School of Government
The University of North Carolina at Chapel Hill

Final report

Evaluation of Driver Education Teaching Mode in North Carolina

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Executive Summary

In the spring of 2012 the School of Government was approached by the North Carolina Department of Public Instruction (DPI) about conducting an evaluation of the different teachings modes used for driver education in North Carolina. The School was also asked to include in the comparison, to the extent possible, a fully interactive on-line option.   Finally, we were asked to assess the use and perceived impact of the optional student fee for driver education.

We were unable to find other, similar evaluations specifically focused on driver education.   In addition, a brief examination of the literature shows that while on-line programs had been described recently in a report by the National Highway Transportation Safety Association (NHTSA) of the U.S. Department of Transportation, no evaluations of on-line driver education programs exist.

The focus of the evaluation covered three broadly defined teaching modes: traditional classroom instruction; traditional classroom augmented with various technological tools[1], which we refer to as blended instruction; or completely web-based on-line instruction. For each mode, we examined two evaluation criteria: (1) quality as defined by overall pass rates, test scores, and test frequencies for the Knowledge test offered for licensure by the Division of Motor Vehicles (DMV), and (2) cost per student. We received an extraordinarily large and complete dataset of 2011-2012 DMV Knowledge test information for all students in North Carolina, allowing for a robust analysis for our first part of the evaluation. We conducted a state-wide survey of schools to obtain information on how driver education was taught and the use of the optional student fee. We also had access to limited information on driver education costs as self-reported by Local Education Agencies (LEAs) for other DPI purposes.

We found little difference in the performance of traditional classroom instruction versus blended instruction as measured by overall pass rates, test scores, or test frequencies for students taking the DMV Knowledge test. North Carolina has conducted a pilot of a web-based, on-line education model, but the earliest graduates of that program will take the Knowledge test in 2013, and therefore we did not have test results from them to include in this analysis. Finally, we were unable to assess cost per student across the three teaching modes because of concerns over the comparability of the available cost information.   A budget audit or other method to determine school-level driver education costs may be required to accurately capture the cost-per-pupil averages between the blended and traditional methods.

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[1] Of the 338 survey respondents, 42 met the definition of "blended" based on their use of an on-line program, including Costech (34) or another program (8). 178 schools self-identified as traditional classroom instruction. The remaining schools did not provide enough data to be coded one way or the other.

Introduction and Background

In the spring of 2012 the School of Government was approached by the North Carolina Department of Public Instruction (DPI) about conducting an evaluation of the different teachings modes used for driver education in North Carolina.   To determine what would be included in the evaluation, discussions with DPI and General Assembly Program Evaluation Division staff identified issues relating to delivery methods of driver education instruction in North Carolina high schools including how instruction was delivered, the role and impact of technology in the classroom, and per pupil costs. The focus of the agreed upon evaluation covered three broadly defined teaching modes: traditional classroom instruction, blended instruction—considered a traditional classroom augmented with various technological tools[2], or completely web-based on-line instruction. For each mode, we examined two evaluation criteria: (1) quality as defined by overall pass rates, test scores, and test frequencies, and (2) cost per student.

		Evaluation Criteria	
		QUALITY (outputs and results)	COST (per student)
Teaching approach	TRADITIONAL (classroom)	1	4
	BLENDED (hybrid)	2	5
	ON-LINE (interactive)	3	6
The evaluation criteria in the Quality columns 1-3 are addressed below in findings I – IV, and Cost cells 4-6 are addressed in findings V – VII.			

The teaching approaches we evaluated include content only and not behind-the-wheel instruction.   An on-line pilot program was run in a limited way in 2011-2012 but we do not have comparable test data for its students. This is because students who completed the on-line pilot in 2011-2012 have yet not taken the Knowledge test or are not old enough to apply for a driver's license. Therefore, the on-line pilot is not covered in this evaluation. Instead, we gathered limited case study information on on-line programs run in Pennsylvania and Colorado to provide some comparative case-study data.[3]

For the information needed on success measures, in the fall of 2012, DPI provided data merged from DPI and DMV sources. The data included the school attended and test scores for 273,726 students on the Knowledge tests taken between July 1, 2010 and July 31, 2012.   For information on teaching method, on

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[3] The non-probability design for this exploratory case-study included reference and snowball sampling, which allowed the evaluation team to bring in information from more states than originally expected, including California, Georgia, Florida, Indiana, Nebraska, Oklahoma, Texas, and Virginia.

