

CHARACTERISTICS AND EFFECTIVENESS OF THE DRIVER IMPROVEMENT
SCHOOLS WITHIN THE FAIRFAX, ASAP —1973

by

Cheryl W. Lynn
Research Analyst

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ABSTRACT

Descriptive data concerning the objectives of the Driver Improvement Schools (DIS) are presented to emphasize the specialized nature of the subgroups within this modality. These subgroups include the Northern Virginia Community College Driver Improvement School (NVCC-DIS), the Fairfax County High School Driver Improvement School (FCHS-DIS), and the Weekend Driver Improvement School (WDIS). Subspecialties within these groups are also described.

For the purposes of evaluation and on the basis of recommendations from past reports, a knowledge test was developed concerning the effects of alcohol, and this instrument was refined by means of item analysis. Test scores among the various types of DIS were compared to determine the relative effectiveness of each type in imparting knowledge. Scores for defendants who were double staffed to the Fairfax Alcohol Community Education program (FACE) prior to entering the DIS were compared with those for defendants attending only the DIS. For the purposes of this study, two types of FACE classes were used; previous classes were didactic in nature while more recent ones employed a concurrent discussion group. Along with these analyses, scores for recidivists were compared with those of non-recidivists to further validate the use of the test.

While both types of eight week DIS (Fairfax County High School or FCHS-DIS and Northern Virginia Community College DIS or NVCC-DIS) were effective in significantly increasing alcohol knowledge, the High School program (FCHS-DIS) was somewhat more effective. The WDIS was not effective in imparting knowledge as measured by the new test. However, the sample upon which this finding was based was extremely small. Double staffed defendants scored higher than single staffed, thus offering some evidence as to the validity of the instrument. No significant differences were found between scores for defendants attending the older didactic FACE program and those attending the newer discussion centered one. There were no significant differences between recidivist and non-recidivist scores. Again, the sample size for this comparison was extremely small ($n=8$) and may not have been representative.

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INTRODUCTION

In recent years, the magnitude and wide dispersion of problem and non-problem drinking as it relates to traffic fatalities has become more apparent through accident statistics. In 1971, 54,700 Americans died in automobile accidents; approximately half, or 27,350, of these deaths were alcohol-related. The total cost of these alcohol-related accidents, including property damage, was over \$6.8 billion. The cost of injuries and fatalities (excluding property damage) was over \$4.5 billion. The personal losses incurred as a result of these accidents can not be quantified. The risk to non-drinking drivers has increased greatly.¹ During the last decade, concern for this problem palled beside that for the growing drug problem among young people. Only in the past several years has the seriousness of this perennial driving hazard again achieved notoriety. An awareness of the problem of drunken driving caused the National Highway Traffic Safety Administration of the Department of Transportation to sponsor a series of comprehensive alcohol countermeasure projects in 35 communities in the United States and Puerto Rico. The main objective of these Alcohol Safety Action Projects (ASAP's) is a reduction in the number and severity of alcohol-related accidents. The Fairfax ASAP was begun in January 1972 and consists of four basic countermeasures: enforcement, adjudication, rehabilitation and treatment, and public information and education. This report is concerned with the effectiveness of the Driver Improvement portion of the rehabilitation and treatment countermeasure during 1973.

BACKGROUND

Before examining the effectiveness of the Driver Improvement Schools (hereafter referred to as DIS) within the Fairfax ASAP, it is necessary to become familiar with the Driver Improvement School Program itself, and the various types of DIS available within the system. The DIS is an educationally based treatment modality originally designed solely for social drinkers, on the premise that social drinkers need knowledge concerning the effects of alcohol on the body and on driving performance rather than therapy. These

1 North Conway Institute, Report to the Religious Communities on the Alcohol Safety Action Projects, "New Hope, New Possibilities," Boston Globe, Boston, Mass., 1972.

small group sessions (n=15) offer one two-hour class each week for a total of eight weeks and are primarily of the lecture and discussion format. The fee for attendance of DIS in 1973 was \$25.00.

There are three categories of DIS, all essentially similar in content but differing somewhat in format and location. They are:

- (1) Northern Virginia Community College Driver Improvement School (NVCC-DIS)—This institution was the first to offer this course in conjunction with the ASAP. Classes are taught on campus by college instructors hired by the college.
- (2) Fairfax County High School Driver Improvement School (FCHS-DIS)—Because of an initial overload in the system due to increased numbers of arrests, NVCC-DIS was unable to accommodate all defendants assigned to DIS. The County School System then instituted additional classes to relieve the backlog. FCHS-DIS is taught in local high schools by driver education teachers.
- (3) Weekend Driver Improvement School (WDIS)—WDIS was established early in 1973. Theoretically, it accommodates those special cases in which the defendant cannot attend the regular DIS evening classes, lives outside the ASAP area and cannot commute, is especially articulate concerning his drinking problem, or must be assigned to WDIS due to other unusual circumstances. It is also used in cases where it is felt that the defendant requires some alcohol knowledge before progressing to a more serious mode of treatment. These requirements occasionally result in de facto segregation of defendants by social class. In this form of DIS, content normally taught in eight weeks is taught in two long sessions held over a 48-hour period at a motel outside the ASAP area. Instructors are a psychiatric social worker and a driver education instructor. This type of DIS costs the defendant \$55.00 to attend, including the price of his accommodations.

Training for the instructors of these three types of DIS consists of their attending a series of DIS classes taught by another DIS instructor. Very little supervisory aid is given after this training period. The course, then, is often teacher dependent—the quality of the course depends upon the ability of the teacher.

As previously stated, DIS was originally designed (as were all ASAP modalities) to accommodate only one category of drinking driver, in this case the social drinker. During 1973, however, double and triple staffing (the assignment of a defendant to more than one level of treatment) became a common practice. Thus, defendants from all four drinker levels (social, pre-problem, problem and undetermined) often attend DIS at some time during the rehabilitation process.

PURPOSE

The purpose of the evaluation reported here was to determine the effectiveness of the ASAP Driver Improvement Schools during 1973 through examination of knowledge test scores for program participants. A secondary aim was to develop indirect evidence of the validity of a new testing program within the DIS.

METHODOLOGY

As the diagnostic process within the ASAP has been refined, subtle differences between defendants within each driver classification have been detected. This is evidenced within the DIS by increased specialization within the program and by creation of submodalities of the DIS. The course evolved from a unidimensional treatment solely for social drinkers to a multi-faceted modality offering not only homogeneous classes (based on education level or problem articulation) but also specialized classes for Level II and Level III drinkers who are double and triple staffed. Instructors have also begun to specialize, since the needs of these double staffed defendants are different from those of nonproblem drinkers. While the instructional gains achieved through DIS cannot be compared with those of a no-treatment control group, scores for each of the submodalities could be compared to ascertain which general approach is most effective in achieving the goal that is common to diverse forms of DIS--to impart knowledge concerning the effects of alcohol. Intra-(or within) group comparisons of pre-and posttest results were made for the community college version of DIS (NVCC-DIS), the high school version (FCHS-DIS), the weekend marathon version (WDIS) and several of the double staffed classes (DIS-FACE). Intergroup comparisons of differences in scores were then made between the submodalities, comparing NVCC-DIS with FCHS-DIS, and these two varieties of DIS with the weekend program.

New testing procedures also provided evidence concerning the effectiveness of other modalities. It was hypothesized that the Level II defendants having attended the Fairfax Alcohol Continuing Education Program (FACE), an upper level educationally based course, should know more about alcohol and its effects at the outset of their attendance in DIS than defendants singly staffed. For this reason, pretest scores for single and double staffed defendants were compared.

In late August, the FACE program was changed from a ten-week, didactic modality to one which would incorporate eight concurrent discussion sessions in addition to the lecture portion of the course. Through comparison of pretests of those two submodalities, it is possible to provide evidence of their relative effectiveness in imparting knowledge to the Level II drinker.

A secondary purpose of this evaluation was to assess the validity of the new knowledge test in relation to drinking/driving behavior. While comparisons of double and single staffed defendants outlined above gave an indirect indication of test validity, it was reasoned that stronger evidence would be provided through comparisons of recidivist and non-recidivist test scores. If increased knowledge of the effects of alcohol influences drinking-driving behavior, and if the test adequately assesses that knowledge, recidivists should score lower on the test than do non-recidivists.

