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A history of the driver education program and evaluation of the results of the program in public high schools of Virginia

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A HISTORY OF THE DRIVER EDUCATION PROGRAM AND AN EVALUATION OF THE RESULTS OF THE PROGRAM IN THE PUBLIC HIGH SCHOOLS OF VIRGINIA

A Thesis Presented to
the Graduate Faculty of
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by
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CHAPTER I

INTRODUCTION

I. PROPOSAL AND PROBLEM

Due to the fact that many of the public high schools of Virginia have introduced into their curriculum a driver education and safety education program in recent years, this thesis proposes that it is necessary for a review of the developments, and a direct evaluation of the results of this program on the safety and traffic records of the state of Virginia.

This thesis summarizes the general progress and development of the driver education program of Virginia's public schools in recent years. The development is presented in Chapter II. The history of the program is brief, but briefness does not necessarily indicate a lack of progress in this case. The rapid growth of the program is an indication of its importance in today's fast growing automobile driving society.

This thesis presents an evaluation of the results of the driver education program. This evaluation is not meant to cover the program itself, such as the teacher training, the methods of teaching or the materials used in the classroom. It is devoted to the direct effect of the program on the driving records of the students who have completed all or part of the program. It compares the records of those trained by the program with the records of people not trained

by the program.

The study evaluated the driving performance of 14,286 students in the 15 through 20 age group who have been trained under all or part of the program in the years 1949 through 1953. Chapter III will present the procedures of the evaluation research.

II. NEED AND IMPORTANCE OF THE STUDY

The growth of the traffic accident and violation problem

Concerning the justification of the need for further evaluation, it has been stated that although studies indicate that school trained drivers have better accident and violation records than the untrained drivers, the studies are not completely conclusive.[1] The National Education Association lists under a section of a study entitled "Recommendations for Improvement of the Driver Education Program", the fact that the "Current programs of high school driver education need to be evaluated in terms of their objectives."[2]

Evaluation can and should lead to the improvement of the subject being evaluated. The subject being evaluated in this study is driver education. Any study to implement improvement

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[1] "Should Driver Education be Offered? "National Association of Secondary School Principals Bulletin, 37, (May,1953),19.

[2] "Status of Driver Education in Public High Schools 1952-53 National Education Association Research Bulletin, XXXII (April, 1954), 52.

improvement in a program designed to help solve our severe traffic accident and traffic violation problem, must be considered important.

In Virginia in 1941, 1,110 people were killed on Virginia highways. In the same year 19,523 were injured. In 1947, $7,241,285 worth of property was destroyed. Automotive traffic problems in 1947 inflicted an estimated total economic loss of $32,195,000 to Virginia.[3]

Seventeen thousand Virginians were killed by traffic accidents between 1932 and 1953.[4] Immeasurable hardship and suffering has been and will continue to be inflicted on the people without lessening until the entire public is actively participating in a concrete program to combat this problem. One purpose of this thesis is to help guide the struggle to combat and expose one of the worst problems of our time.

The growth of the training program

The fact that the driver education programs throughout the nation are constantly undergoing radical changes and expansion indicates that these programs need evaluation to determine whether the changes are justified, and if so, to what extent.

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[3] Department of Education, Department of State Police, Let's Learn to Drive, (Richmond: Division of Purchase and Printing), 1948, p. 19.

[4] Department of State Police, Virginia Traffic Crash Facts, (Annual Report 1953).

Concerning the speed with which the driver education program is growing, one school authority has stated thatthis program has become established two and one half times more rapidly than any other program.[5] In 1953, another authority stated that the number of schools having driver education courses has doubled since 1947, and it was estimated that 4,000,000 students had taken the course in the last 10 years.[6]

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[5] N. Key, "Dividends of Driver Education," Teachers College Record, (April, 1956), 475.

[6] "Should Driver Education be Offered?", The Bulletin of the National Association of Secondary School Principals of the National Education Association, 37, (May, 1953), 19.

CHAPTER II

DEVELOPMENT OF THE DRIVER EDUCATION PROGRAM IN THE PUBLIC HIGH SCHOOLS OF VIRGINIA

I. PRELIMINARY DEVELOPMENTS IN SAFETY AND DRIVER EDUCATION

Recognition of the need for safety and driver education

In a State Board of Education Bulletin issued in 1940, State Superintendent of Public Instruction Sidney B. Hall made a statement that clearly indicated the fact that the problems of automotive safety were becoming widely recognized. Superintendent Hall wrote:[7]

> "The faster tempo of modern life, particularly in the United States, has introduced many new hazards into a world where hazards were already numerous. Accidents which are definately preventable are now taking a very heavy toll in human lives."

In 1940 and before, the State Department of Education in Virginia made it clear that it was the responsibility of the school authorities to see that children were taught modern safety education.[8]

In a few years, recognition by the State Department of Education, insurance companies, and private organizations concerned with safety education, soon led the way toward establishing driver education within the safety education program.

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[7]State Board of Education, Safety Education, (Bulletin No. 2, Vol. XXIII. Richmond, Virginia: State Board of Education, October, 1950), p. 9.

[8]Ibid.,11

Legislation and interpretation

Recognition of the traffic safety problem by the General Assembly of the Commonwealth of Virginia came in the form of legislation. The foundation for safety education in Virginia is found in the Code of Virginia, Title 22, Education, Section 22-235, which reads:[9]

> Study of accident prevention.-- In one or more of the elementary grades or in one or more of the high school grades of every public school there shall be provided a course of study including elementary training in accident prevention, in proper conduct on streets and highways, in the operation of motor vehicles as required by the traffic laws of this state, and in ways and means of preventing loss of lives and damage to property through preventable fires. Such course shall be required of every pupil completing the course of study in any such school. (1928, p. 1217; 1932, p. 536; 1936, p. 510; 1938. p. 375; Michie Code 1942, No. 668.)

This legislation is interpreted to mean that driver education and accident prevention will be taught as well as safety education in other matters. It does not specify the detailed methods or the extent of time for the course; therefore, the remaineder of the program development is left up to interpretation of this law. Specific reguirements and "behind-the-wheel" training developed from interpretation of the law by various public and private agencies that were concerned with driver education.

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[9]State Board of Education, Virginia School Laws, (Bulletin No. 5, Vol. XXXIII. Richmond, Virginia: State Board of Education, October, 1950), p. 100.

Pioneers of Driver Education

The pioneers of driver education were those organizations and agencies both public and private, that actually helped to build the program through continuous cooperative effort. During 1946 and 1947, the State Department of Education, in cooperation with the Governor's Highway Safety Committee, the Department of State Police and the Division of Motor Vehicles worked together on a comprehensive program of instruction in driver education. The American Automobile Association was helpful in developing the units for instruction.[10] The Automotive Trade Association of Virginia rendered valuable assistance in working with instructional unit content, and played a great part in helping the schools obtain the necessary automobiles for "behind-the-wheel" instruction.[11] Considerable encouragement by the Association of Casualty and Surety Companies and the National Safety Council was fostered by awards given to the State of Virginia in recognition of achievement for excellency of program in school traffic survey.[12]

II. THE GROWTH OF DRIVER EDUCATION

As early as the late 1930's a few schools had developed a very limited driver education program of instruction. The

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[10] Virginia State Board of Education, Units of Instruction for Practice Driving, (Bulletin No. 9, Vol. 33, 1951), p. III

[11] Ibid., 4

[12] Jack, Harold K., "Award to Virginia for Achievement in Driver Education," Virginia Journal of Education, Vol.42 (December, 1948), 13.

end of World War II brought attention back to our education program. Between 1947 and 1957 the total driver education program accomplished most of its growth. Before 1947 there were no more than 15 to 25 schools that were scheduling driver education instruction in Virginia.

As driver education programs developed throughout the country, insurance companies became interested in the idea of public education helping to cope with traffic accident and safety problems. The Association of Casualty and Surety Companied has accomplished considerable work along this line. From 1947 to 1954 this Association awarded Virginia annual national awards for achievement in driver education. This can be considered as outstanding due to the fact that no more than 12 to 20 states received the award during any single year.[13] Other factors indicating Virginia's progress include awards for the past several years by the National Safety Council.