December 6, 2012, the evaluation team and DPI initiated a survey for those teaching driver education in North Carolina high schools, asking details about teaching methods, resources used, and related issues. When the survey closed December 20, 2012, over 338 schools had completed surveys (81 percent response rate). The evaluation team isolated those respondents who began implementing DPI's new driver education curriculum[4] for the 2011-2012 school year, and we coded the respondents based on their use of traditional or blended instruction. Combined with the earlier data, we were able to identify those students who had either traditional or blended instruction for driver education and what each student's scores were for every test taken[5].

Finally, DPI provided cost information for driver education instruction at all NC LEAs. We tried to isolate those systems that were either completely traditional or blended to calculate cost-per-pupil for each teaching approach, but there are relatively few LEAs that are solely traditional or solely blended, so this comparison does not come from as rich a data set as the test score data. Furthermore, we were not able to audit the reported cost data, so we could not verify that they are fully comparable.

It is important to note that our literature review did not locate other, similar evaluations specifically focused on driver education. In addition, a brief examination of the literature shows that while on-line programs had been described in a 2012 report by the National Highway Transportation Safety Association of the U.S. Department of Transportation[6], no evaluations of on-line driver education programs exist. However, NHTSA's 2012 report did include a helpful table of on-line programs available, which we replicate here.

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[4] Standard Curriculum Guide for Driver Education, revised July 2011. The Curriculum Guide can be accessed at http://www.ncpublicschools.org/docs/curriculum/driver-ed/driver-ed-program.pdf.
[5] For privacy reasons, the evaluation team stripped out personal identifiers for student records.
[6] Thomas, F. D., Blomberg, R. D., Korbelak, K., Stutts, J., Wilkins, J., Lonero, L., Clinton, K., & Black, D. (2012, June). Examination of supplemental driver training and online basic driver education. (Report No. DOT HS 811 609). Washington, DC: National Highway Traffic Safety Administration.

STATE	Number of Approved Online Courses or Course Providers	Agency Responsible for Approval and Oversight
California	Unknown	Theoretically DMV and Department of Education, but private secondary schools avoided oversight; also, local school boards had discretion.
Colorado	9	Department of Revenue
Florida*	6	Department of Highway Safety and Motor Vehicles; Department of Education (High School DE programs)
Georgia	5	Department of Driver Services
Idaho	1	Department of Education
Indiana	3	Department of Education with additional Bureau of Motor Vehicles oversight, but local control; Criminal Justice Institute over commercial driving school partnerships
Kansas	unknown	Department of Education, but local control
Nebraska	4	Department of Motor Vehicles
Nevada	17	Department of Education (but local control); Division of Motor Vehicles (commercial driving schools)
Oklahoma	6	Department of Public Safety
Pennsylvania**	Approximately 22	Department of Education, but local control
Texas	5 or 7 (not clear)	Department of Public Safety (parent taught); Texas Education Agency (school programs)
Utah	3	Office of Education (school programs); License Division, Department Public Safety (commercial schools)
Virginia	4	Department of Education
Wisconsin	2	Department of Public Instruction; Southwest Tech's Technical College System Board

*Florida required all first-time licensees to complete a 4-hour Traffic Law and Substance Abuse Education course, but otherwise did not require formal driver education.
**Pennsylvania approved public and commercial driving schools, 22 of which offered an online course. It did not directly approve individual online courses.

Results

The following results are intended to provide DPI with our findings about the student and test pass rates based on traditional or blended methods of delivering the new NC driver education curriculum to high school students.   Additionally, we explored per-student cost comparisons between traditional and blended school instruction and provide information on the optional student fee.

