DEPARTMENT OF HIGHWAY SAFETY AND MOTOR VEHICLES

DIVISION OF MOTORIST SERVICES

STUDY OF THE EFFECTIVENESS OF BASIC DRIVER IMPROVEMENT COURSES

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EXECUTIVE SUMMARY

The Department of Highway Safety and Motor Vehicles (DHSMV) at the request of the Florida Legislature initiated an effectiveness study of the Basic Driver Improvement (BDI) courses offered in Florida. The first three reports in this series of reports were provided to the Legislature in October 1997, 2002 and 2007. After a law change in 2013, additional reports will be provided on a five-year basis in accordance with Chapter 15A-8, Florida Administrative Code and section 318.1451(6)(a), Florida Statutes.. This executive summary contains the results for the next report in this series, October 2014.

To be included in this study, the BDI course must have as close to 2,500 graduates as possible who have at least two years of post-education driving experience. This study includes twenty six BDI courses currently used in Florida. Course providers are required to update all of their course graduates into the Department's Driver Improvement Certificate Issuance System (DICIS) these updates provide a list of all graduates of their programs. From this graduate population, a random sample of at close to 1,000 students as possible who had completed their curricula was chosen. A stratified random sample of all licensed drivers in Florida was selected as a control group to compare to the graduates. The control group was selected so as to be as similar as possible to the graduates in age, gender, geographic location, traffic citations, and traffic crashes (a matched constructed control). The success of the BDI course was measured by the improvement in the driving performance of the course graduates relative to the control group.

The performance of the two groups was measured by comparing the groups on traffic violations and crashes in the eighteen months before and after the date of graduation. The study looked for significant differences between the groups. To "pass" the effectiveness study, the treatment group within a specific course had to show statistically significant improvement (α=0.10) over the improvement shown by the control group for either of the variables. The significance level is the probability that the obtained difference in the dependent variables (violations and crashes) experienced by the two groups is real (i.e. caused by the independent variable, course attendance), rather than random variance in the two samples. The course was deemed successful if the graduates were significantly worse than the control group before taking the course and were either the same as or significantly better than the control group after taking the course, or if the graduates were the same as the control group before the course and significantly better afterward. When evaluating specific courses, the graduates had to show improvement in either traffic citations or crashes.

Each of the twenty six curricula was evaluated separately. In addition, an overall evaluation was conducted on a sample of students from the twenty six courses. The twenty six courses studied were:

1. American Safety Council, Basic Driver Improvement Live Course.
2. American Safety Council, Basic Driver Improvement Internet Course.
3. American Safety Council, Basic Driver Improvement Video Course.

4. American Safety Institute, Safe Driving Accident Prevention Live Course.
5. American Safety Institute, Safe Driving Accident Prevention Internet Course.
6. American Safety Institute, Safe Driving Accident Prevention Video Course.
7. Comedy Traffic Driving School, In Person Course.
8. Driver Safety Education, In Person Course.
9. Driver Training Associates, DTA Program for Driver Improvement Live.
10. Driver Training Associates, DTA Program for Driver Improvement Internet.
11. Florida Safety Council, Driver and Traffic Safety Matrix Course.
12. Interactive Educational Concepts, Internet Course.
13. I Drive Safely, Basic Driver Improvement Live Course.
14. I Drive Safely, Basic Driver Improvement Internet Course.
15. Lowest Price Traffic School, LPTS Internet Course.
16. National Online Traffic School, NOTS Live Course.
17. National Online Traffic School, NOTS Internet Course.
18. National Safety Council, Defensive Driving Course – 4 Internet.
19. National Traffic Safety Institute, Traffic Offenders Live Course.
20. National Traffic Safety Institute, Traffic Offenders Internet Course.
21. Traffic Safety Consultants, Basic Driver Improvement Live Course.
22. Traffic Safety Consultants, Basic Driver Improvement Internet Course.
23. Traffic Safety Consultants, Basic Driver Improvement Video Course.
24. USA Training Company, USA's Driver Safety Live Course.
25. USA Training Company, USA's Driver Safety Internet Course.
26. Wise Basic Driver Improvement, Basic Driver Improvement Internet Course.

The twenty six courses studied have met the criteria for effectiveness. Each course has shown improvement in its graduates relative to a control group for either citations or crashes, or both. A full report of the technical aspect of the course is available upon request.