In the school year of 1955-56 288 public high schools participated in the driver education program in Virginia. One hundred and thirty-five schools taught 25,849 students driver education in the classroom. One hundred and fifty-three taught 7,235 pupils the total classroom and practice driving program. Table 1, page 10, indicates the growth of the pupil enrollment, and the growhh of the driver education program

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[13] Jack, loc. cit.

from the 1947-48 school year through the 1955-56 school year.[14] The second column indicates the number of high schools existing in the respective years. The third column shows the total number of schools having the program and the remainder of the table gives the number of schools and number of students participating in only the classroom part of the program and the number of schools and students taking classroom and practice driving.

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14 State Department of Education, Division of Health and Physical Education, Safety and Recreation, files.

TABLE I

STATISTICAL SUMMARY OF THE DRIVER EDUCATION PROGRAM IN VIRGINIA. 1947-48 TO 1955-56*

Year	No. of Public High Schools	No. of Schools With Program	Classroom only		Classroom & Pr. Dr.	
			No. of Schools	Pupils Enrolled	No. of Schools	Pupils Enrolled
47-48	624	168	168	10,902		
48-49	488	194	110	15,926	84	4,730
49-50	517	216	151	8,547	65	3,826
50-51	510	169	122	10,082	47	4,422
51-52	451	217	153	15,953	64	3,459
52-53	446	234	127	17,234	107	5,204
53-54	447	276	158	22,660	118	6,408
54-55	417	260	134	21,870	126	6,213
55-56	434	288	135	25,849	153	7,235

* This information is from the files of the Division of Health and Physical Education, Safety and Recreation. This division is under the State Department of Education in Richmond, Virginia.

III. THE PRESENT DRIVER EDUCATION PROGRAM

The Operative training plan

The actual full scale driver education program in Virginia was started in the school year of 1945-46.[15] At the present time, this program is being administered by the Division of Health and Physical Education, Safety and Recreation. The "Safety and Recreation" portion of the title was added in the 1948-49 school year.[16] This division is under the State Department of Education of Virginia.

The driver education program is based on laws providing for safety education and traffic safety, plus the recommendations of the State Department of Education which are coordinated with National Safety Council recommendations and insurance company recommendations. The following is the coordinated recommended program that will bring insurance credit to male students completing the course:[17]

> Insurance credit will be allowed for male drivers between the ages of 15 and 25 according to the provisions which follow: A ten (10%) per cent premium deduction will be allowed for all males who have completed an approved course of thirty-six (36) class periods of classroom instruction plus an average for the group of at least seven (7) class periods in actual practice driving provided that all instruction was conducted by qualified

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15 J.L. Blair Buck, The Development of Public Schools in Virginia 1607-1952, Virginia State Department of Education, State Board of Education, Richmond, Virginia, Vol. XXXV, No.1. (July, 1952), p. 443.

16 Ibid.

17 Harold K. Jack, State Department of Education, Superintendent's Memo No. 3221, (January 20, 1956)

> instructors and that the high school or college had been approved for such instruction by the State Department of Education. A special provision recognizes those pupils who have completed only the classrom instruction of the mimimum of thirty-six (36) class periods in a course approved by the State Department of Education. Such pupils would be entitled to a five (5%) per cent premium deduction. The new insurance rates and credits become effective February 1, 1956.

This program brings a savings in insurance costs to boys. Girls are trained by the same program as the boys, but they do not get an insurance rate deduction. This is because girls have fewer accidents and their premium rates are lower than the boys' rates even without taking the driver training course.

At this point it is significant to note that the operation of the driver education program saves considerable money for the student. This is another point to add to the justification for the continuation of the program.

A brief calculation shows how much could be saved in insurance rate deductions. To calculate the amount saved for boys less than 25 years old, it would only be fair to figure on a minimum policy in order to keep the savings from being overestimated. Forty-eight dollars is the annual cost of a minimum insurance policy for boys under 25 who live in a rural area and who are not the principal operators of the cars they drive. Figuring by this policy, and figuring that boys represent 50 per cent of the trained group shows that a savings of $48,379.20 could have been saved annually for the boys trained by the driver education program in the 1955-56

school year. If all boys between age 15 through 20 in Virginia in 1956 had taken the full driver education course there would have been an estimated annual savings of $282,000.

The possibility of saving $282,000 in automotive insurance costs annually as a result of policy holders taking driver education is one factor that helps justify dontinuing the operation of the program. Chapter III, however, indicates the most important points for justification. These points are the possible accident and violation rate reductions due to the program.

The cost of operating the program has been estimated by the State Department of Education in the following manner:[18]

> If all eligible students for driver education in any one year were to be provided with adequate practice driving instruction, the cost would be approximately $1,250,000. These cost figures have been computed on the basis of a teacher's salary between $3,500 and $4,000 plus normal operating expenses of a practice driving automobile.

This operating cost seems reasonable if consideration is given to the effect that the program has on accident and violation rates shown in Chapter III of this study. The economic loss in Virginia in 1947 due to traffic accidents, cited in Chapter I, to be over $32,000,000, shows the possibilities for economic savings.

In a few years the problems of obtaining certified standards for teachers, funds for the overall program, automobiles for training, community interest, insurance credit,

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[18] State Department of Education, Division of Health and Physical Education, Safety and Recreation, files.

and suitable instructional material, texts and manuals, have been met with considerable success.

Teacher certification has developed in the last ten years for those teaching in the high school driver education courses. It has been requested that the teachers who teach the classroom instruction also be certified. Certification can be obtained by taking a recognized course in driver education, or by completing the requirements established by the State Department of Education and the Virginia State Police. This requirement is organized on a home study basis. The teacher must have a valid Virginia driver's license, must be a bona fide faculty member, and must pass a test based on the manuals and materials furnished by the State Department of Education. [19]

The State Board of Education specifies the certification requirements in the following manner:[20]

> The applicant who has not completed a teacher's course in Driver Education as part of the endorsement requirements for Health, Physical Education, and Driver Education, must fulfill the following requirements:
>
> I. Complete a course in Driver Education (Teacher's Course) and First Aid.
>
> II. Pass the Behind-the Wheel Examination given by the state

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[19] State Board of Education. Op. Cit., p. 2.

[20] State Board of Education, Certification Regulations for Teachers, (Bulletin No. 4, Vol. XXXX. Richmond, Virginia: State Board of Education, May, 1958), p. 9.

Police upon request by the State Department of Education."

Development of manuals and materials to be used in the driver education program in Virginia started when the Virginia State Board of Education issued a manual in 1940, which was originally developed in 1935 by the Virginia Department of the American Legion. This manual is entitled "Safety Education". The first 43 pages of this 77-page booklet contain material on the automobile and auto safety. In 1948, the booklet entitled "Let's Learn to Drive" was issued as a source material suggested for the core curriculum. "Let's Learn to Drive" developed out of the earlier manual "Safety Education", and was prepared cooperatively by the Virginia State Department of Education and the Virginia Department of State Police. In 1951, the Virginia State Board of Education issued another bulletin entitled "Units of Instruction for Practice Driving". This manual is quite complete in explaining the recommendations and requirements for administering and teaching the driver education program in the individual schools.

Summary and conclusion

Today the driver education program has been established throughout many sections of Virginia. Not all schools have the total program, but the number has been increasing over the years at a rapid rate.

The program is functioning well in all phases of operation. The operation of the program is at a peak; however, it

is not the operation that is now in question. The question is "Are the results of the operation satisfactory?" In Richmond, Virginia, the problem is, "to determine if driver-training is the responsibility of the school system".[21]

The program awaits future study.

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[21] News item in The Richmond News Leader, June 27, 1958

CHAPTER III

THE RESEARCH STUDY PROCEDURE FOR THE EVALUATION OF DRIVER EDUCATION

The evaluation portion of this thesis proposes to answer the following question:

Is there a difference in the traffic accident and traffic violation rate between the trained and non-trained drivers in Virginia?

Some studies concerning driver education in other states have indicated a difference favoring the trained driver.[22] Several studies were conducted by studying sample groups of less than 1,000 people. Working with small sample groups is a factor that lowers the reliability of any study of this type; therefore, this thesis proposes to work with larger numbers and complete groups. In this study the larger numbers include all the drivers in Virginia from age 15 through 20 in the years 1949 through 1956. The results of the driver education program in the public high schools of Virginia are to be evaluated in terms of differences in accident and violation rates between the trained and non-trained drivers. Within the trained group, the same questions must be answered concerning the effect of degree of training, sex and race on accident and violation rates.