Finding I

Quality results 1-3: There is a statistically significant difference between the test scores of students enrolled in traditional and blended driver education courses (t score = 7.59)[7]. The average score for students enrolled in a blended driver education program was 80.5 percent (Std. Deviation 12.58), while the average score for students enrolled in a traditional classroom driver education program was 79.5 percent (Std. Deviation 12.60). In other words, students enrolled in blended driver education classes were likely to score higher than those in traditional classrooms. The material difference between these programs, however, is minimal given that the difference in the average scores was only one point. Finally, these results do not include quality comparisons with the on-line pilot program because we do not have test data for its students. Figure 1 displays the similarity of the blended and traditional teaching mode's average test scores.

Average Test Score

80.5	79.5
Blended	Traditional
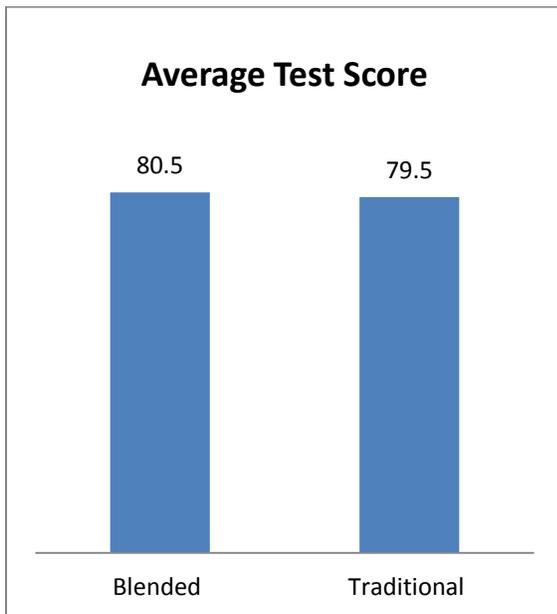
Figure 1: The average test score for students enrolled in blended programs was higher at a statistically significant level (t score = 7.59) than the scores for students in enrolled in traditional programs. However, the difference in the average score was only one test score point.

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[7] Please note that since we are including all students for which scores were available for 2011-2012, which could be considered a population, we would not normally need to report on statistical significance. We do so here for those who would consider the groups in terms of samples.

Finding II

Quality results 1-2: The total pass rate of students based on whether they eventually pass the Knowledge test is 88 percent and 87 percent for blended instruction. The total pass rate is the percentage of students that ultimately receive a passing score, whether they take the test once or multiple times. These totals account for whether students eventually pass the exam or give up after one or more times. Figures 2 and 3 show the similarities between the pass rate for students in traditional versus blended courses.
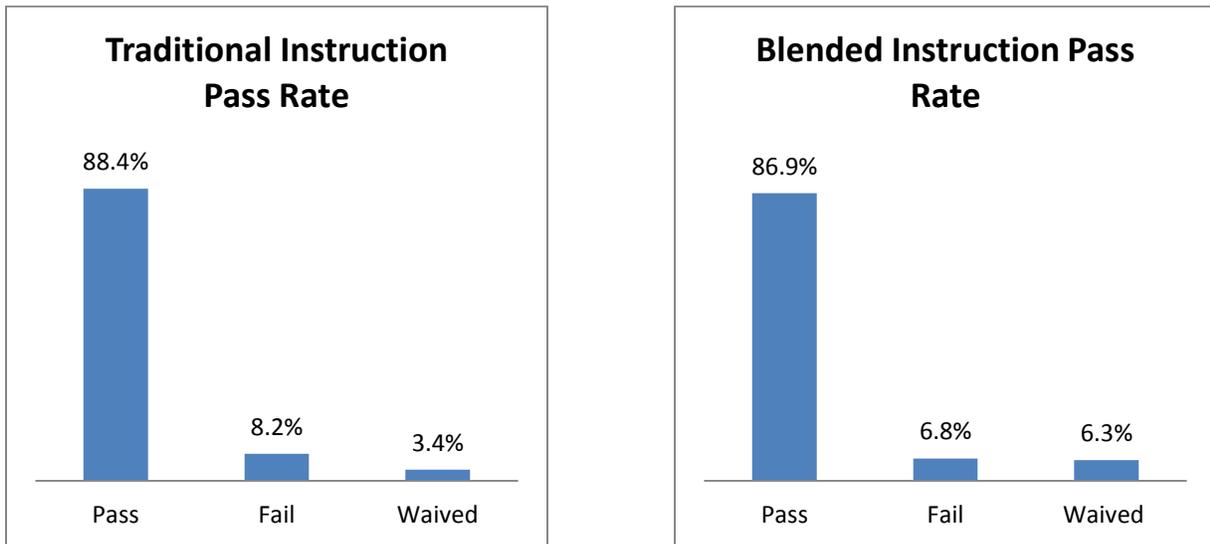
Figures 2 & 3: Over 88 percent of students pass the Knowledge test in classes with traditional instruction (no on-line interactive programs). Almost 87 percent of students pass the Knowledge test in classes with blended instruction using an on-line program like DriversEd.com or Costech. These percentages include all students who eventually pass the test, whether they take it once or multiple times.

