DEPARTMENT OF HIGHWAY SAFETY AND MOTOR VEHICLES

DIVISION OF MOTORIST SERVICES

STUDY OF THE EFFECTIVENESS OF BASIC DRIVER IMPROVEMENT COURSES

NOVEMBER 2019

Milton J. Grosz III, MS, Operations and Management Consultant II
Driver Education, Process Improvement and Accountability Section
Bureau of Motorist Compliance

EXECUTIVE SUMMARY

By statutory requirement in s. 318.1451(6)(a), F.S., Florida Highway Safety and Motor Vehicles (FLHSMV) initiated an effectiveness study of the Basic Driver Improvement (BDI) courses offered in Florida. The first four reports in this series of reports were provided to the Legislature in October 1997, 2002, 2007 and 2014. 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, November 2019.

The BDI course must have as close to 2,500 graduates as possible who have at least two years of post-education driving experience to be included in this study. This study includes twenty-seven BDI courses currently used in Florida. Course providers are required to report all course graduates to the Department. The graduates are uploaded into the Department's Driver Improvement Certificate Issuance System (DICIS), which provides an updated list of all graduates from the programs. From this graduate population, a random sample of approximately 1,000 students was chosen. A stratified random sample, of all licensed drivers, in Florida, who have never completed a BDI course was selected as a control group to compare to the graduates. The control group was selected 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 violations or crashes.

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

1. 1 Safe Driver, Basic Driver Improvement Live Course.
2. American Safety Council, Basic Driver Improvement Live Course.
3. American Safety Council, Basic Driver Improvement Internet Course.
4. American Safety Institute, Safe Driving Accident Prevention Live Course.
5. American Safety Institute, Safe Driving Accident Prevention Internet Course.
6. Comedy Driving Traffic School, Basic Driver Improvement Internet Course.
7. Comedy Traffic School, Basic Driver Improvement Live Course.
8. Comedy Traffic School, Basic Driver Improvement Internet Course.
9. Distance Learning Company, Basic Driver Improvement Internet Course.
10. Drive Safe, Basic Driver Improvement Internet Course.
11. Driver Safety Education, Basic Driver Improvement Internet Course.
12. Driver Training Associates, DTA Program for Driver Improvement Live Course.
13. Driver Training Associates, DTA Program for Driver Improvement Internet Course.
14. Drive Safe Today, Basic Driver Improvement Internet Course.
15. Florida Safety Council, Driver and Traffic Safety Matrix Live Course.
16. Florida Safety Council, Driver and Traffic Safety Matrix Internet Course.
17. I Drive Safely, Basic Driver Improvement Live Course.
18. I Drive Safely, Basic Driver Improvement Internet Course.
19. Lowest Price Traffic School, LPTS Basic Driver Improvement Internet Course.
20. Metro, Basic Driver Improvement Live Course.
21. National Online Traffic School, Basic Driver Improvement Internet Course.
22. National Safety Council, Basic Driver Improvement Internet Course.
23. National Traffic Safety Institute, Basic Driver Improvement Live Course.
24. National Traffic Safety Institute, Basic Driver Improvement Internet Course.
25. Safe 2 Drive, Basic Driver Improvement Live Course.
26. USA Training Company, Basic Driver Improvement Internet Course.
27. Wise Traffic School, Basic Driver Improvement Internet Course.

The twenty-seven courses studied have met the criteria for effectiveness. Each course has shown improvement in its graduates relative to a control group for either violations, crashes, or both.

INTRODUCTION

In 1991, Florida Highway Safety and Motor Vehicles (FLHSMV) 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, 2000, distance learning became an option for basic driver improvement in Florida.

FLHSMV 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 is to determine if attending a course reduced violation and/or crash 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-seven BDI courses.

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 violation and crash recidivism. Zeller and Grosz (1997, 2002, 2007, 2014) generally found that graduates of BDI courses performed better than an aggregately similar control group in the eighteen months after course completion. Reischl (1992) points out that 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. Crash 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-seven curricula was evaluated separately. In addition, an overall evaluation was conducted on a sample of students from the twenty-seven courses. The twenty-seven courses studied were:

1. 1 Safe Driver, Basic Driver Improvement Live Course.
2. American Safety Council, Basic Driver Improvement Live Course.
3. American Safety Council, Basic Driver Improvement Internet Course.
4. American Safety Institute, Safe Driving Accident Prevention Live Course.
5. American Safety Institute, Safe Driving Accident Prevention Internet Course.
6. Comedy Driving Traffic School, Basic Driver Improvement Internet Course.
7. Comedy Traffic School, Basic Driver Improvement Live Course.

8. Comedy Traffic School, Basic Driver Improvement Internet Course.
9. Distance Learning Company, Basic Driver Improvement Internet Course.
10. Drive Safe, Basic Driver Improvement Internet Course.
11. Driver Safety Education, Basic Driver Improvement Internet Course.
12. Driver Training Associates, DTA Program for Driver Improvement Live Course.
13. Driver Training Associates, DTA Program for Driver Improvement Internet Course.
14. Drive Safe Today, Basic Driver Improvement Internet Course.
15. Florida Safety Council, Driver and Traffic Safety Matrix Live Course.
16. Florida Safety Council, Driver and Traffic Safety Matrix Internet Course.
17. I Drive Safely, Basic Driver Improvement Live Course.
18. I Drive Safely, Basic Driver Improvement Internet Course.
19. Lowest Price Traffic School, LPTS Basic Driver Improvement Internet Course.
20. Metro, Basic Driver Improvement Live Course.
21. National Online Traffic School, Basic Driver Improvement Internet Course.
22. National Safety Council, Basic Driver Improvement Internet Course.
23. National Traffic Safety Institute, Basic Driver Improvement Live Course.
24. National Traffic Safety Institute, Basic Driver Improvement Internet Course.
25. Safe 2 Drive, Basic Driver Improvement Live Course.
26. USA Training Company, Basic Driver Improvement Internet Course.
27. Wise Traffic School, Basic Driver Improvement Internet Course.

