higher certification standards in driver education. Because this is a pilot study, feel free to make corrections, recommendations, or eliminate questions. There are no known risks or discomforts associated with this research.

You may find the learning experience enjoyable and the information may be helpful in improving the quality of driver education programs for novice drivers and driver education teacher preparation programs. The information gained from this study may help us to better understand the effectiveness of driver education training in the state of Pennsylvania.

Your participation in this study is voluntary. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigators or IUP. If you choose to participate, you may withdraw at any time by notifying the Project Director, or me. Upon your request to withdraw, all information pertaining to you will be destroyed. If you choose to participate, all information will be held in strict confidence. The information obtained in the study may be published in scientific journals or presented at scientific meetings but your identity will be kept strictly confidential.

If you are willing to participate in this study, please fill out the survey and return to the researcher's address below.

Researcher: Louis J. Pesci, Ed.D. Candidate, Indiana University of Pennsylvania, Administration and Leadership Studies in the Department of Professional Studies in Education
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Indiana, PA 15705

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724/357-7730).

Appendix C

Informed Consent Form

Working title: "A Survey of Driver Education Teachers': Opinions and Practices of Driver Education Training Programs in Pennsylvania"

Dear Fellow Driver Educator,

You are invited to participate in this research study because you are a teacher of driver education. You may find the learning experience enjoyable and the information may be helpful in improving the quality of driver education programs for novice drivers and driver education teacher preparation programs. The information gained from this study may help us to better understand the effectiveness of driver education training in the state of Pennsylvania. The following information is provided in order to help you to make an informed decision whether or not to participate. If you have any questions please do not hesitate to ask.

The purpose of this study is to survey driver education teachers' opinions towards driver education programs in the state of Pennsylvania. Participation in this study will require twenty minutes of your time to respond to a survey. The survey will ask your educational training, practices of your driver education program, opinions toward college driver education courses and opinions toward higher certification standards in driver education. There are no known risks or discomforts associated with this research.

Your participation in this study is voluntary. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigators or IUP. If you choose to participate, you may withdraw at any time by notifying the Project Director, or me. Upon your request to withdraw, all information pertaining to you will be destroyed. If you choose to participate, all information will be held in strict confidence. The information obtained in the study may be published in scientific journals or presented at scientific meetings but your identity will be kept strictly confidential.

If you are willing to participate in this study, please fill out the survey and return to the researchers address below.

Researcher: Louis J. Pesci, Ed.D. Candidate, Indiana University of Pennsylvania, Administration and Leadership Studies in the Department of Professional Studies in Education
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This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724/357-7730).