Finding III

Quality results 1-2: Analysis of the test pass rate shows a difference in the number of Knowledge test attempts taken by students in traditional classroom instruction or blended courses. The test pass rate is the percentage of overall tests taken that received a passing score. These pass rates include scores for students taking the test more than once, thereby bringing the average pass rate down substantially compared to the overall student pass rate. In other words, if a student fails the test multiple times before passing it, that student has more of an impact on the *test pass rate* than a student who took the test only once and passed it on the first try. Multiple fails bring the test pass rate down. Figures 4 and 5 show the test pass rate with traditional and blended instruction.

Traditional Test Pass Rate

56.2%	41.7%	2.2%
Pass	Fail	Waived

Blended Test Pass Rate

59.2%	36.5%	4.3%
Pass	Fail	Waived
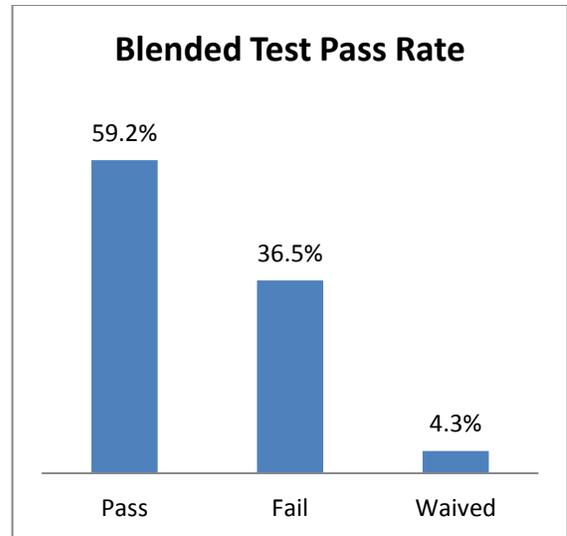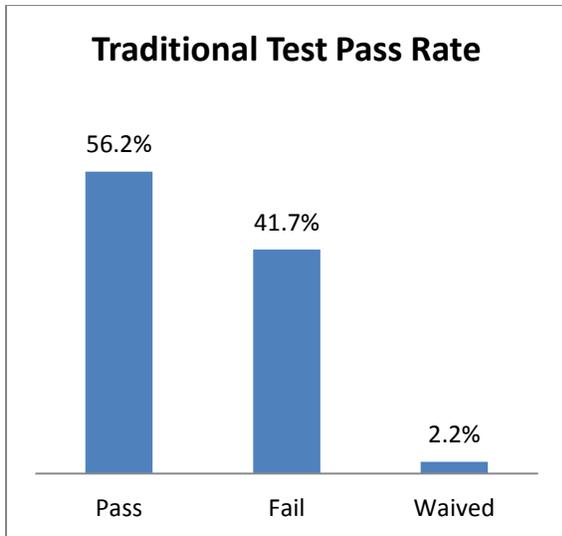
Figures 4 & 5: Over 56 percent of the Knowledge tests taken by students with traditional instruction received a passing score, while nearly 42 percent of the Knowledge tests taken by students with traditional instruction were unsuccessful. Over 59 percent of the Knowledge tests taken by students with blended instruction received a passing score, while nearly 37 percent of the Knowledge tests taken by students with blended instruction were unsuccessful.