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[22] National Education Association Research Division, National Education Association National Commission on Safety Education, A Critical Analysis of Driver Education Research, (National Education Association, 1957), p. 56.

The nature of this study is a total group experience comparison. All the untrained drivers in Virginia who were from age 15 through 20 during the period from 1949 through 1956 have been named as the non-trained group of this study. All the students who completed driver education training between 1949 and 1953 and who were from age 15 through 20 during the period from 1949 through 1956 have been named as the trained group of this study. The trained and non-trained group will be compared for their accident and violation rates. Students in the trained group will be categorized on the basis of degree of training, sex and race. To aid the comparison study of the two major groups of trained and non-trained students, two other groups will be used. A group referred to as an all driver group age 15 through 20 is composed of trained and non-trained drivers. This group helps indicate accident rate comparisons. Another all driver group composed of trained and non-trained drivers of all ages is necessary to compare violations of the non-trained group with the trained group.

Establishing the non-trained group

First it is necessary to establish exactly what is meant by the non-trained group, and then explain how it was established.

The non-trained group consists of all the drivers in Virginia who had no training in the driver education program

given in the public high schools in the state of Virginia. This group consists only of those people who are 15 to 20 years old inclusive during the years 1949 through 1956 inclusive. The accident rate and violation rate of this non-trained group is analyzed for the years from 1949 through 1956.

The first problem in establishing the non-trained group was to find how many drivers had operator's licenses within the 15 through 20 age group. Direct figures giving this information were not available, therefore, a percentage from a reliable sample was used.[23] This sample consisted of 100,287 drivers. It was considered as reliable that the 8,401 drivers in this sample that were between 15 through 20 year old would be in proportion to all drivers in Virginia. Next, 8,401 drivers were computed as representing 8.376 per cent of all the sample, therefore, establishing that about 8.376 per cent of all the drivers in Virginia would be between age 15 and 20 inclusively.

The second objective in establishing the non-trained group was to find how many drivers were in the state of Virginia from 1949 through 1956 inclusive. The accident and violation rate will be analyzed for each year; therefore, the figures showing the number of drivers each year will be necessary. These figures are presented in Table II.

To proceed with establishing the non-trained group,

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[23] C.E. Combes, Division of Motor Vehicles, Letter, (March 19, 1956)

the total of all the drivers in Virginia must be computed on the basis of the sample of 100,287 drivers which shows that 8.376 per cent are between age 15 through 20. The result of this computation is shown in Table III on page 22. Table III includes all drivers which can be compared with trained drivers. In this thesis however, one more calculation will have to be made to achieve the final non-trained group. It must be noted that all drivers includes trained drivers, therefore subtraction of a great part of the trained drivers will be made. When the number of trained drivers in each year from 1949 through 1956 and age 15 through 20 has been subtracted from the figures in Table III on page 22, the final non-trained group used in this study will have been established.

A small minority portion of trained drivers will automatically remain and be included in the non-trained group because of the nature of the trained group. The non-trained group figures will contain some 15 through 20 year old trained drivers in the years 1954, 1955, and 1956 because of new students completing their training in these three years. It should be noted here that the trained group consists of all 15 through 20 year old students who completed their training between 1949 and 1953, even though the study of their accident and violation rates is concerned with accidents and violations between 1949 and 1956. With this minority of trained drivers within the non-trained group, some limited favor is

TABLE II

NUMBER OF ALL VIRGINIA DRIVERS*

Year	Number
1949	626,286
1950	658,597
1951	678,612
1952	785,216
1953	908,567
1954	1,051,295
1955	1,216,445
1956	1,407,539

*The number of drivers is based on figures from the Division of Motor Vehicles in Virginia.

TABLE III

NUMBER OF ALL VIRGINIA DRIVERS
AGE 15 THROUGH 20*

Year	Number
1949	52,457
1950	55,164
1951	56,841
1952	65,710
1953	76,102
1954	88,056
1955	101,889
1956	117,895

*Calculated on the basis of a sample group of 100,287 drivers.

given to the non-trained group in 1954, 1955 and 1956. Studies have been substantial enough to consider trained students as favorable, or at least definitely not unfavorable. Retention is being considered in the trained group, therefore only the students trained between 1949 and 1953 were studied.

At this point this thesis has established the final non-trained group which will be analyzed for accident and violation rates for comparison with the accident and violation rates of the trained group. The final non-trained group is shown in Table IV, page 24.

Analysis of the non-trained group

Accidents and accident rate. With the non-trained group established as shown by Table IV, the next factor to be presented is the analysis of the driving record of the non-trained group. This driving record will consist of two factors. These are the violation rates and the accident rates. The first step to find the accident rate figure is to obtain the number of accidents of all drivers in Virginia between the age 15 through 20 for each year from 1949 through 1956. These figures are tabulated and reported by the Virginia Department of State Police every year.[24] Table V, page 26 shows the number of accidents of all

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[24] Department of State Police, Virginia Traffic Accident Facts, (annual reports, 1949, 1950, 1951, 1952); and Virginia Traffic Crash Facts, (annual reports, 1953, 1954,1955, 1956), (These reports include the same type of information from 1949 through 1956. The title was changed.)

TABLE IV

THE NON*TRAINED GROUP
AGE 15 THROUGH 20

Year	Number
1949	51,557
1950	53,558
1951	52,791
1952	55,439
1953	61,816
1954	73,950
1955	89,370
1956	108,183

drivers in Virginia in the 15 through 20 age range. The next step is to subtract the number of accidents caused by the trained group from the "all driver" group shown in Table V. This subtraction gives the number of accidents by the non-trained group and this is shown in Table VI, page 27. These figures will be used to calculate the accident rate. To calculate the accident rate, the number of drivers in the non-trained group is divided into the number of accidents by the non-trained group giving the percentage rate shown in Table VII, page 28. Interpretation of Table VII shows that for every 100 drivers in the non-trained group in 1949, there were nearly 14 accidents. In 1949 the group had the lowest rate. In 1952 the non-trained group had nearly 23 accidents per 100 drivers in the group. The non-trained group had the highest accident rate in 1952. The mean percentage rate for all the years from 1949 through 1956 is 17.693. This means that for every 100 non-trained drivers there were more than 17 accidents for each year of the study period.

To compare the 17.693 accident rate of the non-trained group with the trained group, is a prime point of analysis of this thesis; however, it is significant also to note how the non-trained group compares with all drivers who are trained, untrained and in all age groups from 1949 through 1956. Calculations based on the information used to figure the non-trained group accident rate can be made for this

TABLE V

ACCIDENTS BY ALL DRIVERS IN VIRGINIA
AGE 15 THROUGH 20

Year	Number of accidents
1949	7,170
1950	9,235
1951	10,964
1952	12,729
1953	13,030
1954	12,548
1955	14,597
1956	16,956

TABLE VI

ACCIDENTS BY THE NON-TRAINED GROUP

Year	Number of acciden ts
1949	7,169
1950	9,235
1951	10,954
1952	12,616
1953	12,836
1954	12,401
1955	14,563
1956	16,948

TABLE VII

ACCIDENT RATE BY THE NON-TRAINED GROUP

Year	Number of Drivers	Number of accidents	Rate
1949	51,557	7,169	13.905
1950	53,558	9,235	17.243
1951	52,791	10,954	20.749
1952	55,439	12,616	22.756
1953	61,816	12,836	20.764
1954	73,950	12,401	16.769
1955	89,370	14,563	16.295
1956	108,183	16,948	15.666

comparison. The calculation shows that the "all driver group" has an accident rate of 10.5, or about 7 points lower than the non-trained group. This difference is caused by the better driving records of those above age 25 which is a fact recognized by insurance companies that give lower premium rates to male students after age 25.

In brief, the non-trained group, ages 15 through 20, in the years 1949 through 1956, had more than 17 accidents per 100 drivers per year. The "all driver group", which is composed of all drivers of all ages, had 10 accidents per 100 drivers per year during the year 1949 through 1956.

