

FINAL REPORT

AN ANALYSIS OF THE ALCOHOL CURRICULUM USED IN THE DRIVER  
EDUCATION PROGRAM OF THE FAIRFAX ALCOHOL SAFETY  
ACTION PROJECT

by

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## ABSTRACT

In this study, ten classes of driver education students from two Fairfax County high schools received materials from a new alcohol curriculum in conjunction with regular driver education training. Eight classes of students from two other Fairfax County high schools did not receive the new curriculum but rather traditional alcohol instruction in the same context. These students were tested on their alcohol knowledge at the beginning and end of the course. While pretest scores did not differ significantly between the two groups, students who received the new alcohol materials scored significantly higher on the posttest than did students receiving traditional instruction. It was discovered, however, that most of the differences between the two groups occurred in classes taught by one particular teacher. It is possible that the quality of instruction in each class and the students' reaction to each teacher's personality could have influenced test results. From these data, it was concluded that teacher effectiveness, as well as program effectiveness, influences students' knowledge of the effects of alcohol.

Two other groups of driver education students were tested and their scores compared with those of the Fairfax experimental and control groups. Nineteen classes from one Charlottesville/Albemarle high school received traditional alcohol and driver education instruction similar to that received by the Fairfax control group. Six classes of driver education students from another Charlottesville/Albemarle high school received instruction from a programmed text which involved little teacher influence. Pretests for these groups did not differ significantly from those of their Fairfax counterparts. Post-tests scores for these groups were significantly lower than those for both the experimental and control groups in Fairfax. It was concluded that some factor affecting students living in the Fairfax area enabled these students to increase their test scores significantly more than did students not living in Fairfax. It was postulated that this factor was the influence of the Fairfax ASAP.

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## INTRODUCTION

The U. S. Department of Transportation, National Highway Traffic Safety Administration sponsors programs of comprehensive alcohol countermeasure projects in 35 selected communities. The Fairfax, Virginia, Alcohol Safety Action Project (ASAP) is one of these, and is designed to reduce the incidence of alcohol-related crashes, injuries and fatalities as well as general drunken driving by directing comprehensive campaigns against drunken drivers. The four basic countermeasures are: enforcement, adjudication, rehabilitation and treatment, and public information and education. This report deals with a very specific portion of the last countermeasure -- the development of supplemental alcohol instruction in the context of high school driver education.

The public information and education countermeasure is one of the least studied and most illusive areas of ASAP evaluation. The effects of any form of information dissemination are extremely difficult to quantify. Education programs, in their attempts to change long-term, well developed attitudes and to correct strongly entrenched misconceptions, are difficult to study and evaluate systematically, since few of the effects and subtle nuances of these attitudinally oriented presentations are understood. There are also a number of intervening variables which cannot be quantified and are difficult to examine systematically. While it is assumed that attitude change is somewhat correlated with behavioral changes, the relationship between knowledge gains and attitudinal or behavioral modification is somewhat tenuous.

In specifically dealing with ASAP and the dissemination of alcohol-related information, many elements such as fear of enforcement, increased police perception by the individual, and legislative change may result in behavioral change which could confound the effects of the public education program and obscure its measurable results.<sup>(1)</sup> Even in some of the most strictly controlled studies, little or no definite change was found in attitude or in behavior.<sup>(2,3)</sup> This is perhaps a function of inadequate assessment of subtle attitudinal changes or of incorrect assumptions in construction of the program itself. As far as creating a change in knowledge, a more easily measured variable, attempts to educate the public in Fairfax have experienced only limited success. Within the public information and education countermeasure, public awareness of the existence of "a program of alcohol countermeasures" (not necessarily ASAP) was increased. Within the general population, the public information efforts did not correct misconceptions concerning the consumption of alcohol.<sup>(4)</sup>

All of this points to the need for more specific research in the general field of attitude change and to the need for more strictly controlled studies specifically designed for the area of safety education. It is already documented that there are three essential considerations in planning an effective driver safety campaign<sup>(5)</sup>:

- (a) How well the program isolates its target audience. Among the best studies in this area are those which deal with this concept before outlining specific target behaviors. It is essential to define the population to whom the campaign is to be directed and analyze their needs, beliefs, motivation, defenses, language and interests. (6,7)
- (b) How well the program isolates its target behaviors. A second but equally important consideration is the specific behavior or task one wishes to reinforce or eliminate. The most effective approaches deal with specifically stated actions, such as "never pass a car on the crest of a hill," rather than "be careful when passing". (8,9)
- (c) How well the program motivates its audience. The best programs offer positive personal attention, rather than using "fear tactics." Increased anxiety and tension due to shocking and extremely emotional presentations lead to defensive avoidance and may block cognitive knowledge gains. (10, 11, 12, 13) The approach stressing risk appreciation and behavioral coping has the best effect. In addition, motivation is often increased by the presence of rewards which are contingent upon the acceptance of materials presented.

In a program like ASAP which is aimed at the general public, it is especially difficult to define the audience and the problem behaviors and to reach every segment of the population. Total saturation of the problem area involves program diversification for target populations. One of the newer areas of interest is in Driver education classes in Fairfax County high schools. Driver education students are especially suited to the methods of program design outlined above. The target audience is extremely well defined — 10th graders taking driver education in the public school system. The target behavior is the incidence of excessive drinking and driving, which is made more serious by the limited drinking experience of this age group. (14) The course avoids both the "shock treatment" and "sermonette" approaches and offers a built-in reward to spur motivation. Passing the driver education course enables the student to obtain his driver's license prior to age 18 and reduces his insurance rates, an incentive to both students and parents.

There is additional evidence to support the use of driver education classes for information dissemination. It has been determined that specific alcohol information in the context of driver education classes does more than simply impart knowledge. Waller and Koch found that those individuals who had taken high school driver education classes incurred fewer alcohol related violations than those drivers not taking the course. (15) This was especially true of males within the intermediate age group who drink and drive more often than other sub-groups. Characteristics of students in driver education classes may also assist in upgrading course efficiency. While parent and familial attitudes toward drinking are the most powerful determiners of overall drinking behavior, peer

group pressure often determines the situation in which drinking takes place and whether or not it is appropriate.<sup>(14)</sup> The where, when and how of youthful drinking behavior and whether or not driving must follow the drinking experience is exactly the area of behavior with which driver educators deal and hope to modify. Thus, the fact that students of similar ages are taking the course may augment changes beyond those which would ordinarily take place.

Since driver education classes appear to be a most appropriate setting for presentation of alcohol information, it is important to carefully consider both the content and presentation of materials to be used. This specific area of alcohol research has been a neglected one compared to other driver education investigation. The collection of materials for the "Fairfax Alcohol Instructional Package" by educators in the Fairfax public schools is an attempt to develop a standardized package of accurate and straightforward information, to equip each teacher with the knowledge and materials necessary to instruct his students, and to stimulate teacher interest in alcohol education.

### PURPOSE

The purpose of this study was to validate the use of the "Fairfax Alcohol Instructional Package" within high school driver education classes in Fairfax County.

### HYPOTHESIS

It is thought that teachers who are equipped with an effective package of materials and are knowledgeable on the subject of alcohol and its effect on driving behavior should have greater success with students in driver education than those who lack the above elements and who depend upon their own devices and interests for instructional materials. The goal implied in the implementation of the "Fairfax Alcohol Instructional Package" was to give teachers a uniform knowledge of the subject and provide an attractive method for presentation to students. The hypothesis is that those students who have received the "Fairfax Alcohol Instructional Package" will score significantly higher on a factually oriented alcohol examination than students who received the nonstandardized, non "FAIP" materials.