Finding IV

Quality results 1-2: Analysis of the number of Knowledge test attempts taken by students with either traditional or blended driver education instruction showed a small difference in test frequency. Almost 56 percent of tests taken by students with traditional instruction took the Knowledge test once. The remaining 44 percent of Knowledge tests were taken by students with traditional instruction more than once, including two students who took the exam 15 times and one student who took the Knowledge test 24 times. Over 57 percent of the tests taken by students with blended instruction took the Knowledge test once.. The remaining 43 percent of the Knowledge tests taken by students with blended instruction took the test more than once, including two students who took the test ten times. Figures 6 and 7 show the differences in the test frequency between the two modes of instruction.
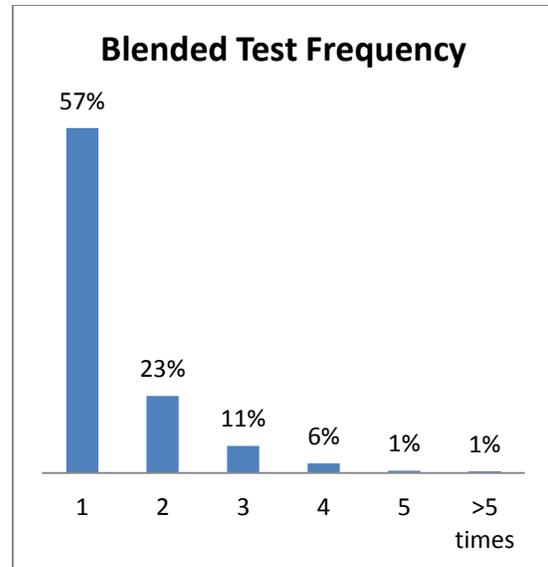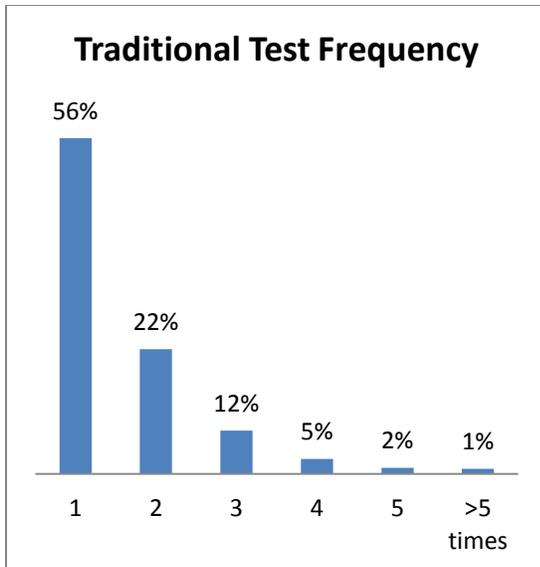
Figure 6 & 7: Almost 56 percent of the tests taken by students with traditional instruction took the Knowledge test once. Over 57 percent of the tests taken by students with blended instruction took the Knowledge test once.

Finding V

Cost results 4-5: Based on DPI cost information for the driver education instruction at all NC LEA districts, the evaluation team tried to calculate the cost-per-pupil for each teaching approach. To make these calculations, however, the evaluation team had cost data only at the LEA level, not at the school level. DPI is currently unable to provide cost data at the school level for driver education. A budget audit or other method to determine school-level driver education costs may be required to accurately capture the cost-per-pupil averages between the blended and traditional methods. Instead, the evaluation team tried to determine which LEAs were exclusively using one method or another (blended or traditional), and after receiving a list of blended LEAs, we cross-checked those LEAs with data from the survey. As a result, we determined several of the LEAs listed as blended also included schools delivering driver education instruction through traditional methods. In other words, several of the LEAs originally thought to be blended (e.g., Wake and Mecklenburg) actually included several schools using traditional teaching methods. This left only a small sample, including five blended LEAs (Davie, Greene, Hyde, Kannapolis, and Newton-Conover) and five traditional LEAs (Duplin, Franklin, Jackson, Transylvania, and Yadkin). After further review with DPI officials, even the status of all applicable schools within these LEAs is questionable. Also, we do not have cost comparisons for the on-line pilot because DPI is still collecting those data. Therefore, we do not feel comfortable presenting cost comparisons at this time. Future analyses could explore this question with valid, comparable data at the school level gathered from driver education coordinators across LEAs.