Violations and violation rate. The second major factor in the analysis of the non-trained group is the consideration of violations. The violation rate is figured on the same basis that the accident rate was figures, however it must be figured for the "all driver group". Records were available for accidents by age groups; however, violations are not recorded by age categories; therefore, the "all driver group" will have to stand in place of the non-trained group when it comes to comparing rates with the trained group. It should be noted again that the people in the "all driver group" above age 25 have better driving records than people below age 25. Thus, when the violation rates are compared with the trained group, it should be remembered that favor has been given to the all driver group.[25] The violation

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[25] Ibid. p. 7

rate of the all driver group is shown in table VIII, page 31. The lowest rate of 4.418 came in 1954. The highest rate of 6.129 came in 1952.

Summary. In brief review, the non-trained group has been established. In addition, an all driver group was used for purposes of giving a base for comparison with the trained group's violation rate. The non-trained group consists of all drivers in Virginia in the 15 through 20 age range who have not been trained in driver education in the public high schools. The all driver group consists of all drivers of all ages. The accident performance of the non-trained group was 17 accidents for every 100 drivers in the group for each year of the study. The violation performance of the all driver group was from 4 to 6 violations per 100 drivers in the group for each year of the study.

Establishing the trained group

The problem of this thesis is to indicate by various means of investigation, whether the traffic violation rate and the traffic accident rate of a specific age group, recorded in a specific time in the state of Virginia, is lower or higher among those persons having been trained through the driver education program of the public high schools of Virginia than among those persons not having been trained in this program.

This is a direct evaluation of overt results of a public high school course. The group that has had no train-

TABLE VIII

VIOLATION RATE OF THE ALL DRIVER GROUP

Year	Number of drivers	Number of violations	Rate
1949	626,286	28,561	4.564
1950	658,597	35,911	5.453
1951	678,612	41,436	6.106
1952	785,216	48,131	6.129
1953	908,567	48,792	5.370
1954	1,051,295	46,353	4.418
1955	1,216,445	53,165	4.378
1956	1,407,539	62,533	4.442

ing has been referred to as the non-trained group. At this point the non-trained group has been established and analyzed. This section of the study concerns the establishment and analysis of the driving performances of the trained group.

The next objective is to obtain all the information concerning the trained group. Part of this information was gathered from raw data on file at the State Department of Education in the Health and Physical Education, Safety and Recreation Division of that department. The data desired were written on cards that were about the size of a driver's license. The cards varied slightly in composition and size due to minor changes over the years. These cards are illustrated on Figure 1, page 33. The cards must be completed for each student takingthe driver education course. All schools must send these cards to the State Department of Education office when the students have completed all or part of the driver training course. The card is issued in duplicate by the State Department of Education to all schools having driver education courses. When the student completes part or all of the course, the school sends one copy of the card back to the State Department of Education, and one copy is given to the student. Only by showing this card can students obtain reduced insurance premium rates. From time to time the State Department of Education sends these cards to the Division of Motor Vehicles where accident and violation records are kept. The Division of Motor Vehicles checks the

FRONT OF CARD

HPE-ST-7
10M—6-1-53

(Please Print or Type)

Full Name of Pupil ...SAMPLE CARD.....
First Middle Last

Street Address .....

City or Town .....

Sex ..... Born, Month ..... Year .....

Operator's License No. .....

Course Completed, Month ..... Year .....

Name of High School .....

Check Type of Course Completed:

Class Room Instruction Only (.....)

Class Room and Practice Driving (.....)

Signed .....
Principal or Teacher

BACK OF CARD

ACCIDENTS AND VIOLATIONS ARE RECORDED HERE

FIGURE 1

CARDS USED FOR OBTAINING BASIC DATA ON THE TRAINED GROUP

names of the students for reported accidents and violations. If a student whose name appears on the front of the card had a violation or accident, the data and circumstances are recorded on the back of the card. When this is completed, the cards are returned to the State Department of Education.

The use of the information on the back and front of the cards made it possible to establish and analyze the trained group.

A total of 15,885 cards were analyzed and categorized. These cards represented students from age 12 through 25. Due to the fact that the age range of 12 through 25 would be in conflict with the non-trained group in this study, which is composed of drivers 15 through 20 years of age, the analysis was reduced to the trained drivers from age 15 through 20. The total trained group of this thesis therefore amounts to 14,286 students, 15 through 20 years of age, and trained by the driver education program in the public high schools of Virginia in the years 1949 through 1953.

Table IX, page 35. presents the comple te categorization of the trained group. Two of the categories need explanation; the others are clear.

The category called by the term "classroom" represented by the abbreviation "C" means that the student took only part of the driver education course. Specifically it means that the student took the recommended 36 hours of classroom work and did not take any practice driving in the training car.

TABLE IX

CATEGORIES OF THE TRAINED GROUP AND THE NUMBER OF STUDENTS IN EACH CATEGORY

Category	Number of students
All students	14,286
White students	12,774
White students classroom trained	8,148
White male students classroom trained	3,857
White female students classroom trained	4,351
White students classroom and practice driving	4,566
White male students classroom and practice driving	1,511
White female students classroom and practice driving	3,055
Negro students	1,512
Negro students classroom trained	838
Negro male students classroom trained	290
Negro female students classroom trained	548
Negro students classroom and practice driving	674
Negro male students classroom and practice driving	342
Negro female students classroom and practice driving	332

The category called by the term "practice driving" represented by the abbreviation "P" means that the student had the recommended practice in actually driving the training car and observing other students driving the training car.

At no time does the student take the practice driving before, or without the classroom work, but often times he will take the classroom work without the practice driving. Due to this factor, the categories of degree of training will be limited to "classroom" and "classroom and practice driving". There will be no category of only "practice driving".

Analysis of the trained group

Accidents and accident rate by the total trained group.

Now that the trained group has been established and categorized, the next phase of this study is to analyze the accidents of the trained group.

Table X, page 38, gives the number of accidents and the accident rate of the trained group. The construction of this table is based on three factors. The first, the year, is shown in column one. In 1949 for example, 900 students are found to be in the trained group. In 1953, 14,286 students had completed training and were still in the 15 through 20 age range. All the years after 1953 show a decrease in the trained group, because the trained group does not include students trained after 1953, and 14,286 students in 1953 show a decrease because each year some

students more out of the 15 through 20 age range limit. The second factor to consider is the number of accidents. This number is shown in the third column of Table X, page 38. These accidents were caused by the students in the second column. An example of this is the fact that in 1953, 194 accidents were caused by the 14,286 students in the trained group in 1953. The third factor is shown in the third column of Table X. This is the accident rate which is figures by dividing the figures in column two into the figures in column three.

The results indicate that the trained group had a mean of 0.753 for each year of the study. This is less than 1 accident caused by every 100 drivers in the trained group in each year. The range of the accident rate extends from zero in 1950 up to 1.357 in the year 1953.

Accidents and accident rate by sub-categories of the total trained group. The sub-categories to be analyzed are concerned with three factors. These are the degree of training, sex and race. The fifteen categories concerned with these three factors are listed in Table XI, page 43.

The program of driver education in Virginia has two parts. Classroom work of two hours a week for 18 weeks constitutes one part. Practice driving for six hours constitutes a second part. The term "degree of training" refers to the fact that some students train only under the classroom part of the program, while others train by taking

TABLE X

ACCIDENTS AND ACCIDENT RATE CAUSED BY THE TOTAL TRAINED GROUP

Year	Number of students	Number of accidents	Rate
1949	900	1	0.111
1950	1,606		
1951	4,050	10	0.247
1952	10,271	113	1.100
1953	14,286	194	1.357
1954	14,106	147	1.040
1955	12,519	34	0.272
1956	9,712	8	0.008

both classroom and practice driving. This difference in training will be indicated in Table XI. Table XI uses the abbreviation "C". for classroom training only, and the abbreviation "C.P." for classroom and practice driving or the total program.

Table XI gives the number of accidents and the accident rate of the total number of students in each of the categories of the trained group for the whole eight year period of the study.