Limitations of the Research

Extended use of the DIS, in combination with other modalities, has made evaluation of rehabilitation and treatment difficult. For social drinkers, however, single staffing to DIS is still an accepted practice and facilitates an analysis of program benefits. Ideally, data concerning recidivism and scores on an alcohol knowledge test developed for the DIS would be collected for those defendants single staffed to the schools and compared with scores from a randomly selected group of social drinker defendants who did not attend this modality. It could then be determined whether attendance in the DIS actually increased knowledge of the effects of alcohol and decreased the probability of drinking and driving (or being rearrested on a Driving While Intoxicated charge). Unfortunately, one of the major flaws in evaluation of the program is a judicially dictated lack of control groups. This makes the above analysis impossible. There are, however, some interesting subgroup comparisons within the DIS which would be valuable in terms of determining submodality effectiveness. Comparisons of results among the three types of DIS would be interesting, especially the comparison of regular DIS classes (NVCC-DIS and FCHS-DIS) with the weekend program (WDIS).

These intra-group comparisons, however, are not entirely free from interpretive constraints. Not all defendants attending DIS were given a newly developed knowledge test and not all test scores were forwarded to the evaluators. For instance, of the 68 defendants attending WDIS since the beginning of the testing program, only 13 are represented in the sample of scores. The possibility exists then that this sample may be severely biased, since it is small and not randomly drawn. While response rates for regular DIS classes were quite a bit higher and the samples larger, the possibility of sampling bias still exists. This not only indicates that these tests weren't administered universally but also that scores were not available for use by the instructors of the class and the defendant's probation officer in the assessment of his progress. There is also evidence that in cases where scores were available for use they were being disregarded. This test was not developed strictly for use in evaluation of the project, but also for use in evaluation of each individual's progress in the course. It is unfortunate that this latter application of the test is being overlooked.

Instrumentation

One of the major difficulties in assessing the effectiveness of the DIS during the first year of ASAP operations was the lack of reliable and correctly collected data. This problem stemmed in part from a lack of thorough testing procedures. The 30 question true-false test developed by the Northern Virginia Community College for its use did not altogether discriminate between those students who were familiar with the material presented and those who were not. Pretest scores were much higher than would be expected of a novice group. This pointed out one fundamental weakness inherent in the true-false format--tests of this type do not adequately eliminate the effects of successful guessing and are difficult to construct without bias. Since the average pretest score was over 25 on the 30-point test, there is insufficient upper range in which to measure improvement. There was a significant lack of control in the way the tests were used. The absence of standardization in administration and scoring was striking. For example, all classes did not take the test specifically constructed for the program. Among those that did, not all were scored the same way. Taken together, these two factors were significant in the voiding of a relatively large percentage of the data in 1972. The effects of the administration using nonstandardized instructions cannot be quantified, but certainly the fact that the test was reviewed in almost all classes inflates the posttest scores significantly.

As part of the analysis of DIS effectiveness during 1972, it was recommended that a multiple-choice knowledge test be developed and distributed for use, along with standardized instructions for both instructors and students.² The Virginia Highway Research Council undertook this project.

The first step in the development of the test was the collection of an item pool from which test items could be selected. Items were solicited from the following sources:

- (1) Alcohol and Driving: A Curriculum for Driver Educators, American Driver and Traffic Safety Education Association (1971).
- (2) The ASAP Household Survey.
- (3) Drinking, Driving and You (this denotes several tests previously used in the NVCC-DIS).
- (4) Driver Education: Alcohol and Driving (a test developed within the Fairfax County Public Schools for use in their High School Driver Education Classes).
- (5) Pennington, D. F., and Passey, G. E., "Development of a Scale for the Assessment of Knowledge Concerning Alcohol and Its Use," Alabama Commission on Alcoholism, Montgomery, Alabama.

2. Stoke, C. B., "Characteristics and Effectiveness of the Fairfax, Virginia, ASAP Driver Improvement Schools," Virginia Highway Research Council, Charlottesville, Virginia (May 1973).

- (6) Smith, B. C. , "Smith Alcohol Knowledge Test," ED-053-220 (1967).
- (7) Stewart, E. I. , et al. , "Development and Preliminary Tryout of Evaluation Measures for the Phoenix Driving While Intoxicated Re-education Program, "Arizona State University, Tempe, Arizona, and Teachers College — Columbia University, New York (1971).

Also considered were items associated with the Driver Education Tests Sportsmanlike Driving and Let's Drive Right, but these were not included.

From these sources 140 items were selected and 73 were chosen for initial trials. Simultaneously, standardized student and teacher instructions were developed and tested. This pool of items was screened on the basis of the following criteria:

- (1) How well each item reflected stated course objectives and enabling or motivating knowledges. This criterion also included examination on the basis of inclusiveness and efficiency of the items, since the number of items appearing on the final version of the test was restricted at the request of the instructors.
- (2) The supposed difficulty of each item, as determined by the screening committee.
- (3) The supposed discriminability of each item, as determined by the screening committee. Included in this category was an examination of each of the multiple-choice distractors or options to insure equal probability of selection, and examination of other elements to attempt to negate the influence of "test wiseness".
- (4) The appropriateness of the vocabulary used in each item.
- (5) The grammatical correctness and overall readability of each item.

The last two criteria were especially critical in this population. The level of education among defendants attending the DIS varied greatly (from 8 to 18 years). The wording of these items had to be kept as simple as possible without being misleading. A number of the items examined were reworded or rewritten on the basis of these criteria, while others were discarded entirely. Of the 73 items examined, 51 were eventually included in the version of the test administered to DIS classes.

A package of test materials (including answer sheets, scoring keys and both student and teacher instructions) was forwarded to the Project Director with the request that use of the test begin as soon as possible and that all answer sheets be returned to the evaluators for item analysis (see Appendix A for test materials). The trial period extended from July 5 to December 31, 1973. The evaluators received 438 pretest, posttest, or matched sets of test scores representing the several types of DIS. Not all of these scores were used in each analysis, since some statistical techniques demand the use of only matched sets of scores.

When sufficient data had been received, a series of item analyses were run.³ Decisions concerning item elimination or deficiencies were based on the analysis of posttest scores. These decisions were confirmed using the analysis of pretest scores as compared to the posttest analysis, and the analysis of all data received.

Test data were coded, punched onto cards and submitted for analysis. Initially, test scores were rank ordered, the top 27% being assigned to the high scoring group (Group H), the bottom 27% being assigned to the low group (Group L) and the remaining 46% being assigned to the middle group (Group M). The data were then arrayed on an item by item basis, showing the number of subjects in each of the three groups who chose each distractor. (see Table 1).

TABLE 1

AN EXAMPLE OF DIS TEST DATA ARRAY: ITEM 1						
Item	Group	Responses				
		A	B	C	D	Omit
1	High	38	0	0	1	0
	Medium	53	4	0	3	0
	Low	29	6	0	1	0
Correct Answer is A						

Three indices were then generated on the basis of this distribution.

(1) The Difficulty Index indicates the average difficulty of the item for the group as a whole. For each item, the proportion of each of the two extreme groups answering the item correctly is calculated by dividing the number in the group answering correctly by the total number of subjects in the group.

$$P_h = \frac{\text{No. of subjects in group H answering correctly}}{\text{No. of subjects in group H}}$$

$$P_l = \frac{\text{No. of subjects in group L answering correctly}}{\text{No. of subjects in group L}}$$

The difficulty index (p) is then calculated by determining the arithmetic mean of the two proportions.

$$p \text{ (difficulty index)} = \frac{P_h + P_l}{2}$$

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3. The computer program which completed these analyses was written by Jack Irvine, graduate student assistant with the Data Section of the Virginia Highway Research Council.