INTRODUCTION

In 1991, the Department of Highway Safety and Motor Vehicles (DHSMV) was given the authority to regulate driver improvement schools (section 318.1451, Florida Statutes). The department developed an administrative rule to allow for the evaluation of the schools as part of that regulation. At that time, five courses were approved by being

grandfathered into the system and an additional two were approved through a structured approval process. Effective July 1, 1995, the driver improvement industry was deregulated. With deregulation, the only responsibilities left to the department are course approval and evaluating courses for effectiveness. Effective July 1, 2000, distance learning became an option for basic driver improvement in Florida. Effective July 1, 2013, the Department regained some of its regulatory authority for this industry; however, the impact of this new law is beyond the scope of this study.

DHSMV was asked by the Legislature to design, develop, and implement effectiveness studies of the driver improvement courses offered in Florida under section 318.1451, Florida Statutes. The purpose of these studies was to determine if attending a course reduced crash and/or violation recidivism at a statistically significant level. The studies described below are related to the basic driver improvement (BDI) courses which are used to satisfy the requirements listed in sections 318.14(9) and 322.0261, Florida Statutes.

This effectiveness study report contains results for twenty six BDI courses, the five original grandfathered courses and the twenty one that have been subsequently approved.

LITERATURE REVIEW

A host of studies have been conducted over the last couple of decades studying the effectiveness of driver improvement courses on the reduction of collision and violation recidivism. Zeller and Grosz (1997, 2002, 2007) generally found that graduates of basic driver improvement courses performed better than an aggregately similar control group in the eighteen months after course completion. Reischl (1992) points out that, as a whole, students who attend traffic school have higher collision and violation rates than the average driver population and, because of this, the driver improvement courses are an appropriate intervention to address this issue. Lund and Williams (1985) reviewed studies of driver improvement courses and determined that violation rates were improved after attending a driver improvement course. Collision rates were generally unaffected. Struckman-Johnson (1989) reported similar conclusions.

METHODOLOGY

To study the effectiveness of the BDI courses, the Department had to choose a design for the study. In a true experimental design, the researcher randomly assigns members of the study to either the control or treatment groups. This approach creates problems of liability and is beyond the statutory authority of the Department. Therefore, the design for this study is a quasi-experimental design. A quasi-experimental design refers to analyses where the control and treatment groups are not equivalent on characteristics other than the treatment conditions because random assignment was not used. The control and treatment groups are aggregately the same.

Each of the twenty six curricula was evaluated separately. In addition, an overall evaluation was conducted on a sample of students from the twenty six courses. The twenty six courses studied were:

1. American Safety Council, Basic Driver Improvement Live Course.
2. American Safety Council, Basic Driver Improvement Internet Course.
3. American Safety Council, Basic Driver Improvement Video Course.
4. American Safety Institute, Safe Driving Accident Prevention Live Course.
5. American Safety Institute, Safe Driving Accident Prevention Internet Course.
6. American Safety Institute, Safe Driving Accident Prevention Video Course.
7. Comedy Traffic Driving School, In Person Course.
8. Driver Safety Education, In Person Course.
9. Driver Training Associates, DTA Program for Driver Improvement Live.
10. Driver Training Associates, DTA Program for Driver Improvement Internet.
11. Florida Safety Council, Driver and Traffic Safety Matrix Course.
12. Interactive Educational Concepts, Internet Course.
13. I Drive Safely, Basic Driver Improvement Live Course.
14. I Drive Safely, Basic Driver Improvement Internet Course.
15. Lowest Price Traffic School, LPTS Internet Course.
16. National Online Traffic School, NOTS Live Course.
17. National Online Traffic School, NOTS Internet Course.
18. National Safety Council, Defensive Driving Course – 4 Internet.
19. National Traffic Safety Institute, Traffic Offenders Live Course.
20. National Traffic Safety Institute, Traffic Offenders Internet Course.
21. Traffic Safety Consultants, Basic Driver Improvement Live Course.
22. Traffic Safety Consultants, Basic Driver Improvement Internet Course.
23. Traffic Safety Consultants, Basic Driver Improvement Video Course.
24. USA Training Company, USA's Driver Safety Live Course.
25. USA Training Company, USA's Driver Safety Internet Course.
26. Wise Basic Driver Improvement, Basic Driver Improvement Internet Course.