The analysis shows that all categories are not vastly different in their accident rate due to degree of training. The most significant difference is with the larger group of white students which shows a slightly more satisfactory rate for the classroom and practice driving trained than for the classroom trained. When considering the white male classroom trained and the white male classroom and practice driving trained rates, there is an almost equal record. The category with the lowest rate is the negro female classroom and practice driving category. The category with the highest rate is the white male classroom and practice driving category. It should be noted that the two white male categories of classroom and classroom and practice driving have a rate of less than two points.

Briefly stated, the degree of training has a slight effect on the white student categories and somewhat more, but still slight, effect on the negro student categories. The differences that do exist are favoring the categories

expected to be favored; specifically, the classroom and practice driving categories of the larger group of white students.

An analysis of the trained groups' accident rate by sex shows that the rate is higher in the male categories than in any of the female categories. The greatest rate difference in similar categories is between the white male classroom and the white female classroom categories where the male rate is seven times that of the female rate. The greatest difference in any category is between the negro female classroom and the white male classroom categories, where the white male classroom rate is more than 23 times higher than the negro female classroom rate.

In brief, females are shown to have a generally lower accident rate than males.

The analysis of the group by race shows that negro students have a lower accident rate than white students. The analysis shows the rate for white students is more than twice that of the negro students. The number of negro students trained amounts to a little more than ten per cent of the number of white students trained, therefore the reliability is naturally lower for their indicated accident rate.[26]

In review, the degree of training has a slight effect

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[26] Henry E. Garrett, Statistics in Psychology and Education, (Longmans, Green and Company, 1951), p. 183.

on the accident rate of all the sub-categories of the trained group. The largest category concerned with degree of training is the white male classroom category with 8,148 students. When this group is compared with the white classroom and practice driving category with 4,566 students, the rate is found to be favoring the white classroom and practice driving group.

Analysis of differences in the rate by sex shows the male categories all have higher rates than the female categories.

Rate analysis by race categories shows the negro accident rate to be only half of the white students's rate.

In brief then, those students taking the full degree of training had fewer accidents than those taking only classroom work. The male students had a poorer safety record than the females. The Negro students had a safety record about twice as favorable as the white students.

The lowest accident rate of the categories of the trained group is to be commended when it is compared with the best of the non-trained group.

Violations and violation rate by the total trained group. Table XII, page 45, gives the violations and the rate of violations for the total trained group each year. This is an indication of annual behavior. Table XIII, page 47, gives the violation rate of the sub-categories for the total period of eight years. This is an indication of behavior for the total study period.

The years 1949 and 1950 brought no violations to the trained group. The year 1951 brought the lowest violation rate of 0.173, and the year 1953 brought the highest violation rate of 1.490. It is significant that even in 1953, the year with the highest rate, one hundred students caused less than two violations.

Violations and violation rate by sub-categories of the total trained group. The categories used to analyse the violation rates are the same as those used to analyse the accident rate.

The analysis of the violations by categories concerned with degree of training shows that the violation rate of the white classroom category is definitely higher than the white classroom and practice driving category. The white male classroom category is slightly higher than the white male classroom and practice driving category rate. The white female classroom category is slightly lower in rate than the white female classroom and practice driving rate. The negro classroom category rate is definitely lower than negro classroom and practice driving rates, and the same holds true for negro male and female classroom category rates.

In brief, the violation rate is slightly lowered in the white categories as training is increased. In the negro categories the violation rate increased as training incresed. For the totwl however, more training decreased the vidation rate.

The analysis indicates that the female rate of viola-

TABLE XI

ACCIDENTS AND ACCIDENT RATE OF THE TRAINED GROUP BY SUB-CATEGORIES FOR THE EIGHT YEAR PERIOD FROM 1949 THROUGH 1956

Category	Number of students	Number of accidents	Accident rate
All students	14,286	507	3.548
White students	12,774	481	3.773
White C.*	8,148	320	3.927
White Male C.	3,857	273	7.078
White female C.	4,351	47	1.083
White C.P.**	4,566	161	3.526
White male C.P.	1,511	108	7.147
White female C.P.	3,055	53	1.734
Negro students	1,512	26	1.719
Negro C.	838	8	0.954
Negro male C.	290	6	2.068
Negro female C.	548	2	0.383
Negro C. P.	674	18	2.670
Negro male C.P.	342	16	4.970
Negro female C.P.	332	2	0.602

*The abbreviation C. stands for students with only classroom training.

**The abbreviation C. P. stands for students with classroom and practice driving training.

tions is lower in all categories than the male violation rate.

One Negro category, the negro classroom and practice driving category has a very slightly higher rate than the white classroom and practice driving rate. All other negro categories are definitely lower in violation rates than the corresponding white category rates.

In review, the lower rates accompany the groups with more training. Females have a lower rate than males, and negro students have a considerably lower violation rate than white students.

Comparative analysis of the non-trained and trained groups and their performances

The two major groups analyzed and to be compared are the non-trained group and the trained group.

The two major factors to be considered within each group are the violation rates and the accident rates.

The categories within each group are concerned with either a time analysis, which is the performance each year by the total group, or with degree of training, sex and race for the total eight years of the study.

One reporting of performance is made by percentage rate. If the percentage rate for accidents by the non-trained group in 1949 is 13.905, this means that for every 100 drivers of the 51,557 drivers in the group, 13, or nearly 14 accidents occurred in 1949. When the number in

TABLE XII

VIOLATIONS AND VIOLATION RATE CAUSED BY THE TOTAL TRAINED GROUP

Year	Number of students	Number of violations	Rate
1949	900		
1950	1,606		
1951	4,050	7	0.173
1952	10,271	79	0.769
1953	14,286	213	1.490
1954	14,106	172	1.219
1955	12,519	54	0.431
1956	9,712	35	0.360

the percentage rate is lower, then the safety record is better.

Comparative analysis of the conditions of the groups.

First, the size condition of the two major groups should be compared.

The trained group and the non-trained group exist at the same time, specifically from 1949 through 1956. The groups also contain people in the same age range, specifically age 15 through 20. The groups are complete. When both groups are added together, no drivers remain in Virginia between age 15 and 20 outside the total. These groups are not sample groups, but complete groups.

The non-trained group and the trained group both are governed by the requirements and laws of one State, specifically Virginia. The performance of the non-trained and trained groups is reported in the same manner according to the same laws and by the same agency, specifically the laws of Virginia and the Division of Motor Vehicles.

Within the trained group, all have been exposed to the same basic training course which is recommended by the Virginia State Department of Education. The trained students have all been trained to one of two possible degrees of training; one, the classroom training only, and two, the classroom and practice driving or full degree of training. Students having only a partial degree of training and students having the full degree of training are taught by the same

TABLE XIII

VIOLATIONS AND VIOLATION RATE OF THE TRAINED GROUP BY SUB-CATEGORIES FOR THE EIGHT YEAR PERIOD FROM 1949 THROUGH 1956

Category	Number of students	Number of violations	Violation rate
All students	14,286	560	3.919
White students	12,774	532	4.164
White C. *	8,148	378	4.639
White male C.	3,857	361	9.359
White female C.	4,351	17	0.390
White C.P. **	4,566	156	3.416
White male C.P.	1,511	126	8.338
Whie female C.P.	3,055	24	0.785
Negro students	1,512	28	1.851
Negro C.	838	4	0.477
Negro male C.	290	4	1.379
Negro female C.	548		
Negro C.P.	674	24	3.560
Negro male C.P.	342	22	6.432
Negro female C.P.	332	2	0.602

*The abbreviation C. stands for students with only classroom training.

**The abbreviation C.P. stands for students with classroom and practice driving training.

basic manuals and units of instruction. Students taking the practice driving are all trained by the same basic type of duel controlled car.

The comparative expected performance of the trained group before training is basically the same as for the non-trained group. Boys have a poorer safety record than girls, and boys must pay higher insurance premiums than girls. The people in the 15 through 20 age group are generally over involved in accidents and are over the index. Index means that if 8 per cent of all drivers from age 15 through 20 caused 8 percent of all accidents, the index would be 100.0 or normal. An index of 50.0 would mean 8 percent caused 4 per cent of all the accidents. The lower the index number, the better the driving record of the group.

In a study made on accident involvement by age groups in Connecticut, Massachusetts and Wisconsin,[27] the index for those students from age 16 through 19 was 1.50. It is pointed out that the teenager is overinvolved, but not to the extend of the 20 to 24 age group.