For item 1 (see Table 1), these calculations would be

$$p_h = 38/39 \text{ or } .974 \quad p_l = 29/36 \text{ or } .80$$

$$p \text{ (difficulty index)} = \frac{.974 + .806}{2} \text{ or } .89$$

The higher the difficulty index, the easier the question; the lower the index, the more difficult. Thus, item 1 was a relatively easy item. For the purpose of the item analysis, a corrected difficulty index which was adjusted for chance guessing was used.⁴

(2) The Discrimination Index determines the extent to which the item discriminates between students who supposedly know the material and those who don't. This is done by examining the differences in the proportion of subjects answering correctly for the high and low groups.

$$D \text{ (discrimination index)} = p_h - p_l$$

For item 1, the discrimination index is calculated by

$$D \text{ (discrimination index)} = .974 - .806 = .168$$

D values of .40 or more are considered high in discrimination while values of .20 or less are considered low. Negative values (item where the low group gives proportionally more correct answers than the high group) are somewhat suspect and often indicate mis-keyed answers.

(3) The Phi Coefficient is a point biserial correlation between a correct answer (1) or incorrect answer (0) for each item and the subject's score on the test as a whole. It is an index of internal consistency and indicates how well each item "predicts" total test performance. The formula for the coefficient is:

$$r \text{ (point biserial or phi coefficient)} = \frac{X_p - X_q}{S_x} \sqrt{pq}$$

Where X_p is the mean score for those who answer the item correctly (1),
 X_q is the mean score for those who answer the item incorrectly (0),
 S_x is the standard deviation of test scores,

p is the percentage of subjects answering correctly, and
 q is (1- p) the percentage answering incorrectly.

The phi coefficient for item 1 is .230, which is significant at the .01 level.

4. For more information concerning this index, see Educational and Psychological Measurement and Evaluation, by Stanley and Hopkins, pp. 269-270.

Looking again at item 1, the question is:

- (1) The number of persons killed in the United States last year in traffic accidents was approximately
 - (a) 55,000
 - (b) one-half of the total number of America's War Deaths
 - (c) 15,000
 - (d) 30,000

The item analysis has yielded the following information:

p (difficulty index) = .890

D (discrimination index) = .168

phi (point biserial correlation coefficient) = .230

From this information, it was discovered that item 1 was an easy item, with marginal discrimination, but was internally consistent with the rest of the test. Since it was a good introductory question and covered information necessary to the course, it was decided to retain the question but to amend the distractors. Referring back to Table 1, both B and D are marginal to good distractors (a good distractor is picked by more of the subjects in the low and medium groups than in the high group, supposedly attracting those subjects who do not know the material). No one in any group chose distractor C. This is obviously not well written. It was decided that 15,000 was too low an estimate to be an attractive option and this was changed to 75,000 in the second version of the test. If this is a more attractive option, more of the low and medium groups will choose this answer, which will lower the difficulty index to an acceptable level and raise the discrimination index.

The procedure illustrated here was performed on all test items. While some subjective elements were involved in the making of a decision, some specific guides were followed. Difficulty indices of .80 or higher were considered suspect and those which were .90 or higher, unacceptable. Difficulty indices of .70 or less were suspected of being too hard but were not considered completely unacceptable until the index reached .40 or less. Discrimination indices of .39 or less were considered suspect and those which were .20 or less unacceptable. Phi coefficients which were negative or not significant were unacceptable. Information in Table 1 was useful in deciding whether to eliminate or to amend an item whose indices were unacceptable, as were group opinions concerning content validity.

Table 2 presents the index information for all 51 items. The current version of the test, which is the product of this analysis, consists of 37 items and appears in Appendix B.

TABLE 2
SUMMARY OF RESULTS OF THE ITEM ANALYSIS
OF THE DIS ALCOHOL KNOWLEDGE TEST

Item No.	Difficulty Index	Discrimination Index	Phi Coefficient	t Value
1	.890	.168	.230	2.72
2	.741	.261	.352	4.34
3	.932	.085	.197	2.32
4	.634	.323	.257	3.06
5	.535	.571	.453	5.85
6	.433	.366	.282	3.39
7	.507	.626	.455	5.90
8	.890	.169	.361	4.47
9	.849	.199	.218	2.58
10	.890	.169	.270	3.24
11	.834	.280	.237	2.82
12	.698	.451	.397	4.98
13	.603	.538	.369	4.58
14	.862	.224	.244	2.90
15	.834	.280	.381	4.75
16	.972	.056	.299	3.62
17	.823	.201	.232	2.75
18	.848	.252	.293	3.53
19	1.000	0.000	Infinite	Undefined
20	.986	.028	.106	1.23
21	.880	-.017	-.014	-0.17
22	.958	.083	.143	1.67
23	.751	.447	.425	5.42
24	.712	.423	.454	5.87
25	.751	.447	.506	6.76
26	.632	.376	.376	4.67
27	.298	.429	.362	4.47
28	.931	.139	.297	3.58
29	.557	.487	.367	4.99
30	.766	.365	.405	5.11
31	1.000	0.000	Infinite	Undefined
32	.876	.197	.258	3.43
33	.819	.361	.460	5.98
34	.701	.291	.273	3.27
35	.593	.353	.313	3.80
36	.712	.423	.389	4.87
37	.466	.709	.543	7.45
38	.575	.594	.477	6.25
39	.299	.376	.305	3.69
40	.358	.105	.078	0.90
41	.918	.113	.289	3.48
42	.878	.090	.096	1.11
43	.606	.378	.390	4.88
44	.752	.393	.363	4.50
45	.454	.630	.483	6.37
46	.835	.226	.342	4.19
47	.795	.256	.409	5.17
48	.593	.353	.286	3.44
49	.918	.113	.250	2.98
50	.157	.147	.151	1.76
51	.875	.250	.419	5.33

ANALYSIS

The results of all intra-group comparisons appear in Table 3. Knowledge of alcohol, as measured by the new knowledge test, increased significantly between pre- and posttesting for all groups except the WDIS, which had a lower score on the posttest. There are two possible explanations for this lack of significant difference. Although it is possible that changes in knowledge did not occur, it is also possible that the small sample size of each group combined with the nonrandom nature of the responses is responsible for the effect. Only 19% of all defendants attending WDIS during the test period are represented in the sample. Whether the test was never given, or whether some test scores were withheld is unknown. Only 12 recidivists are represented, and only 4 had both pre- and posttest scores. Again, whether tests were not given or why scores for these defendants were not forwarded can only be guessed. Response rates for other modalities were much higher, which allows more confidence in the results.

TABLE 3

PRETEST-POSTTEST COMPARISONS: DIS AND SUBMODALITIES

Modality	No. of Matched Pairs	Average Pretest	Pretest Standard Deviation	Average Posttest	Posttest Standard Deviation	Matched Pairs t	Pre-Post Significance
ALL DIS	260	31.27	6.70	35.98	8.30	10.49	p .001
NVCC-DIS	98	30.00	6.37	32.35	7.99	4.01	p .001
FCHS-DIS	52	28.74	6.44	39.04	7.60	10.88	p .001
WDIS	13	34.38	4.07	33.15	9.00	0.43	
DIS/ALL FACE	99	33.40	6.70	38.23	7.56	7.69	p .001
DIS/OLD FACE	67	33.73	6.64	38.61	6.53	6.40	p .001
DIS/NEW FACE	32	32.72	6.85	37.44	9.43	4.21	p .001
Recidivists	4	29.20	8.47	35.40	5.55	2.20	p .

Results of the comparison of the NVCC-DIS vs FCHS-DIS, the two main submodalities within the regular DIS program, are shown in Table 4. While average pretest scores for both groups are almost equal, average posttest scores are significantly different with the FCHS-DIS defendants scoring significantly higher. Difference scores for this group measuring increases in knowledge are also significantly higher than those for the NVCC group. Thus, defendants attending the Fairfax County High School program learned more about alcohol than did those attending the community college, based upon test results. The possibility also exists that high school instructors "taught to the test" and thus raised scores for these defendants.