### METHODOLOGY

Subjects. — The subjects for this experiment were all 10th grade high school students taking the 30-hour classroom portion of driver education at four Fairfax County high schools during the first nine week period of the 1973-74 school year, and at two high schools in the Charlottesville-Albemarle area, tested in the fall of the preceding year (for inferential purposes only). Two instructors teaching ten classes at two of the Fairfax County high schools worked with the experimental group using the "Fairfax Alcohol Instructional Package." Three other Fairfax instructors representing eight classes presented

students in control group 1 with alcohol materials other than those found in the Fairfax package. Six instructors representing 19 classes in one Charlottesville/ Albemarle area high school presented students in control group 2 with materials from traditional sources, thus being treated similarly with control group 1 with the exception of location. Finally, students in control group 3, representing six classes from a second Charlottesville/ Albemarle high school were taught from a programmed text with minimal teacher input. The basic experimental design is shown in Figure 1.

FIGURE 1

## EXPERIMENTAL DESIGN

Group	Pretest	Posttest	Pre-post Difference	
E	$E_a$	$E_b$	$\Delta E$	
C1	$C1_a$	$C1_b$	$\Delta C1$ —	Experimental (vs.) Control
C2	$C2_a$	$C2_b$	$\Delta C2$ —	
C3	$C3_a$	$C3_b$	$\Delta C3$ —	
E	— Experimental group: Experimental Program + ASAP Location + Teacher			
C1	— Control (Fairfax): ASAP Location + Teacher			
C2	— Control (Charlottesville): Teacher			
C3	— Control (Charlottesville): Programmed Text (minimal Teacher Input)			

Instrumentation. — The "Fairfax Alcohol Instructional Package" consists of the following elements:

- (1) "The Decision is Yours" (also known as "Alcohol and Driving") — an alcohol instructional unit which takes approximately three hours to present, prepared and published by the American Driver and Traffic Education Association.<sup>(16)</sup> Included is a manual consisting of behavioral objectives, factual knowledge, sample test items, and a film strip. This element provides most of the lecture material.
- (2) A series of audiovisual materials — These include the films, .08, How Much Is Too Much?, as well as the Wisconsin Trigger films and a set of transparencies developed in the Fairfax County public schools which supplement lecture materials.



Procedure. — All subjects were pretested during the first week of class using the test entitled "Alcohol and Driving" developed by the Fairfax County Public School System. Tests were administered according to standardized instructions and scores were reported on a student by student basis as the number correct. Teachers were cautioned not to review the tests with students after the pretest.

With the exception of those students who received the programmed instruction, all subjects received general driver education instruction taught in the traditional manner from conventional texts.\* During the fifth week of the nine week period, both Fairfax groups received alcohol instruction. This period of instruction varied among Charlottesville classes. The experimental group received three hours of instruction taught from "The Decision is Yours" alcohol curriculum and one to two hours from the audiovisual materials available in the package. The control groups received materials other than those available in the "FAIP" as chosen by the instructors involved, for an equal period of time. Both experimental and control group teachers in Fairfax timed the presentation of their alcohol units so that the last day of alcohol instruction was the same for both groups.

All subjects were posttested during the last week of classes. Posttest scores were also reported as the number answered correctly when forwarded to the evaluator.

#### ANALYSIS

Data collected during this study are summarized in Table 1. These data were analyzed to detect significant differences between pre and posttest performance, and to determine whether the experimental group experienced a greater increase in level of performance than did the control groups. Pre/post significance was determined with a t test for correlated samples, using both students and classes as units. For control/experimental determinations, the t test for independent samples was performed on the different scores. To establish the comparability of the groups, pretest scores were compared and no significant differences were found. Among the classes in both experimental and control groups, and for both groups as a whole, all pre/post differences were found to be significant. Comparing experimental and control group performance, the group which received the Fairfax alcohol curriculum improved more in terms of factual knowledge than did any of the control groups. In addition, differences between the Fairfax control group and the Charlottesville control groups were significant at the .05 level.

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\* Two such texts were the American Automobile Association's Sportsmanlike Driving (McGraw-Hill, 1970) and Halsey and Wood's Let's Drive Right (Scott Foresman & Co., 1968).