After the training was completed, the differences in the trained and non-trained group started to become evident. First, the study shows that the accident and violation rates differed in favor of the trained group. Second, there was

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[27] National Education Association Research Division, National Education Association National Commission on Safety Education, A Critical Analysis of Driver Education Research, (National Education Association, 1957), p. 8.

an immediate savings to the students of the trained group in the form of reduced insurance premiums.

Concerning the size of the groups studied, it must be understood that both groups very in size in each year from 1949 through 1956 due to the fact that some of the drivers pass the age limit of 20 while others move into the lower end of the age scale.

The non-trained group was composed of 51,557 drivers in 1949 when the group was at the minimum size, and it contained 108,183 in 1956 when it was at the maximum size.

The trained group was a minimum size in 1949 with 900 students and at the maximum size in 1953 with 14,286 students. The trained group studied was trained between 1949 and 1953, therefore the group gradually decreases after 1953 due to the students passing out of the age range.

The all driver group used in the comparison of accident rates is the total of the trained and non-trained groups, all age 15 through 20.

The all driver group used in comparing violations is composed of all drivers of all ages because violation records were figured by age groups. All drivers of all ages, therefore, served as a comparison group.

In the trained group the sub-categories are analyzed on a total 8 year basis for accidents and violations. There is no need to show the 15 categories for each of the eight years when the total period shows the significant facts.

Comparative analysis of the accident and violation rates of the groups. The accident rate is compared in table XIV, page 53 and in figure 2, page 54. This thesis shows the best and most satisfactory rate to be that of the trained group. The all driver group has a much poorer safety record, and the poorest is by the non-trained group. This ranking is consistent for each year from 1949 through 1956.

The non-trained group has a rate ranging from 13.905 to 22.756.

The all driver group has a rate ranging from 13.661 to 19.371.

The trained group has a rate ranging from 0 to 1.357

These rate figures indicate that the non-trained drivers caused from over 13 to more than 22 accidents per 100 drivers in the group in each year of the study. The all driver group caused from over 13 accidents to more than 19 accidents per 100 drivers in the group in each year of the study. The trained group caused from 0 to slightly more than one accident per 100 drivers in the group in each year of the study.

The mean of the rates for the non-trained group for the 8 year period of the study was 18.018. The mean of the rates for the all driver group for the 8 year period was 16.142. The mean of the rates for the trained group for the 8 year period was 0.516.

The worst safety recordof the 8 years came in 1952 for

the non-trained and the all driver groups. The worst year for the trained group was 1953. The best safety record came in 1949 for the non-trained group and the all driver group. The best year for the trained group was 1950.

Concerning accident rates by the sub-categories of degree of training, sex and race, table XI, page 43 clearly illustrates the rate differences. Within the trained group the sub-categories can be compared with the total of the non-trained group. The rate mean of the non-trained group is 18.018. A comparison of the non-trained group with the sub-category of the trained group having the highest accident rate for the total 8 year period shows considerable difference favoring the trained group; therefore, all the sub-categories of the trained group have a more favorable rate than the non-trained group. The annual mean rate of the white male classroom and practice driving category is 0.893 which is the highest rate of any category in the trained group. However it is still 17.125 points below the mean rate of the non-trained group.

The general trend of the violation records follows the general trend of the accident records of the trained and non-trained group. The violation rate is generally lower than the accident rate in all groups. The two groups are not separated by the extreme amount of separation found in the accident rates of the trained and non-trained groups. The violation rates are much lower than the accident rates in the non-trained group than they are in the trained group.

Table XV, page 56 and figure 3, page 57 will indicate that the method of group comparison of the violation rates differs from the method used for comparing accident rates by one factor. It was possible to analyse accidents by the age group for both the trained and non-trained groups; however, violations could be analysed completely only within the trained group, therefore the comparison group is composed of all drivers of all ages. This partly accounts for table XV, page 56 and figure 3, page 57 showing a lower rate. The under involvement in accidents and violations by people above 30 helps account for this lower rate in the all driver group. Lower involvement after age 30 was proven to be true in a study of three states.[28]

The analysis shows that the trained group has the lower violation rate of the two groups. The range of the rates for the all driver group is from 4.378 to 6.129. The mean rate for the all driver group is 5.107. The range of the rate for the trained group is from 0 to 1.490. The mean rate for the trained group is 0.555. The difference in the means is 4.552. This difference means that about 5 accidents more per 100 drivers are caused by the all driver group than are caused by the trained group in each year of the study. The sub-category violation rates have been compared within the trained group previously and the rates are summarized in Table XIII, page 47. In relation to the total however, it is

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[28] Ibid.

TABLE XIV

ACCIDENT RATES FOR ALL GROUPS *
FOR 1949 THROUGH 1956

Year	Non-trained group	All driver group	Trained group
1949	13.905	13.661	0.111
1950	17.243	16.741	
1951	20.749	19.288	0.247
1952	22.756	19.371	1.100
1953	20.764	17.122	1.357
1954	16.769	14.250	1.040
1955	16.295	14.326	0.272
1956	15.666	14.382	0.008

*All three groups shown in this table are from age 15 through 20.

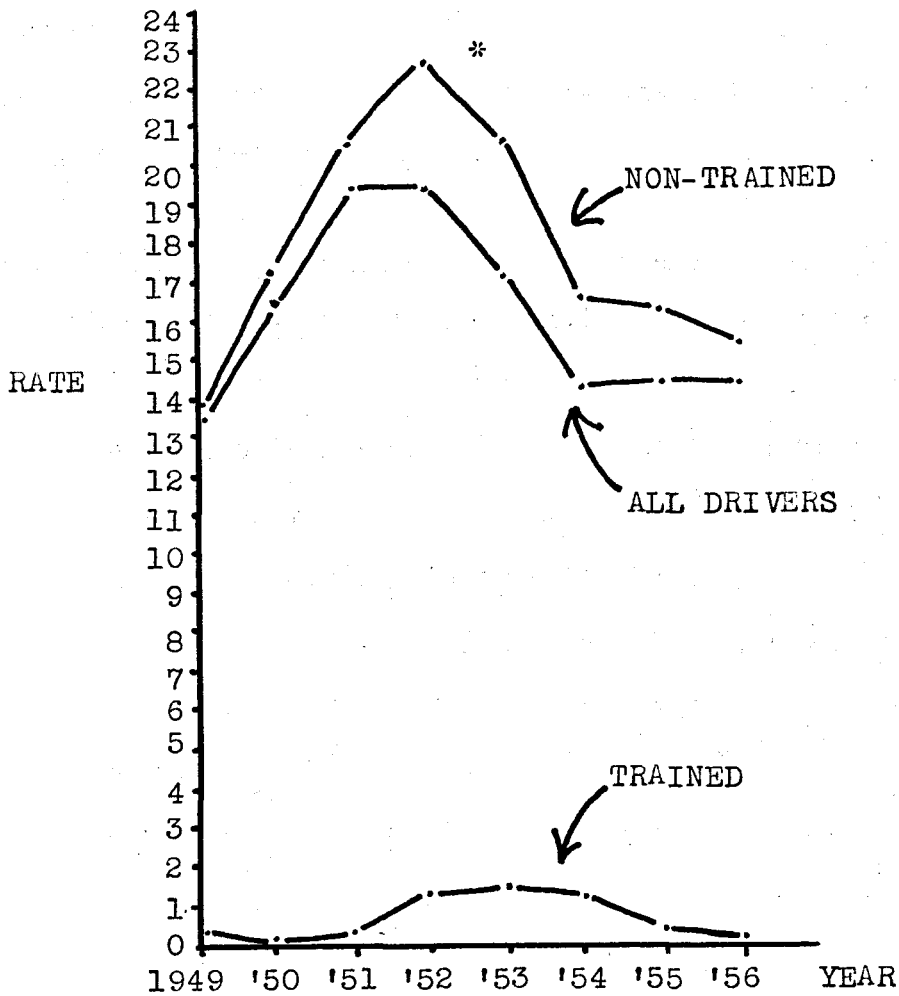

FIGURE 2

ACCIDENT RATES FOR ALL GROUPS
AGE 15 THROUGH 20 FOR THE
YEARS 1949 THROUGH 1956

*Sample Explanation. In 1952 more than 22 accidents were caused by every 100 drivers in the non-trained group.

important to point out that the mean rate for the sub-category with the highest rate was 1.169. In the violations sub-categories the white male classroom trained student had the worst record. It should be stated again that the worst category in the accident rating was the white male classroom and practice driving group.