The selected quasi-experimental design is a matched constructed control. This design studied the collision and violation recidivism rates of a treatment group consisting of a as

close to a 1,000 students as possible randomly chosen from all graduates of each BDI course during a one year period, selected by the department from graduates reported by the course provider in the Department's DICIS. The driving records of the selected students were used to obtain the number of moving violations and crashes for each student for eighteen months prior to course completion date and for eighteen months after the course completion date.

The matched constructed control sample of Florida licensed drivers was selected to create a control group. The control sample was selected so as to match the sample of graduates (treatment group) as closely as possible. The selected control groups were:

- Equal in number to the treatment group,
- Matched by gender,
- Matched by age (plus or minus three years),
- Matched by five-digit ZIP code (three-digit ZIP code if a match could not be obtained at the five-digit level),
- Matched number of moving violations or traffic crashes (plus or minus two) during the same eighteen-month period before graduation (based on a dummy course completion date corresponding to the matched member of the treatment group), and no previous BDI attendance.

Driving records were used to obtain the same variables for the control group as were obtained for the treatment group.

A Chi Squared analysis was used to compare the treatment and control groups on the number of violations and crashes before and after course attendance. The level of significance for the test was set at the α=0.10 level. This level of significance means that the null hypothesis is rejected when it is true less than 10% of the time. Additionally, the significance level relates to the probability that the obtained difference in the dependent variables (violations and collisions) experienced by the two groups is real (caused by the independent variable, class attendance), rather than resulting from the selection of the sample.

The course completion data are received from the course providers on a daily basis. Each course provider reports their course graduates to the department through the department developed web based Driver Improvement Certificate Issuance System (DICIS). Among other datum, the DICIS collects the driver license number and completion date of the course graduate. From this population for any given year the random sample for the study is selected by the department. The driver license data were obtained from the driving records of all Florida-licensed drivers.

Some students had to be eliminated from the treatment group. The reasons for student data to be excluded from the effectiveness study were as follows:

- the student died during the study period,
- the student did not have a Florida driver license,

- the listed driver license was not found on the department's driver license database,
- the driver license number was a duplicate and it could not be determined which driver history corresponded to the student,
- the student received an original Florida license during the study period and, therefore, complete prior history was not available,
- the student's driver license expired before the end of the study period, or
- there was no conviction for a violation within the six months prior to the graduation date.

This last condition was included to assure that the event (the violation) and the intervention (the particular course) happened within a reasonable time period so that any improvement in driver performance could be reasonably linked to the intervention.

The studies were conducted using a random sample of the overall course graduates from any given course. This was done to take a broad sample of the graduate population from any given course provider. Finally, the sample sizes were made as large as possible. This is done for two reasons: it increases the power of the study and collisions are not a very common event. Getting a large enough sample size of collisions to study requires as large a population as possible.

This selection process was used to eliminate, as much as possible, the effect of uncontrolled, outside influences on the results of the study. If a course showed initial ineffectiveness, a second study was conducted. This second test was to establish that the course in question is not effective, as opposed to the school administering the course ineffectively. Additionally, this would draw out the correlation between effective presentation by the school and an effective result in the study. To ensure the highest potential of an effective study result in the future, course providers must ensure that their course is presented in the most effective manner.

If a second study were necessary, another sample of course graduates for the course provider in question would be selected for testing. The study was repeated using the same methodology. A successful second test would be accepted provided that the previous school or schools that were found to be ineffective were eliminated. A second failure to show a statistically significant outcome would result in the course no longer being allowed to be conducted in Florida. For this set of studies, none of the courses failed on the first attempt.

RESULTS AND DISCUSSION

The study methodology is constrained by the available data. The driver license database is not designed to support long-term studies. Statutory retention limits require certain data to be purged from the department's driver license database. This affects research, since the farther back in time you go, the less data are available (collision and violation types of data are purged at two, three, five, six, and seven years and are completely gone at ten years).

The primary goal of this research is to determine the effectiveness of basic driver improvement courses throughout the state of Florida, and throughout the entire population of licensed drivers. Studies of this type generally take small samples of drivers from a limited location for a fixed duration and then extrapolate the results to the rest of the population. This study takes samples of as closed to 1,000 randomly selected drivers as possible in both the control and treatment groups from throughout the state and throughout the driver population. The driving records for the samples cover a three-year period (eighteen months before intervention and eighteen months after intervention). This was done to ensure that the control and treatment samples (total sample size of 47,130) not only come from the driver population, but are representative of that population. The age distribution of the drivers in the samples was compared to the overall driving population and found to be the same. Some variation is to be expected because of the random element in the selection of the samples.