The selected quasi-experimental design is a matched constructed control. This design studied the violation and crash recidivism rates of a treatment group consisting of approximately 1,000 students randomly chosen from graduates of each BDI course during a one-year period. 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 group consists of those Florida drivers who have never completed a driver improvement course by the time they were selected to be in the control group. The control sample was selected 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 crashes) 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 daily. 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 on 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 in 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 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 course. This was done to take a broad sample of the graduate population from any course provider. Finally, the sample sizes were made as large as possible. This is done to increase the validity of the study and crashes are not a common event.

This selection process was used to eliminate 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 was 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 (crashes 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 BDI 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 approximately 1,000 randomly selected drivers 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 225,220) come from the driver population and 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 crash 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 the 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 violations 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. 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). No attempt was made to determine by how much they passed, just that they passed or failed.

To be considered effective, a course must show improvement by its students on either the number of traffic violations or the number of crashes. 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. 1 Safe Driver Live	PASS V	.001
2. American Safety Council Live	PASS V	.001
3. American Safety Council Internet	PASS V	.001
4. American Safety Institute Live	PASS V	.001
5. American Safety Institute Internet	PASS V	.001
6. Comedy Driving Traffic School Internet	PASS V	.001
7. Comedy Traffic School Live	PASS V	.001
8. Comedy Traffic School Internet	PASS V	.001
9. Distance Learning Company Internet	PASS V	.001

10. Drive Safe Internet	PASS V	.001
11. Driver Safety Education Internet	PASS V	.001
12. Driver Training Associates Live	PASS V	.001
13. Driver Training Associates Internet	PASS V	.001
14. Drive Safe Today Internet	PASS V	.001
15. Florida Safety Council Live	PASS V	.001
16. Florida Safety Council Internet	PASS V	.001
17. I Drive Safely Live	PASS V	.001
18. I Drive Safely Internet	PASS V	.001
19. Lowest Price Traffic School Internet	PASS V	.001
20. Metro, Live	PASS V	.001
21. National Online Traffic School Internet	PASS V	.001
22. National Safety Council Internet	PASS V	.001
23. National Traffic Safety Institute Live	PASS V	.001
24. National Traffic Safety Institute Internet	PASS V	.001
25. Safe 2 Drive Live	PASS V	.001
26. USA Training Company, Internet	PASS V	.001
27. Wise Traffic School Internet	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.

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 = 225,220) over twenty-seven courses and seen consistent results.

DISTANCE LEARNING

Effective July 1, 2000, Distance Learning became an option in BDI 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.

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 and identify themselves sufficiently to be re-admitted to the course. 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-seven approved BDI 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-seven curricula demonstrated improvement by its graduates relative to the control group in either violations or crashes.

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 BDI courses delivered either in person or by distance learning would continue to give quality education.

Within the limits of the data, this study has shown that attendance at a BDI 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.

REFERENCES

1. Gebers, Michael. *"A Traffic Safety Evaluation of California's Traffic Violator School Citation Dismissal Policy."* Sacramento, California: California Department of Motor Vehicles, 2007.
2. Lund, Adrian K. and Allan F. Williams. "A Review of the Literature Evaluating the Defensive Driving Course." *Accident Analysis and Prevention*, vol. 17, no. 6 (1985) pp. 449-460
3. National Highway Traffic Safety Administration. *Review of Literature Evaluating the Effect of Countermeasures to Reduce Alcohol Impaired Driving (1980-1989)*, Volume 1. Washington, D.C.: U.S. Department of Transportation, 1991.
4. Reischl, Broderick E. *Traffic Accident Recidivism among Graduates of Cook County's Traffic Safety School.* Chicago: Northwestern University Traffic Institute, 1992.
5. Struckman-Johnson, David C. "Comprehensive Effects of Driver Improvement Programs on Crashes and Violations." *Accident Analysis and Prevention*, vol. 21, no. 3 (1989), pp. 203-215.
6. Vogt, Paul. *Dictionary of Statistics and Methodology: A Non-technical Guide for the Social Sciences, Second Edition*. Thousand Oaks, California: Sage Publications, Inc., 1998.

7. Zeller, Richard and Grosz, Milton *"Study of the Effectiveness of Basic Driver Improvement Courses, Report to the Florida Legislature."* Tallahassee, Florida: Department of Highway Safety and Motor Vehicles, 1997.

8. Zeller, Richard and Grosz, Milton *"Study of the Effectiveness of Basic Driver Improvement Courses, Report to the Florida Legislature."* Tallahassee, Florida: Department of Highway Safety and Motor Vehicles, 2002.

9. Grosz, Milton *"Study of the Effectiveness of Basic Driver Improvement Courses, Report to the Florida Legislature."* Tallahassee, Florida: Department of Highway Safety and Motor Vehicles, 2007