Comparative analysis in relation to other research. Previous research in driver education has been classified into three general types. These types are trend studies, sample group experience studies and total group experience studies. Many of the studies were concerned with local evaluations, and others were on a broader basis.

This thesis, comparatively speaking, deals with large numbers, and can be classified as the total group experience type of study.

One study was done in Virginia by the Mutual Insurance Rating Bureau of Casualty Underwriters. This study could be classified as a sample group experience study due to the fact that a sample of 721 trained students was compared with 665 untrained drivers. The results of this study showed that the trained male group had a poorer safety record than the untrained male group.[29] This conclusion was contrary to most of the studies in other states. The Virginia study concerned students trained in 1948 and 1949, and was a challenge for more research. The problem of several studies was similar

[29] Ibid., p.44

TABLE XV

VIOLATION RATES FOR TWO GROUPS
FOR 1949 THROUGH 1956

Year	All drivers*	Trained group
1949	4.564	
1950	5.453	
1951	6.106	0.173
1952	6.129	0.769
1953	5.370	1.490
1954	4.418	1.219
1955	4.378	0.431
1956	4.442	0.360

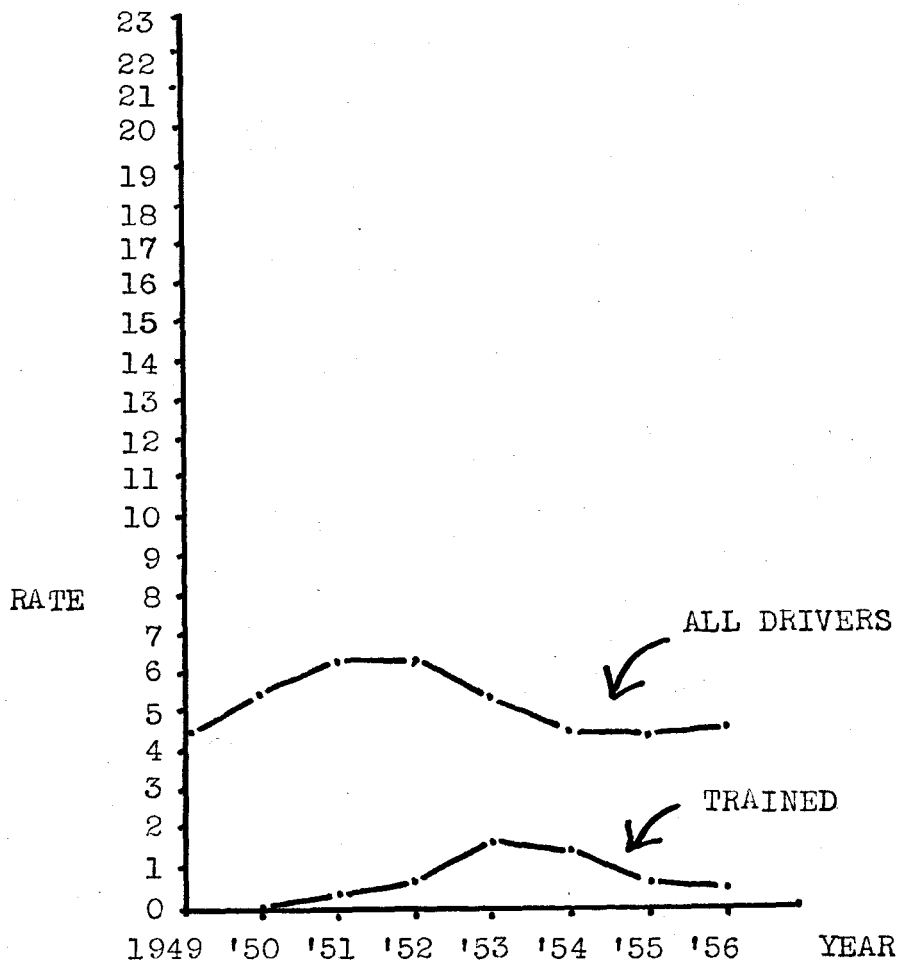

FIGURE 3

VIOLATION RATES FROM 1949 THROUGH 1956 FOR THE TRAINED GROUP AND THE ALL DRIVER GROUP*

*The all driver group is composed of all drivers of all ages.

to that of the Virginia study in which one of the conclusions was that "the fluctuation of accidents from year to year indicates that the sample groups were not large enough to establish a well defined trend."[30]

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[30] Ibid., p.45

sums up the situation for research projects in the excellent manner following:[31]

> The studies show indisputably that those who have had driver education have better driving records than those who have not had driver education. The extent to which this particular educational experience was casual-and, hence, established a relationship between the two groups-has not been so clearly defined. This, in turn, probably has not been the fault of the program or of the studies but of the real limitations inherent in this type of research.

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[31] Ibid., p. 56

CHAPTER IV

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

I. SUMMARY

Development of the Program

Today thousands of young drivers have been trained by the driver education program in Virginia. The expansion of the program has been rapid and widespread. These developments have been due to the rapid increase in traffic accidents and violations in recent years. A rapidly growing automotive society, along with an ever widening area of responsibility assumed by Virginia's public schools, has caused an unusually rapid growth of a driver education program that has had a brief but progressive history.

The driver education program has taken a significant place in the curriculum of the public high schools of Virginia. The program has not met with any vital problems within its operating process. Training continues to be given in a competent manner and on a standardized basis. The problem is not the program, but the results. The problem is not the cause, but the effect. The effect of the driver education program on the safety records of the students trained is the problem. One method of solving this problem is by a driving performance evaluation. Such an evaluation in Virginia has been limited; therefore, the purpose of this study is to evaluate the direct results of the driver education program on those students trained by the program.

Evaluation of the program

The major purpose of the driver education program is to save lives, reduce injury, and decrease the extensive economic losses that are constantly being inflicted; therefore, the evaluation method used for this study is concerned with these factors.

The method of evaluation of the program is a total group experience comparison. The purpose is to evaluate the effect of the driver education program on the driver. The purpose is not to evaluate the various administrative and instructional operations of the program.

The two major groups compared in this study are called the non-trained group and the trained group. Two additional groups were used for part of the analysis. One group consists of all drivers in the 15 through 20 age range. This group is used to help compare accident rates. The second group consists of all drivers of all ages. This group is used to compare violation rates with the trained group because figures are not available by age for the analysis of violation rates.

The evaluation is concerned with finding the differences or similarities in performances by the trained and non-trained groups, shown by differences or similarities found in their violation and accident rates. Within the trained group an analysis was made to find the variations or similarities of the different categories of degree of training, sex and race.

The results of the evaluation indicated generally that

the trained group had the best driving performande record. This is explained in the conclusion of this study.

In this summary another result of the driver education program that is not directly connected with the accident and violation rate analysis must be mentioned. In Chapter II it was explained how completion of all or part of the training program would bring an insurance premium rate reduction of 5 or 10 per cent. It should be pointed out even when these reductions are figured on a very minimum policy, that a savings of hundreds of thousands of dollars to citizens can be realized in a year's time. This savings is an additional result of the program and should be considered in addition to the effects of the program on accidents and violations.

II. CONCLUSIONS

The interest and acceptance of the driver education program in Virginia has been widespread due to the serious need demonstrated by high accident and violation rates.

The driver education program has developed more rapidly than any other phase of Virginia's education curriculum.

The operation of the driver education program has not developed any vital problems; however, the effect of the program on driving performance has been questioned.

Evaluation of the effect of the program in Virginia has been limited; therefore, the decision was to evaluate the program by an analysis of the accidents and violations

caused by all drivers in the 15 through 20 age range.

A total group comparison was made in this study; therefore, eliminating sample groups that have a lower reliability than complete groups.