Table 5 shows the results of the intergroup comparison of defendants attending the WDIS with those attending the regular eight-week program. WDIS defendants scored higher on the pretest than did regular DIS participants (this difference approaches significance). This may be due to differential assignment, since defendants who are more aware of their drinking problem or who are more articulate are occasionally staffed to the WDIS. In addition, WDIS defendants, at least during the initial stages of the program, tended to be better educated. This pretest advantage is negated in relation to posttest scores, which are not significantly different. While the regular DIS group increased their scores by an average of 2.73 points, WDIS defendants actually declined in test performance by an average of 1.23 points. These differences in knowledge change are significant. While the problem of small sample size again influences these results, the decrement in performance among weekend subjects must be taken as an indication that a more careful study of its operation should be made.

Results of comparisons of double and single staffing appear in Tables 6 through 9. Pretest scores of defendants attending the FACE program (based on both new and old programs) and of those attending only the didactic portion of FACE were significantly higher than those for clients entering the DIS without prior treatment. Posttest scores were also significantly higher, while increments in knowledge were not significantly different. Posttest and difference scores for defendants attending the new FACE program before entering the DIS were no different from those entering the DIS alone, while pretest scores were significantly higher. No significant differences were found when comparing the newer FACE program with the old one. Since the addition of discussion groups is an attempt to influence attitudes rather than impart knowledge, no significant differences should be expected. It is possible that internalization, which is supposed to take place in these groups, might aid retention of facts over time and that differences would appear in delayed testing.

TABLE 4

INTERGROUP COMPARISONS: NVCC-DIS vs FCHS-DIS KNOWLEDGE TEST SCORES

Modality	Average Pretest Score	Pretest Standard Deviation	Average Posttest Score	Posttest Standard Deviation	Average Difference Score	Difference Standard Deviation
NVCC-DIS (n=98)	30.00	6.37	32.53	7.99	2.53	6.24
FCHS-DIS (n=50)	28.74	6.44	39.04	7.60	10.30	6.91
Between Groups t Significance	1.13 NS		4.76 p < .011		6.91 p < .001	

TABLE 5

INTER-GROUP COMPARISONS: DIS vs WDIS KNOWLEDGE TEST SCORES

Modality	Average Pretest Score	Pretest Standard Deviation	Average Posttest Score	Posttest Standard Deviation	Average Difference Score	Difference Standard Deviation
DIS (w/o WDIS) or FACE)	29.57	6.40	34.73	8.43	5.15	7.43
WDIS (n=13)	34.38	4.07	33.15	9.00	-1.23	10.42
Between Groups t Significance	1.79 p < .08		0.64 NS		2.87 p < .03	

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TABLE 6

INTERGROUP COMPARISONS: DIS vs DIS/FACE KNOWLEDGE TEST SCORES

Modality	Average Pretest Score	Pretest Standard Deviation	Average Posttest Score	Posttest Standard Deviation	Average Difference Score	Difference Standard Deviation
DIS (w/o WDIS or FACE) (n = 148)	29.57	6.40	34.73	8.43	5.15	7.43
DIS/FACE (n = 99)	33.40	6.70	38.23	7.56	4.83	6.12
Between Groups t Significance	4.52 p < .001		3.33 p < .001		0.36 NS	

TABLE 7

INTERGROUP COMPARISONS: DIS vs DIS/Old FACE KNOWLEDGE TEST SCORES

Modality	Average Pretest Score	Pretest Standard Deviation	Average Posttest Score	Posttest Standard Deviation	Average Difference Score	Difference Standard Deviation
DIS (w/o WDIS or FACE) (n = 148)	29.57	6.40	34.73	8.43	5.15	7.43
DIS/Old FACE (n = 67)	33.73	6.64	38.61	6.53	4.88	6.06
Between Groups t Significance	4.36 p < .001		3.34 p < .001		0.27 NS	

TABLE 8

INTERGROUP COMPARISONS: DIS vs NEW FACE KNOWLEDGE TEST SCORES

Modality	Average Pretest Scores	Pretest Standard Deviation	Average Posttest Score	Posttest Standard Deviation	Average Difference Score	Difference Standard Deviation
DIS (w/o WDIS or FACE) (n = 148)	29.57	6.40	34.73	8.43	5.15	7.43
DIS/NEW FACE (n = 32)	32.72	6.85	37.44	9.43	4.72	6.34
Between Groups t Significance	2.49 p < .02		1.61 NS		0.31 NS	

TABLE 9

INTERGROUP COMPARISONS: DIS/Old FACE vs DIS/New FACE KNOWLEDGE TEST SCORES

Modality	Average Pretest Score	Pretest Standard Deviation	Average Posttest Score	Posttest Standard Deviation	Average Difference Score	Difference Standard Deviation
DIS/Old FACE n = 67	33.73	6.64	38.61	6.53	4.88	6.06
DIS/New FACE n = 32	32.72	6.06	37.44	9.43	4.72	6.34
Between Groups t Significance	.70 NS		.72 NS		.12 NS	

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TABLE 10
 INTERGROUP COMPARISONS: DIS-RECIDIVISTS vs NON DIS-RECIDIVIST
 TEST SCORES

Modality	Average Pretest Score	Pretest Standard Deviation	Average Posttest Score	Posttest Standard Deviation	Average Difference Score	Difference Standard Deviation
DIS (w/o WDIS, FACE or Recids.) (n = 144)	29.50	6.40	34.69	8.39	5.19	7.42
DIS Recidivists	29.20	8.47	35.40	5.55	6.20	5.84
Between Groups t Significance	.66 NS		.40 NS		.76 NS	

The fact that knowledge of alcohol as measured by the new test increases among defendants after attending the DIS is an indicator that the test is measuring what is taught in the driver improvement school. Also supporting test validity is the fact that pretest scores for defendants attending another didactic modality (the FACE program) prior to entering DIS are significantly higher than those for defendants attending DIS as an initial treatment modality. Results of the comparison of scores for recidivists and non-recidivists do not support this conclusion. These two groups are essentially similar in pretest, posttest and difference scores. Again, the problem of small and possibly biased sampling occurs. More work is indicated to determine the effect of DIS on recidivists and to determine the extent of influence of alcohol knowledge on drinking/driving behavior.

CONCLUSIONS AND RECOMMENDATIONS

The lack of adequate control groups and the deficiencies in this sample prohibit making definite conclusions. However, results of these analyses give indirect indications of the effectiveness of the driver improvement school and the relative efficiencies of the various submodalities within the DIS. In some cases, due to higher response rates, evidence is quite strong concerning the accuracy of the results. In other cases, such as the analyses involving the WDIS and recidivist defendants, conclusions are tentative at best.

While all forms of DIS, with the exception of the WDIS, are effective in imparting knowledge among participants and increasing test scores, some submodalities appear to be realizing greater success than others. Some of these differences appear to be due to differential staffing (i.e. the consistent staffing of defendants with similar educational or alcohol related characteristics to a particular submodality) and some appear in spite of these tendencies. Since differential staffing, especially in relation to NVCC-DIS and FCHS-DIS,

is not actual policy and is somewhat changeable across time, it is not documented here. The FCHS-DIS program seemed to be experiencing better results during the four-month testing period than did the NVCC program. Regular classes were by far superior in imparting knowledge than were the weekend classes, which seemed to have a confusing effect upon defendants, who began the course knowing more than those attending regular DIS and experienced a decrease in test scores.

Double staffing was examined in relation to the ten week, didactically based FACE program. Since the goal of this program is also to impart knowledge, it is reasonable to expect that initial scores for defendants with this previous training should be higher than those for defendants with no prior training. Defendants staffed to the FACE/DIS combination not only began the class knowing more about the effects of alcohol (as measured by the new test) but also knew more at course termination, although the amount learned (pretest and posttest difference scores) was not significantly different from that of single staffed defendants. The addition of the eight-week discussion group to the didactic portion of the FACE program did not significantly change knowledge development, since no significant differences occurred between the pretest, posttest or difference scores for new and old FACE defendants. This would seem intuitively correct, since the new discussion sessions are aimed more at attitude change than knowledge change.

Findings concerning double staffed defendants serve to support the validity of the instrument for the DIS program. Findings concerning recidivists do not support this, since there were no significant differences between scores for recidivists and non-recidivists. There are three possible explanations for this. The relationship between knowledge, attitude and behavior is somewhat tenuous. It is possible that increased knowledge of the effects of alcohol does not influence attitude toward drinking or change drinking/driving behavior. It is also possible that this test does not measure those knowledges which discriminate between recidivists and non-recidivists, although evidence derived from comparisons involving double staffing implies that it does discriminate by drinker type. Finally, it is possible that these contradictory results are due to sampling deficiencies. More extensive work with this population is necessary.