TABLE 1

RESULTS OF ALCOHOL KNOWLEDGE TESTING BY  
TREATMENT AND INSTRUCTOR

Instructor	Average Pre- Test Score	Average Post- Test Score	Average Pre- Post Difference
Experimental Group (Fairfax)			
Instructor 1 (n = 5 classes)	11.90	14.47	2.57
Instructor 2 (n = 5 classes)	12.08	17.08	5.00
Weighted Average	11.99	15.78	3.79
Control Group 1 (Fairfax)			
Instructor 3 (n = 2 classes)	11.75	15.14	3.39
Instructor 4 (n = 1 class)	10.92	13.40	2.48
Instructor 5 (n = 5 classes)	12.69	15.16	2.47
Weighted Average	12.23	14.93	2.70
Control Group II (Charlottesville- Albemarle)			
Instructor 6 (n = 3 classes)	10.40	11.56	1.16
Instructor 7 (n = 5 classes)	11.86	12.99	1.13
Instructor 8 (n = 1 class)	12.22	13.38	1.16
Instructor 9 (n = 5 classes)	11.88	12.74	0.86
Instructor 10 (n = 5 classes)	12.70	13.26	0.55
Weighted Average	11.87	12.78	.91
Control Group III (Charlottesville)			
Instructor 11 (n = 5 classes)	11.53	12.60	1.07
Instructor 12	10.83	12.42	1.58
Weighted Average	11.41	12.57	1.16

## CONCLUSIONS

There are several restrictions under which the results of the analyses must be interpreted. Instructors in the study were not randomly assigned their classes, and it was deemed impractical to assign instructors to each treatment group to counter-balance the teacher variables involved. There was evidence that this uncontrolled variable significantly influenced study results.

Students under experimental instructor 2 improved significantly more than those under instructor 1 receiving the same material ( $p < .01$ ). When data collected from instructor 2 are omitted from the analysis, no significant difference exists between the control and experimental groups. In addition, students under one of the teachers in control group 1 did significantly better than students under experimental instructor 1, whose students improved least among the experimental subjects. Although the experimental group appears to have improved significantly more than any other group, conclusions concerning program effectiveness must be tentative. One conclusion that definitely can be made is that results of the program are dependent upon who is teaching it, that a superior or inferior instructor can easily affect outcomes in class. This finding is not unexpected. Teacher personality has long been suspected to be influential in its effects on students' retention of materials and openness to learning. Recently, such variables as the student's assessment of instructor amicability, intellectual capacity, pragmatism or applicability, and extroversion have been proven to be some of the most potent ones influencing a student's attention to course materials and continuing interest in the subject after completing a course.<sup>(17)</sup> Students with the most "positive" attitude toward the instructor (those who see him or her as being knowledgeable in his field, rational, well organized, down to earth, sensitive, receptive to student ideas, confident, decisive and easy to talk to) will perform well for that instructor.

Another interesting interpretation involves comparisons of the various control groups. Control group 1 in Fairfax was essentially similar in treatment to control group 2 in Charlottesville/Albemarle, but the Fairfax group did significantly better in the testing than did the other. Since students in the Charlottesville/Albemarle group were tested earlier than those in the Fairfax group, an increased awareness of alcohol statewide could be involved. It is more likely, however, that increased alcohol awareness in the ASAP area itself is the influencing factor.

It can be concluded from evidence presented in this paper that the "Fairfax Alcohol Instructional Package" was at least as effective as the traditional program in imparting knowledge to driver education students and may have been significantly more effective. Assuming that the knowledge gained as a result of the new curriculum does not exceed that of the old curriculum, additional costs in implementation may prohibit its universal use. If, on the other hand, a significant difference does exist, another factor must be considered on the administrative and instructive levels. Does a difference of approximately one question on a 25 question test indicate a sufficient increase in the students' knowledge of alcohol to justify the financial expenditures involved in implementing the new program?



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