The trained group and the non-trained group are the two majorsgroups in the study. These groups are suitable for a total group comparison study. Both groups are comparable for several reasons. Their age ranges are the same and the groups exist at the same time. They come under the same laws, regulations and methods of receiving licenses. They both were recorded and reported by the same statistical methods. Both groups are within the state of Virginia and they have been exposed to the same general opportunities found in a democratic society. The inability to measure the exact socio-economic backgrounds must be accepted in a study of this nature. The trained and the non-trained groups may both have the same general socio-economic background variations.

The general conclusion of the evaluation is that the trained drivers had a far superior driving and safety record in all categories than the non-trained group.

For accidents, the record is better for the trained group 35 to 1 over the non-trained group.

For violations, the trained group was compared with an all driver group of all ages. Even with the under-involvement factor of a large part of the all driver group, the record shows better for the trained group by a ratio

of 9 to 1.

The lower violation rate and accident rate of the trained group indicates that the driver education program in Virginia has been valuable. To state that A caused B or that the program caused lower accident and violation rates directly would be in error as prima-facie evidence; but there is a definite cause-and-effect relationship which is strong enough to warrant insurance premium deductions amounting to thousands of dollars. If the ratio were closer, such as 2 to 1, a more expensive and extensive study might be desired; however, the ratio favors the trained group 35 to 1 for accidents and 9 to 1 for violations.

The next conclusion concerns the degree of training which may allow a modification of the general conclusion given, stating that, "The driver education program has been valuable."

The modification of the statement is that, "The driver education program has been valuable especially within the classroom training portion of the program." The reason for this modification is the very slight improvement shown in the rates when those students have classroom work and practice driving are compared with those having only classroom work. It was stated inthe summary on degree of training, that those students taking the full degree of trsining did have fewer accidents and violations, but when comparing this slight improvement of the classroom and practice driving

category with the vast improvement of the classrom category over the total non-trained group, the practice driving category improvement is comparatively insignificant. Figure 5, page 67 illustrates this insignificance in the accident rate differences in the two degrees of training.

The accident rate and violation rate are considerably lower for females than for males.

In the sub-category of race, it can be stated that the rates for white students were more than twice those of the Negro students.

In view of these fadts, it appears that the amount of effort, time and money spent for driver education up to the present has been worthwhile. A comparison of the effort, time, money and lives lost due to traffic violations and traffic accidents, with the financial cost of a driver education program emphasizes this fact. It emphasizes this fact because it seems that the great losses due to accidents can be reduced by a driver education program. Paying a little now rather than paying later involves much more than just paying dollars. A life lost can never be paid for.

The determination of what the extent of the driver education program will be, as well as the consideration of what the public school's responsibility for driver education will be, remains to be determined by future judgment and study. It is hoped that this study will be of assistance to any future judgment and study concerning driver education.

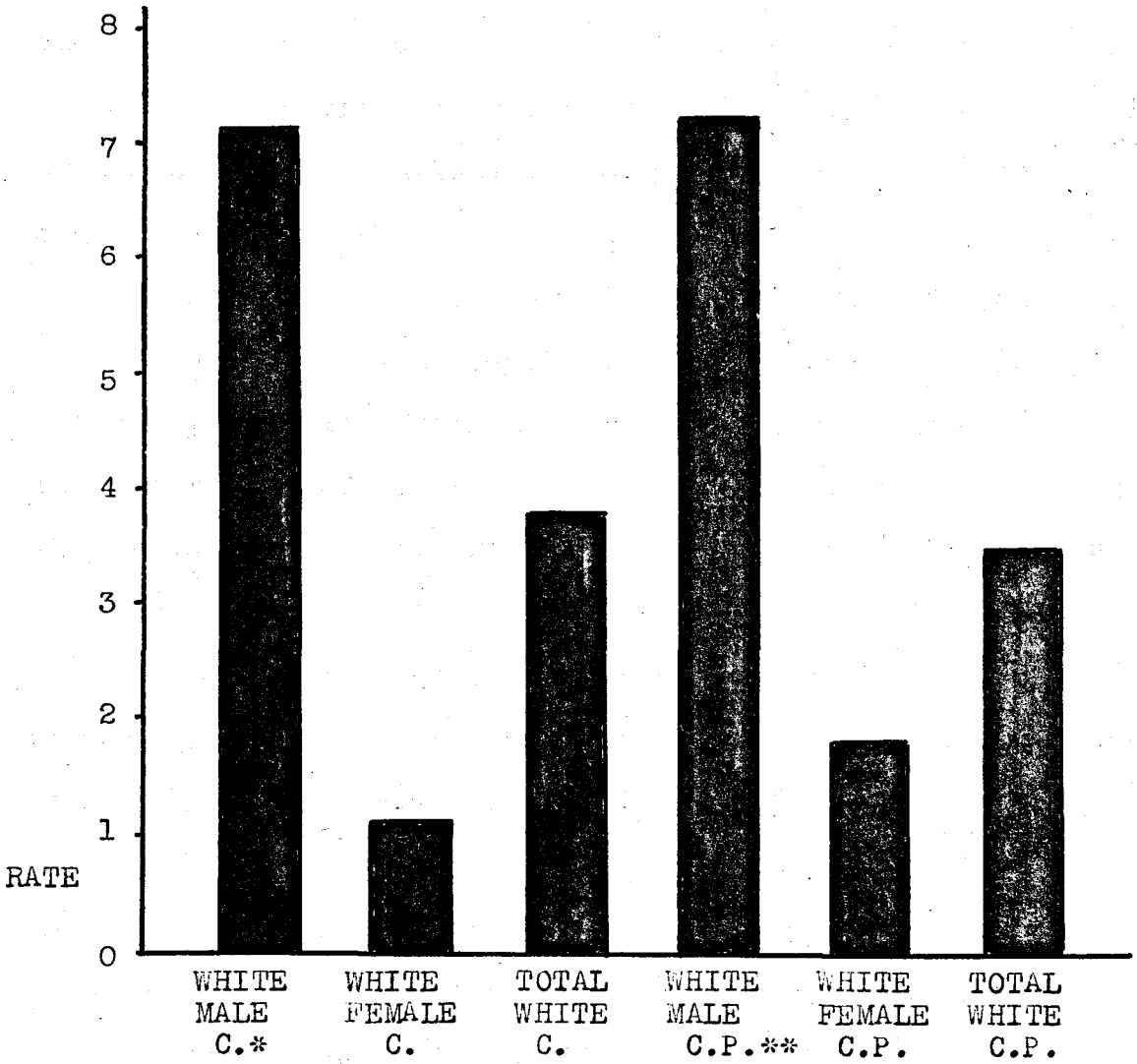

FIGURE 4

A COMPARISON OF THE ACCIDENT RATE FROM 1949 THROUGH 1956 FOR THE CLASSROOM AND CLASSROOM AND PRACTICE DRIVING WHITE STUDENT CATEGORIES OF THE TRAINED GROUP

*The abbreviation C. means students trained only in the classroom.

**The abbreviation C.P. means students trained by classroom and practice driving.

III. RECOMMENDATIONS FOR FUTURE DRIVER EDUCATION RESEARCH

Future research on driver education should be conducted on a long range basis. A five-year or ten-year plan would be desirable. Thisplan should be part of an evaluation system that will continue as long as driver education continues.

When research is started, there should be a coordinated effort to organize the complete project under one agency which may designate various parts of the project as the responsibility of other agencies concerned. In some states this agency may be the research division in the education department.

All agencies or persons connected with the project must agree to one master plan and must agree that one agency will be responsible for directing this plan.

Future research should continue to be on a statewide basis and should use the total group experience comparison method as a major part of the research.

All report forms, statistical methods, reporting methods and paper work procedures should be studied. When the best methods are chosen, these methods must become the standard throughout the entire period of the study, even if a new and better method is discovered in the meantime. At the end of a certain period of time, new methods could be approved and adopted.

Future evaluation should be concerned with finding

more about the socio-economic background of drivers which effects behavior and attitude, which in turn effects driving performance. Future study should also consider the time element which would answer such a question as "How long did the driver drive a car before he had an accident or violation?" The number of miles driven before the first accident or violation should also be considered for study. The frequency of violations and accidents by individuals who have more than one accident and violation could be measured on the basis of time and mileage.

A study of this extent would involve staff time and financial costs. These items can be minimized by the establishment of a business machine system. Such a system of course would be able to carry many many other duties.

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