From these conclusions, the following recommendations are made:

- (1) Although methods used by both the high school and college programs are effective in imparting knowledge, there seem to be some significant differences in results. It is recommended that differential staffing policies of the probation office and instructional methods of both institutions be examined by the rehabilitation coordinator to equalize program effectiveness.

- (2) It is recommended that policies for staffing to WDIS be examined, as well as procedures and methods used in teaching the course, to determine the extent of the problems seen in this analysis. More work of this type using all WDIS defendants should be conducted during 1974.
- (3) More work is also recommended involving the population of recidivists having attended DIS and those being double staffed to other modalities prior to attending DIS to determine the relationship of the test and rearrest prediction.
- (4) In reporting on the effectiveness of the DIS during 1972, it was recommended that an attitude scale be developed by project management for this population of defendants.⁴ This recommendation is repeated here. Comprehensive evaluation of treatment effectiveness is essential, and would be facilitated by use of an attitude scale. Evaluation of individual progress would also be made specific and therefore more thorough.
- (5) Finally, it is recommended that the policy of universal administration of this test be established and the extended use of test scores to gauge individual progress be encouraged. A standard for minimum performance should be established and defendants not meeting these criteria (and thus not achieving the primary goals of the DIS), should be required to repeat all or parts of the course.

4 Stoke, *op cit.* p. 15.

APPENDIX A
ALCOHOL AND DRIVING
FAIRFAX DRIVER IMPROVEMENT SCHOOLS
INSTRUCTIONS

7/27

Introduction

This test is designed as a substitute for the thirty question knowledge test previously used in the Driver Improvement Schools. It was felt that a more standardized test procedure was necessary and that the true-false format previously used did not adequately discriminate between those students who knew the material presented and those who did not. In addition, all initial scores were higher than would be expected for the population and allowed no room for quantitative increase. A number of multiple choice questions were selected for the purpose of evaluating individual and group performance. As you will notice, this test is somewhat longer than the one previously used. As the multiple choice questions are gradually refined (on the basis of a number of your students' responses), the test will become shorter.

The test should be administered twice to each class, once at the beginning and once at the end of each eight week session. Please DO NOT REVIEW these test questions with your class after the first administration. This distorts their scores on the final test and makes analysis inaccurate.

Administration

The initial objective during the first class meeting (after instructor introduction) should be the administration of the new test. To avoid unnecessary anxiety on each student's part, he should be told that the purpose of this first test is to decide what areas of information should be stressed and that his performance on this pretest will not affect whether he passes or fails the course. Copies of the test should then be passed out and students told to leave them face down on their desks. A copy of the student's instructions are listed on the back of the test booklet, and appear below. (Since standardized instructions like these are often rather cold and suggest more serious testing, the presence of a friendly instructor is quite helpful.) The instructor should then read them aloud while students read silently.

ALCOHOL AND DRIVING

Fairfax Driver Improvement Schools

This is a test of your knowledge of the effects of alcohol on driving, on your body, and on your safety while driving. You are not expected to be able to answer all of the questions correctly. You should, however, try to answer as many as you can. If you come to a question that you do not immediately

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know or of which you are not sure, skip it. You can return to the question when you have finished the test and can take your time making your selection.

There are 51 questions on this test. Please read each one carefully before answering. Each question is followed by four answers: A, B, C, and D. Only one of these is the correct answer and you should try to select the one that best answers the question or completes the statement. Do not mark your answers on the test itself. When you have made your selection, record your choice on the answer sheet, opposite the question number, by marking in pencil the letter that corresponds to the correct answer. Here are two examples:

- (o) What is the earliest age at which you may obtain license to drive in Virginia?

Answer Sheet

- (a) 14 Years
- (b) 16 Years
- (c) 18 Years
- (d) 21 Years

0	A	B	C	D
---	---	---	---	---

The best answer to this question is letter B, 16 years. If this were one of the real test questions, you would first find question number 0 on your answer sheet. Across from that, you would find the correct letter, B, and color in a circle around it, as we have done. If you want to change an answer, erase it completely, then mark your choice.

- (00) There is only one eight-sided figure used in Virginia — It is a

Answer Sheet

- (a) Stop Sign
- (b) Yield Sign
- (c) Railroad Crossing Sign
- (d) Speed Limit Sign

0	A	B	C	D
00	A	B	C	D

The best completion to this sentence is letter A, a stop sign. Opposite question #00, you would mark letter A.

All the questions on this test are like these two samples. There is no time limit on this test. Take your time and answer each to the best of your ability.

At this point the teacher should ask if there are any questions and stress that there is no time limit for the test. Students may begin after all questions are answered.

There is also a scoring key provided with these tests. The key overlays the answer sheet, with the correct answer punched out. If the student has answered correctly, the instructor can see his mark through the hole. In addition, the question number is also punched out so that the instructor can mark it correct or incorrect without lifting the key off the paper. All scores should be reported as the number a student gets right, not as a percentage or number wrong.

Thank you for your cooperation in administering this test. If there are any questions concerning the test, please write

C. Lynn
Virginia Highway Research Council
P. O. Box 3817 University Station
Charlottesville, Virginia 22903

or call us on SCATS line, 525-3333, or on our regular number 703-977-0290.

**ALCOHOL AND DRIVING
DRIVER IMPROVEMENT SCHOOLS**

- (1) The number of persons killed in the United States last year in traffic accidents was approximately
- a. 55,000
 - b. one-half of the total number of America's war deaths
 - c. 15,000
 - d. 30,000
- (2) Compared to crashes not involving alcohol, those involving alcohol tend to be
- a. More severe for all drivers
 - b. More severe for young drivers only
 - c. About the same severity for all drivers
 - d. More severe for older drivers only
- (3) In the state of Virginia, driving while under the influence of alcoholic beverages occurs when the blood alcohol level reaches
- a. 0.05%
 - b. 0.12%
 - c. 0.10%
 - d. 0.15%
- (4) Approximately what percentage of adults in the United States drink alcoholic beverages?
- a. 20%
 - b. 70%
 - c. 40%
 - d. 90%
- (5) Not all drinkers can be classified as excessive drinkers. What percentage best represents the excessive or problem drinker?
- a. 10%
 - b. 30%
 - c. 40%
 - d. 50%

- (6) In 1970 alcohol was involved in 50% of the traffic fatalities in the United States. What percentage of the fatalities was caused by the problem drinker?
- 10%
 - 20%
 - 30%
 - 40%
- (7) Social drinkers often drive after occasional heavy drinking because of
- The necessity of travel
 - Mental limitations
 - Social pressure
 - A & C
- (8) The only "cure" for alcoholism is:
- Chemical substitution
 - Careful moderation in drinking
 - Retreat from all social problems
 - Total abstinence
- (9) What temporary visual condition can occur from drinking alcohol?
- Reduced side vision
 - Blurring
 - Seeing double
 - All of the above
- (10) When alcohol is consumed and absorbed faster than it is used up, its effects will
- Decrease
 - Pile-up
 - Disappear
 - All of these
- (11) A person suffering from alcoholism is
- Always drunk
 - Unable to control how much he drinks
 - Usually unemployed
 - All of the above

- (12) Although impairment sometimes begins earlier, most experts now agree that all drivers possess impaired ability when the blood alcohol concentration reaches
- a. .02
 - b. .05
 - c. .08
 - d. .09
- (13) Most problem drinkers
- a. Are normally upstanding citizens of the community
 - b. Have other more personal problems
 - c. Have criminal records
 - d. Have been institutionalized at least once
- (14) Alcohol, when used medicinally, is able to
- a. Cure or prevent colds
 - b. Prevent traumatic shock
 - c. Kill bacteria in the digestive tract
 - d. Kill certain germs in open wounds
- (15) Which statement is most accurate concerning moderate amounts of alcohol on vision?
- a. Vision is slightly impaired
 - b. Vision worsens, especially in bright sunlight
 - c. There is no significant effect upon vision
 - d. Vision worsens, particularly at night
- (16) Drinking alcoholic beverages may cause drivers to
- a. Take unnecessary risks
 - b. Lose self confidence
 - c. Develop a sense of anxiety
 - d. None of the above
- (17) If a person were to drink equal quantities of each of the following, which one would cause him to become "high" fastest?
- a. Wine
 - b. Beer
 - c. Whiskey
 - d. All of the above are about the same