The hypothesis is that because of attending the course, driver performance, as measured by violation and collision recidivism of the treatment group, will improve relative to the control group. The null hypothesis is that the courses are of no value and that our goal is to see if it is statistically feasible to reject the null hypothesis.

The driver population can be divided into two separate groups, drivers who have never had citations or crashes, and drivers who receive qualifying violations. The group of drivers who receive qualifying violations breaks down further into drivers who qualify to attend driver improvement schools but do not, drivers who qualify to attend driver improvement schools and choose to, and drivers who are ordered by a court to attend driver improvement schools. Drivers who have never offended were not considered in this study, since they would skew the data by introducing a large number of drivers for whom the intervention is not appropriate. The before-intervention time period was studied to determine that, in aggregate terms, the populations were the same. In the after-intervention time period the control and treatment groups (taken from the offender population) were studied to see what improvement, if any, took place. For the purposes of this study, the offender population is the same in the measurable outcomes of crash and violation recidivism. This is important because the control and treatment groups are taken from an equivalent population.

Self-selection bias (Vogt 1998, page 260) is a problem that may arise in the comparison of groups when the groups are formed by individuals who choose to join them instead of being formed by a researcher assigning control and treatment groups. Students who choose to go to driver improvement school might be different from those who do not attend in important ways (e.g., goals, income, motivation, aptitude, education). While it is true that all people are different from each other and that we may have different goals, income, motivation or aptitude, education, etc., a significant difference in outcome measures was not detected when the offender population was examined. Therefore, in aggregate terms, the control and treatment groups are the same before intervention. After intervention, the treatment groups performed at a statistically significant rate better than the control groups.

The test for individual courses determines if the course was effective or not when compared at a set level of significance (α=0.10). It is a yes or no test. Is the course effective or not? No attempt was made to determine by how much they passed, just that they passed or failed. Since each control and treatment group are relevant only to the particular course tested, there does not exist a way to fairly or adequately compare the courses to each other. Additionally, there was no requirement to test the courses against each other. They were required to stand or fall based on their own merit. The results of the studies will be shown below.

To be considered effective, a course has to show improvement by its students on either the number of traffic violations or the number of collisions. Improvement is demonstrated by comparing the course graduates to the control group. A course passes if the graduates were significantly worse than the control group before the course and either the same as or significantly better than the control group after the course. The course also passes if the graduates are the same as the control group before the course and significantly better than the control group after the course. The higher of the two results is shown, in these samples, violations showed the most overall improvement; the results of the study for each course are as follows:

Course	**Outcome***	**α****
1. American Safety Council Live	PASS V	.001
2. American Safety Council Internet	PASS V	.001
3. American Safety Council Video	PASS V	.005
4. American Safety Institute Live	PASS V	.001
5. American Safety Institute Internet	PASS V	.001
6. American Safety Institute Video	PASS V	.001
7. Comedy Traffic Driving School	PASS V	.05
8. Driver Safety Education Live	PASS V	.001
9. Driver Training Associates Live	PASS V	.001
10. Driver Training Associates Internet	PASS V	.001
11. Florida Safety Council Live	PASS V	.001
12. Interactive Education Concepts Internet	PASS V	.001
13. I Drive Safely Live	PASS V	.01
14. I Drive Safely Internet	PASS V	.001
15. Lowest Price Traffic School Internet	PASS V	.001
16. National Online Traffic School Live	PASS V	.001

17. National Online Traffic School Internet	PASS	V	.001
18. National Safety Council Internet	PASS	V	.001
19. National Traffic Safety Institute Live	PASS	V	.01
20. National Traffic Safety Institute Internet	PASS	V	.001
21. Traffic Safety Consultants Live	PASS	V	.002
22. Traffic Safety Consultants Internet	PASS	V	.001
23. Traffic Safety Consultants Video	PASS	V	.001
24. USA Training Company Live	PASS	V	.001
25. USA Training Company Video	PASS	V	.001
26. Wise Basic Driver Improvement Live	PASS	V	.001

* The requirement to "pass" the study was to show a statistically significant difference in either crash or violation recidivism. C = Crash and V = Violations

**This is the calculated probability of the largest difference for the two dependent variables reviewed for each course reviewed. It represents the probability that the observed difference is due to random variation.