Finding VI

Cost results 4-5: The survey results for this evaluation also include data relating to the new fee that school districts could charge each driver education student beginning in 2011-2012, which can range up to a $45.00 maximum.   As part of this survey, the evaluation team asked respondents about the optional fee, reasons for requiring it, and whether schools saw an impact from this fee on driver education enrollment. Among the schools implementing a fee, 87 percent of schools required the full $45.00. Figure 9 summarizes the results from this survey question.

Schools Requiring a Driver Education Fee

No Fee: 79
Fee: 164
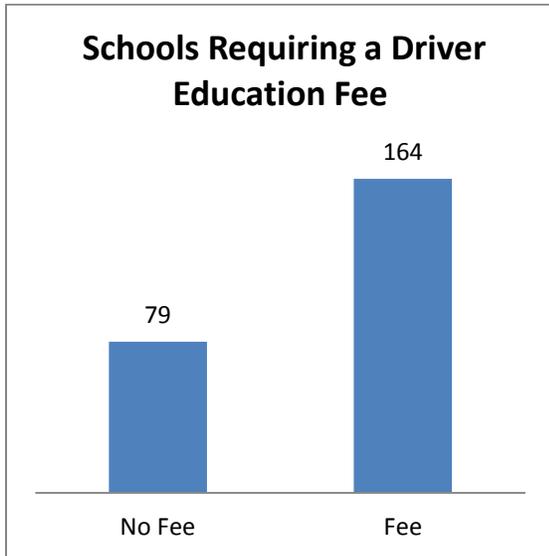
Figure 9: More than twice as many schools answering this question required a student driver education fee of up to $45.00, with 144 schools requiring the full $45.00. 95 schools did not answer.

Of those schools implementing the fee (n=164), 95 percent of respondents stated budget issues as the chief motivation for requiring it. Reasons for schools opting out of the fee requirement (n=78) include (1) "District/Board decision" (24 percent); (2) student hardships (16 percent); and (3) "Teacher pay cuts" (15 percent). Of the schools implementing the fee, almost 50 percent believed the program negatively affected student enrollment in driver education classes, while 31 percent saw no effects from the fee on student participation.

Finding VII

Cost result 6: Although DPI developed a limited on-line only pilot in 2011-2012, data are not currently available for this evaluation because students enrolled in the pilot have not taken the DMV Knowledge test at this time. Additionally, there are no other schools in North Carolina exclusively using on-line instruction to deliver driver education that can provide data necessary for cost comparisons.   Instead, DPI asked the evaluation team to develop comparative case study analyses from Colorado and Pennsylvania to address the option of delivering North Carolina's driver education curriculum completely on-line (no classroom instruction).

Through the process of semi-structured interviews with potential stakeholders and industry leaders, we explored on-line driver education initiatives in those states. Preliminary findings show, however, that Colorado and Pennsylvania do not represent meaningful comparisons for North Carolina given substantive differences in state demographics, driver education requirements, and levels of state subsidies. Our findings mirror those of the most recent NHTSA report released several months ago. Furthermore, states have been predictably varied in their approaches to this issue, there are no firm national standards, and, to our knowledge, output or outcome data are not being collected or reported. Future comparative case study analysis may be more informative by focusing on states with regulatory and fiscal dimensions similar to North Carolina, including California, Florida, Georgia, Indiana, Nebraska, Oklahoma, Texas, and Virginia. Although analysis of these additional cases is beyond the scope of this evaluation, we believe they may provide better data for comparative purposes.   We echo national organizations in the call for substantive research into performance and cost of on-line driver education.

Conclusion

These preliminary findings provide some useful comparisons between traditional and blended classroom instruction. We believe, despite a statistically significant difference in the average test score, the one point difference in average test scores is not materially significant. Additionally, there is little difference between traditional and blended classroom instruction with respect to how quickly students pass the DMV Knowledge test.Finally, we were unable to assess cost per student across the three teaching modes because of concerns over the comparability of the available cost information.

We would like to acknowledge the helpful assistance from DPI officials, including Paula Hildebrand, Kris Knower, and Reginald Flythe. We believe these findings provide the first glimpse into the comparisons between traditional and blended classroom driver education instruction in North Carolina. If you have any additional questions, please feel free to contact us at any time.

Regards,

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