- (18) In the past, the general public has
- Tolerated the drinking driver
 - Insisted on severe and unusual punishment
 - Been as concerned with alcohol as with drug abuse
 - Thought drinking drivers to be criminals
- (19) Which of the following reverses the effects of alcoholic beverages?
- Aspirin
 - Black coffee
 - Cold showers
 - None of these
- (20) Which of the following statements is true?
- People respond differently to the same amount of alcohol
 - Some people aren't affected by alcohol
 - Its safe for you to drive if you can hold your liquor well
 - All of the above
- (21) The most important factor in determining the effects of alcohol on the body is the
- Alcohol level in the blood stream
 - Type of beverage the person is drinking
 - Ability of the person to handle alcohol
 - Amount of food in the stomach
- (22) Most of the traffic collisions in Fairfax involving drinking drivers occur
- From 12 noon to 6 p. m.
 - From 6 p. m. to 3 a. m.
 - From 3 a. m. to 9 a. m.
 - From 9 a. m. to 12 Noon
- (23) Which of the following body systems is first impaired by alcohol?
- Digestive system
 - Nervous system
 - Respiratory system
 - Circulatory system

- (24) Young drivers are more likely to be involved in traffic accidents after drinking alcoholic beverages because:
- They take risks
 - They lack experience in driving
 - They lack experience in drinking
 - Both b and c
- (25) One of the following characteristics affects blood alcohol concentration least. Which one is it?
- Body weight
 - Contents of the stomach
 - Drinking experience
 - Amount of alcohol consumed
- (26) Which of the following best describes the effects of alcohol on driver performance?
- Blurs vision
 - Reduces hearing ability
 - Increases attention span
 - Lowers bodily efficiency
- (27) Excessive or heavy drinking will affect which one of the following more than the other?
- Reaction time
 - Ability to make decisions
 - Judgement of distance
 - Recognizing colors
- (28) Alcohol is classified as
- A stimulant
 - A depressant
 - A high energy food
 - All of these
- (29) Would you expect that more fatal accidents are caused by the many social drinkers or by the small number of problem drinkers?
- Yes, social drinkers cause more fatalities
 - No, problem drinkers cause more fatalities
 - Non-drinkers cause more
 - Both a and c

- (30) One of the first effects of drinking is to
 - a. Break down one's inhibitions
 - b. Decrease alertness temporarily
 - c. Reduce the expressions of emotions
 - d. Speed up reaction time

- (31) Alcohol is removed from the blood stream by
 - a. Eating heavily after drinking
 - b. Drinking other liquids
 - c. Burning the alcohol over a period of time
 - d. Breathing cold fresh air

- (32) Which of the following is of most value in determining how drunk a driver is ?
 - a. Opinion of the arresting officer
 - b. Speech test
 - c. Breath test
 - d. Combination of a & b

- (33) What is the chief danger after one drink ?
 - a. Reaction time would be doubled
 - b. A driver would be drunk
 - c. The inhibition against further drinking is reduced
 - d. Visual accuity would be severely reduced

- (34) The effects of alcohol are most dangerous for
 - a. Unexpected emergencies
 - b. Driving backwards
 - c. Speeding
 - d. Driving at night

- (35) As far as dietary needs are concerned, alcohol
 - a. Satisfies no strict nutritional or food requirements
 - b. Is high in calories
 - c. Is a high energy food
 - d. a & b

- (36) The most commonly used type of test for blood alcohol concentration utilizes sampling of
- Saliva
 - Blood
 - Breath
 - b & c
- (37) Alcohol is the most frequent factor in
- All crashes
 - All fatal crashes
 - Single car fatal crashes
 - Crashes at night
- (38) On the average, about how long does it take for alcohol in the blood to reach a peak after you have downed a few drinks?
- 5 minutes
 - 15 minutes
 - 30 minutes
 - 60-90 minutes
- (39) The best type of alcohol traffic countermeasures program should place heavy emphasis on:
- Heavy or problem drinkers
 - Social drinkers due to number
 - Every person who drinks
 - Both a & c
- (40) The blood alcohol level at which a driver is assumed to be "under the influence" is .10% in most states. For a 155 lb. man to reach this level on an empty stomach, the amount of 100 proof whiskey he would probably have to drink within one hour is:
- 3 ounces
 - 5 ounces
 - 9 ounces
 - 12 ounces
- (41) Which of the following is the law designed to assure a chemical test for accused drinking drivers?
- Blue law
 - Curfew law.
 - Implied Consent law
 - Alcohol Beverage Control law

- (42) Which of the following contains the most alcohol?
- One 12 ounce can of beer
 - One 3 ounce glass of wine
 - A one ounce glass of whiskey
 - All contain the same amount
- (43) What is the result of taking several drinks socially?
- Muscular coordination will be greatly affected
 - Inhibitions against further drinking will be modified
 - Reaction time will improve slightly
 - All of the above
- (44) Commonly accepted signs of intoxication, such as staggering gait, slurred speech, and drowsiness may be symptoms of either alcohol intoxication or
- Pulmonary arthritis
 - Diabetes
 - An auditory disorder
 - Tuberculosis
- (45) Which brain function is the first to be impaired by alcohol?
- Emotions
 - Muscular coordination
 - Ability to react
 - Reasoning
- (46) Traffic policemen often do not arrest drivers for driving while under the influence of alcohol because:
- Many judges are incompetent
 - The deck is stacked against the accused
 - They see no danger present with drinking drivers
 - They have difficulty in obtaining convictions
- (47) Alcohol has the same properties as:
- A stimulant
 - A vitamin supplement
 - An anesthetic
 - An antibiotic

- (48) The time it takes the body of the average person to get rid of the alcohol found in two bottles of beer (each 12 ounces) is approximately
- a. 6 hours
 - b. 4 hours
 - c. 2 hours
 - d. 1 hour
- (49) "Implied Consent" means that when a driver applies for a driver's license, he
- a. Automatically gives his consent for a chemical test if suspected of driving while under the influence
 - b. Consents to take a road and written test
 - c. Implies that he is aware of the penalties for drunken driving and consents to accept them
 - d. Implies that he will not drink and drive
- (50) Most of the anti-drinking campaigns conducted in the past were aimed at
- a. Social drinkers
 - b. Problem drinkers
 - c. Alcoholics
 - d. Defensive drinkers
- (51) Drinking of alcoholic beverages
- a. Is an innate talent
 - b. Cannot be learned without some genetic tendencies
 - c. Is an inherited tendency
 - d. Is learned behavior

ANSWER SHEET

- | | | | | | | | | | | | | | | |
|------|---|---|---|---|------|---|---|---|---|------|---|---|---|---|
| (1) | A | B | C | D | (21) | A | B | C | D | (41) | A | B | C | D |
| (2) | A | B | C | D | (22) | A | B | C | D | (42) | A | B | C | D |
| (3) | A | B | C | D | (23) | A | B | C | D | (43) | A | B | C | D |
| (4) | A | B | C | D | (24) | A | B | C | D | (44) | A | B | C | D |
| (5) | A | B | C | D | (25) | A | B | C | D | (45) | A | B | C | D |
| (6) | A | B | C | D | (26) | A | B | C | D | (46) | A | B | C | D |
| (7) | A | B | C | D | (27) | A | B | C | D | (47) | A | B | C | D |
| (8) | A | B | C | D | (28) | A | B | C | D | (48) | A | B | C | D |
| (9) | A | B | C | D | (29) | A | B | C | D | (49) | A | B | C | D |
| (10) | A | B | C | D | (30) | A | B | C | D | (50) | A | B | C | D |
| (11) | A | B | C | D | (31) | A | B | C | D | (51) | A | B | C | D |
| (12) | A | B | C | D | (32) | A | B | C | D | | | | | |
| (13) | A | B | C | D | (33) | A | B | C | D | | | | | |
| (14) | A | B | C | D | (34) | A | B | C | D | | | | | |
| (15) | A | B | C | D | (35) | A | B | C | D | | | | | |
| (16) | A | B | C | D | (36) | A | B | C | D | | | | | |
| (17) | A | B | C | D | (37) | A | B | C | D | | | | | |
| (18) | A | B | C | D | (38) | A | B | C | D | | | | | |
| (19) | A | B | C | D | (39) | A | B | C | D | | | | | |
| (20) | A | B | C | D | (40) | A | B | C | D | | | | | |

ALCOHOL AND DRIVING

Fairfax Driver Improvement Schools

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- (0) What is the earliest age at which you may obtain a license to drive in Virginia?