A word of caution about these results is necessary. This is a quasi-experimental design. There may be undeterminable outside influences that contribute to the observed differences in favor of the treatment group other than the course. This is the weakness of the quasi-experimental design. We have achieved the observed results; these results come from the course plus the outside influences. We do not know, nor can it be determined, if we have 99% effect of the course and 1% from the outside influences or the opposite or anywhere in between. However, there are some indicators that favor the course as the primary cause. We have looked at a large population (N = 47,130) over twenty six courses and seen consistent results.

DISTANCE LEARNING

Effective July 1, 2000, Distance Learning became an option in basic driver improvement courses in Florida. Distance Learning is defined as any type of course delivery that is different from the traditional classroom delivery. Distance Learning has been successfully used in many different educational settings from grade school to graduate level. Distance Learning in the idiom of driver improvement started in the mid 90's in California. In California, the individual courts approve the courses that are available in their jurisdictions. The State of California is not involved in this process and more importantly, has not tested any of these courses for effectiveness and has no plans to do so.

Currently in Florida, distance learning courses are approved and tested by the department. To be considered for distance learning, the course provider in question must have an approved in-person course in Florida and have an effectiveness study that has been conducted on that course.

In addition to course content, our criteria require the course provider to develop a student validation process that monitors the student's participation in the course. At registration, the student is asked a series of personal validation questions that are asked of them at random intervals during the course. They must reply correctly in a limited time period or be locked out of the course. To get back into the course, the student would have to call the provider. Additionally, the student verifies that they are the person who is taking the course without help from anyone else. They click on the verification statement to accept the statement prior to entry to the course.

The student is required to pass a 40-question test based on course content at an 80% level (32 correct) to pass the course and be issued a course completion certificate. The 40 questions test is randomly generated from a bank of at least 500 approved questions. This random test generation requires the student to pay attention to the course because their test would be different from any other person taking the course at the same time at the same location. The test is the department's proof that the student completed the course and paid attention to the course material. The current in-person courses do not require a test to pass the course.

Currently, in Florida we have distance learning courses that are delivered on the Internet and by video. Each distance learning course passed the effectiveness study criterion on either crash or violation recidivism as noted above.

CONCLUSION

The studies conducted for this report examined outcome measures for twenty six approved basic driver improvement curricula currently approved for use in Florida. The outcome measures were the improvement in the number of traffic violations and crashes by course graduates. The performance of graduates was compared to that of a control group that did not attend any of the courses. Each of the twenty six curricula demonstrated improvement by its graduates relative to the control group in either violations or crashes.

From 1996 to 2013 approximately 9.4 million people have attend a driver improvement course in Florida. As the education continues over the following years, we may eventually run out of Florida drivers who have not attended a course for use as control subjects. Additionally, in the last five years since the economic upheaval of 2008, the number of driver attending driver improvement courses has decreased 28.5%. This decrease if it continues may impact the Department's ability to complete future effectiveness studies. In tough economic times attending a driver improvement courses

could become a discretionary purchase. This could give us less graduates to study in the future.

The study is limited by the relatively short time period involved. Driver records were examined for only eighteen months after course completion. This short time period was dictated by the availability of data on course graduates. The fact that the graduates showed improvement over eighteen months does not necessarily mean that the improvement is permanent. Another concern is sustainability; the ability of the basic driver improvement courses delivered either in person or by distance learning would continue to give quality education. Failure to maintain the approved courses for currency may lead to eventual loss of effectiveness.

Within the limits of the data, this study has shown that attendance at a basic driver improvement course does lead to improved driving performance. Course graduates demonstrated improvement in two basic measures of safe driving, traffic violations and crashes.

GLOSSARY

Alpha (α) = Alpha is the investigator's acceptable risk. This is the probability of making a Type 1 error (Type 1 error is when you are rejecting a true hypothesis). There is always some risk of a Type 1 error and because of this, alpha cannot be zero. Alpha is the criteria for claiming statistical significance.

Control Group = A group that does not receive the treatment you are interested in studying.

Dependent Variable = Outcome behavior.

Independent Variable = Presumed cause of the outcome behavior.

Treatment Group = A group receiving the treatment you are interested in studying which is compared with data from the control group.

Statistical Significance = If the results of the conducted statistical test are significant, this says that the difference between the control and treatment groups are greater than what could be attributed to luck alone.

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