Answer Sheet

- (a) 14 Years
(b) 16 Years
(c) 18 Years
(d) 21 Years

0 A B C D

The best answer to this question is letter B, 16 years. If this were one of the real test questions, you would first find question number 0 on your answer sheet. Across from that, you would find the correct letter, B, and color in a circle around it, as we have done. If you want to change an answer, erase it completely, then mark your choice.

- (00) There is only one-eight sided-figure used in Virginia — It is a

Answer Sheet

- (a) Stop Sign
(b) Yield Sign
(c) Railroad Crossing Sign
(d) Speed Limit Sign

0 A B C D
00 A B C D

The best completion to this sentence is letter A, a stop sign. Opposite question #00, you would mark letter A.

All the questions on this test are like these two samples. There is no time limit on this test. Take your time and answer each to the best of your ability.

ANSWER SHEET

- (1) B C D (21) B C D (41) A B D
- B C D A C D A B C
- A B D A C D A C D
- A C D A B C A C D
- B C D A B D A B C
- A B D A B C A B C
- A B C A C D A B D
- A B C A C D A B D
- A B C A C D B C D
- A C D B C D B C D
- A C D A B D (51) A B C
- A C D A B D
- A C D A B D
- A B C B C D
- A B C A B C
- B C D A B C
- A B D A B D
- B C D A B D
- A B C B C D
- (20) B C D (40) A C D

APPENDIX B
ALCOHOL AND DRIVING

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FAIRFAX DRIVER IMPROVEMENT SCHOOLS

Instructions

Introduction

This test is designed as a substitute for the thirty question knowledge test previously used in the Driver Improvement Schools. It was felt that a more standardized test procedure was necessary and that the true-false format previously used did not adequately discriminate between those students who knew the material presented and those who did not. In addition, all initial scores were higher than would be expected for the population and allowed no room for quantitative increase. A number of multiple choice questions were selected for the purpose of evaluating individual and group performance. As you will notice, this test is somewhat longer than the one previously used. As the multiple choice questions are gradually refined (on the basis of a number of your students' responses), the test will become shorter.

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ALCOHOL AND DRIVING

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know or of which you are not sure, skip it. You can return to the question when you have finished the test and can take your time making your selection.

There are 37 questions on this test. Please read each one carefully before answering. Each question is followed by four answers: A, B, C, and D. Only one of these is the correct answer and you should try to select the one that best answers the question or completes the statement. Do not mark your answers on the test itself. When you have made your selection, record your choice on the answer sheet, opposite the question number, by marking in pencil the letter that corresponds to the correct answer. Here are two examples:

- (0) What is the earliest age at which you may obtain a license to driver in Virginia?

Answer Sheet

- (a) 14 Years
(b) 16 Years
(c) 18 Years
(d) 21 Years

0 A B C D

The best answer to this question is letter B, 16 years. If this were one of the real test questions, you would first find question number 0 on your answer sheet. Across from that, you would find the correct letter, B, and color in a circle around it, as we have done. If you want to change an answer, erase it completely, then mark your choice.

- (00) There is only one eight-sided figure used in Virginia — It is a

Answer Sheet

- (a) Stop Sign
(b) Yield Sign
(c) Railroad Crossing Sign
(d) Speed Limit Sign

0 A B C D
00 A B C D

The best completion to this sentence is letter A, a stop sign. Opposite question #00, you would mark letter A.

All the questions on this test are like these two examples. There is no time limit on this test. Take your time and answer each to the best of your ability.

At this point the teacher should ask if there are any questions and stress that there is no time limit for the test. Students may begin after all questions are answered.

There is also a scoring key provided with these tests. The key overlays the answer sheet, with the correct answer punched out. If the student has answered correctly, the instructor can see his mark through the hole. In addition, the question number is also punched out so that the instructor can mark it correct or incorrect without lifting the key off the paper. All scores should be reported as the number a student gets right, not as a percentage or number wrong.

Thank you for your cooperation in administering this test. If there are any questions concerning the test, please write

C. Lynn
Virginia Highway Research Council
P. O. Box 3817 University Station
Charlottesville, Virginia 22903

or call us on SCATS line, 525-3333, or on our regular number 703-977-0290.

(Version C)

**ALCOHOL AND DRIVING
DRIVER IMPROVEMENT SCHOOLS**

- (1) The number of persons killed in the United States last year in traffic accidents was approximately
- a. 55,000
 - b. One-half of the total number of America's war deaths
 - c. 75,000
 - d. 30,000
- (2) Compared to crashes not involving alcohol, those involving alcohol tend to be
- a. More severe for all drivers
 - b. More severe for young drivers only
 - c. About the same severity for all drivers
 - d. Less severe for older drivers only
- (3) In the State of Virginia, driving while under the influence of alcoholic beverages occurs when the blood alcohol level reaches
- a. 0.05%
 - b. 0.08%
 - c. 0.10%
 - d. 0.15%
- (4) Approximately what percentage of adults in the United States drink alcoholic beverages?
- a. 50%
 - b. 70%
 - c. 40%
 - d. 90%
- (5) Not all drivers can be classified as excessive drinkers. What percentage best represents the excessive or problem drinker?
- a. 10%
 - b. 50%
 - c. 3%
 - d. 70%

- (6) The only "cure" for alcoholism is:
- Psychoanalysis
 - Careful moderation in drinking
 - ASAP
 - Total abstinence
- (7) What temporary visual condition can occur from drinking alcohol?
- Reduce side vision
 - Blurring
 - Double vision
 - All of the above
- (8) When alcohol is consumed and absorbed faster than it is burned up, its effects will
- Decrease
 - Accumulate
 - Be of shorter duration
 - All of these
- (9) A person suffering from alcoholism is
- Usually drunk
 - Unable to control how much he drinks
 - Unable to control his bodily functions
 - All of the above
- (10) Although impairment sometimes begins earlier, most experts now agree that all drivers possess impaired ability when the blood alcohol concentration reaches
- .02 %
 - .05 %
 - .08 %
 - .09 %
- (11) Most problem drinkers
- Are normally upstanding citizens of the community
 - Have other personal problems
 - Have often been arrested for non-traffic offenses
 - Have been institutionalized at least once

- (12) Alcohol, when used medicinally, is able to
- Cure or prevent colds
 - Prevent traumatic shock
 - Kill bacteria in the digestive tract
 - None of the above
- (13) Which statement is most accurate concerning the effect of moderate amounts of alcohol on vision?
- Vision is slightly improved
 - Vision worsens, especially in bright sunlight
 - There is no significant effect upon vision
 - Vision worsens, particularly at night
- (14) If a person were to drink equal quantities of each of the following, which one would cause him to become "high" fastest?
- Champagne
 - Beer
 - Whiskey
 - All of the above are about the same
- (15) In the past, the general public has
- Tolerated the drinking driver
 - Insisted on severe and unusual punishment
 - Considered the drinking driver as a drug abuser
 - Thought drinking drivers to be criminals
- (16) Which of the following reverses the effects of alcoholic beverages?
- Vitamin C
 - Black coffee
 - Cold showers
 - None of these
- (17) The most important factor in determining the effects of alcohol on the body is the
- Alcohol level in the blood stream
 - Type of beverage the person is drinking
 - Ability of the person to handle alcohol
 - Amount of food in the stomach

- (18) Which of the following body systems is first impaired by alcohol?
- Digestive system
 - Nervous system
 - Respiratory system
 - Circulatory system
- (19) Young drivers are more likely to be involved in traffic accidents after drinking alcoholic beverages because
- They take risks
 - They lack experience in driving
 - They lack experience in drinking
 - Both b and c
- (20) Which one of the following characteristics affects blood alcohol concentration least?
- Body weight
 - Contents of the stomach
 - Drinking experience
 - Amount of alcohol consumed
- (21) Which of the following best describes the effects of alcohol on driver performance?
- Causes blind spots
 - Reduces tactile sensation
 - Increases attention span
 - Lowers bodily efficiency
- (22) Excessive or heavy drinking will affect which one of the following more than the others?
- Hearing
 - Ability to make decisions
 - Judgment of time
 - Brightness discriminations
- (23) Alcohol is classified as
- stimulant
 - A depressant
 - A high energy food
 - Both a and c

- (24) Would you expect that more fatal accidents are caused by the many social drinkers or by the small number of problem drinkers?
- Social drinkers cause more fatalities
 - Problem drinkers cause more fatalities
 - Social and problem drinkers cause about the same number
 - Non-drinkers cause more
- (25) Which of the following is of most value in determining how drunk a driver is?
- Opinion of the arresting officers
 - Test of coordination (Such as walking a straight line)
 - Breath test
 - Combination of a and b
- (26) What is the chief danger after one drink?
- Reaction time would be doubled
 - The driver would be less alert
 - The inhibition against further drinking is reduced
 - Visual acuity would be reduced
- (27) In which of the following situations are effects of alcohol most dangerous?
- During unexpected emergencies
 - While parking your car
 - When you are speeding
 - While you are driving at night
- (28) As far as dietary needs are concerned, alcohol
- satisfies no strict nutritional or food requirements
 - Is high in calories
 - Is a high energy food
 - Both a and b
- (29) The most commonly used type of test for blood alcohol concentration utilizes sampling of
- Urine
 - Blood
 - Breath
 - Both b and c

- (30) On the average, about how long does it take for alcohol in the blood to reach a peak after you have downed a drink?
- a. 5 minutes
 - b. 10 minutes
 - c. 30 minutes
 - d. 60-90 minutes
- (31) Implied Consent'' means that when a driver applies to a driver's license, he
- a. Implies that he is aware of the penalties for drunken driving and consents to accept them
 - b. Consents to take the road and written tests
 - c. Consents to take a chemical test if suspected of driving while drunk
 - d. Implies that he will not drink and drive
- (32) Which of the following contains the most alcohol?
- a. One 12 ounce can of beer
 - b. One 3 ounce glass of wine
 - c. A one ounce glass of whiskey
 - d. All contain the same amount
- (33) What is the result of taking several drinks socially?
- a. Muscular coordination will be greatly affected
 - b. Inhibitions against further drinking will be modified
 - c. Visual acuity will be greatly reduced
 - d. All of the above
- (34) In order to reach the presumptive limit (.10% in most states), how many 12 ounce beers would a person weighing 160 lbs. have to drink in a 1 hour period?
- a. 6
 - b. 2
 - c. 8
 - d. 4
- (35) Alcohol has the same properties as:
- a. A stimulant
 - b. A vitamin supplement
 - c. An anesthetic
 - d. An antibiotic

- (36) The time it takes the body of the average person to get rid of the alcohol found in two bottles of beer (each 12 ounces) is approximately
- a. 9 hours
 - b. 6 hours
 - c. 2 hours
 - d. 30 minutes
- (37) Drinking of alcoholic beverages
- a. Is natural in most animals, including man
 - b. Cannot be learned without some genetic tendencies
 - c. Is an inherited tendency
 - d. Is learned behavior

Version C

Pre

Post

**ALCOHOL AND DRIVING
Answer Sheet**

NAME _____ INSTRUCTOR _____ DATE _____

CLASS NUMBER _____

- | | | | | | | | | | |
|------|---|---|---|---|------|---|---|---|---|
| (1) | A | B | C | D | (20) | A | B | C | D |
| (2) | A | B | C | D | (21) | A | B | C | D |
| (3) | A | B | C | D | (22) | A | B | C | D |
| (4) | A | B | C | D | (23) | A | B | C | D |
| (5) | A | B | C | D | (24) | A | B | C | D |
| (6) | A | B | C | D | (25) | A | B | C | D |
| (7) | A | B | C | D | (26) | A | B | C | D |
| (8) | A | B | C | D | (27) | A | B | C | D |
| (9) | A | B | C | D | (28) | A | B | C | D |
| (10) | A | B | C | D | (29) | A | B | C | D |
| (11) | A | B | C | D | (30) | A | B | C | D |
| (12) | A | B | C | D | (31) | A | B | C | D |
| (13) | A | B | C | D | (32) | A | B | C | D |
| (14) | A | B | C | D | (33) | A | B | C | D |
| (15) | A | B | C | D | (34) | A | B | C | D |
| (16) | A | B | C | D | (35) | A | B | C | D |
| (17) | A | B | C | D | (36) | A | B | C | D |
| (18) | A | B | C | D | (37) | A | B | C | D |
| (19) | A | B | C | D | | | | | |

ALCOHOL AND DRIVING

Fairfax Driver Improvement Schools

This is a test of your knowledge of the effects of alcohol on driving, on your body, and on your safety while driving. You are not expected to be able to answer all of the questions correctly. You should, however, try to answer as many as you can. If you come to a question that you do not immediately know or of which you are not sure, skip it. You can return to the question when you have finished the test and can take your time making your selection.

There are 37 questions on this test. Please read each one carefully before answering. Each question is followed by four answers: A, B, C, and D. Only one of these is the correct answer and you should try to select the one that best answers the question or completes the statement. Do not mark your answers on the test itself. When you have made your selection, record your choice on the answer sheet, opposite the question number, by marking in pencil the letter that corresponds to the correct answer. Here are two examples:

- (0) What is the earliest age at which you may obtain a license to drive in Virginia?

Answer Sheet

- | | | | | | |
|--------------|---|---|---|---|---|
| (a) 14 Years | | | | | |
| (b) 16 Years | 0 | A | B | C | D |
| (c) 18 Years | | | | | |
| (d) 21 Years | | | | | |

The best answer to this question is letter B, 16 years. If this were one of the real test questions, you would first find question number 0 on your answer sheet. Across from that, you would find the correct letter, B, and color in a circle around it, as we have done. If you want to change an answer, erase it completely, then mark your choice.

- (00) There is only one-eight sided-figure used in Virginia — It is a

Answer Sheet

- | | | | | | |
|----------------------------|----|---|---|---|---|
| (a) Stop Sign | | | | | |
| (b) Yield Sign | 0 | A | B | C | D |
| (c) Railroad Crossing Sign | 00 | A | B | C | D |
| (d) Speed Limit Sign | | | | | |

The best completion to this sentence is letter A, a stop sign. Opposite question #00, you would mark letter A.

All the questions on this test are like these two samples. There is no time limit on this test. Take your time and answer each to the best of your ability.

Version C

Pre

Post

ALCOHOL AND DRIVING
Answer Sheet

NAME _____ INSTRUCTOR _____ DATE _____

CLASS NUMBER _____

- | | | | | | | | |
|-----|---|---|---|------|---|---|-----|
| (1) | B | C | D | (20) | A | B | D |
| | B | C | D | | A | B | C |
| A | B | | D | | A | | C D |
| A | | C | D | | A | | C D |
| | B | C | D | | A | | C D |
| A | B | C | | | A | B | D |
| A | B | C | | | A | B | D |
| A | | C | D | | | B | C D |
| A | | C | D | | A | B | C |
| A | | C | D | | A | B | C |
| A | | C | D | | A | B | D |
| A | B | C | | | A | B | D |
| A | B | C | | | A | B | C |
| A | B | | D | | A | | C D |
| | B | C | D | | A | B | C D |
| A | B | C | | | A | B | D |
| | B | C | D | | A | B | D |
| A | | C | D | (37) | A | B | C |
| A | B | C | | | | | |

