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ABSTRACT

This report is the fourth in a series of four reports dealing with the development of performance-oriented driver education objectives through an analysis of the driver's tasks. Described in this volume are the methods used to develop a set of instructional objectives for driver education courses and an evaluation instrument for evaluating attainment of these objectives. Both the objectives and evaluation instrument were based upon the results of a driving task analysis conducted in an earlier phase of the effort and described in Volume I, available as VT 018 252, and Volume II, available as VT 019 911 in this issue. Those driving behaviors considered critical enough to be required of all drivers were organized into a set of performance objectives and accompanying performance standards. In addition, a set of enabling objectives, describing the skills and knowledges required in carrying out the performance objectives, was prepared. The evaluation instrument was composed of: (1) an off-road test to measure basic skills involved in controlling vehicle motion, (2) a checklist of student responses to a series of planned and unplanned driving situations, and (3) a knowledge test composed of 105 information items drawn from the enabling objectives. Volume III, which contains the performance and enabling objectives and the evaluation instrument is available as ED 072 249. (Author/SB)

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DRIVER EDUCATION TASK ANALYSIS

Vol. IV - The Development of Instructional Objectives

Human Resources Research Organization (HumRRO)
300 North Washington Street
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16. Abstract

This report describes the methods that were used to develop for driver education courses a set of instructional objectives as well as an evaluation instrument to measure the attainment of these objectives. Both the objectives and evaluation instrument were based upon the results of a driving task analysis conducted in an earlier phase of the effort. Those driving behaviors considered critical enough to be required of all drivers were organized into a set of performance objectives and accompanying performance standards. A set of enabling objectives, describing the skills and knowledges required in carrying out performance objectives, was also prepared. The evaluation instrument was composed of the following three tests: (1) a Driving Fundamentals Test, an off-road test to measure basic skills involved in controlling motion of the vehicle, (2) a Driving Situations Test, a checklist of student responses to a series of planned and unplanned real-world driving situations, and (3) a Driving Knowledge Test, 105 information items drawn from enabling objectives. All tests were pilot-tested at a neighboring high school to establish their feasibility of administration. Recommendations for additional development of the Driving Situations Test are provided.

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PREFACE

This is Volume IV of a report describing the development of driver education objectives by the Human Resources Research Organization (HumRRO). This volume describes the background of the study and the methods used in preparing a set of performance objectives, enabling objectives, and an evaluation instrument from the results of a driver task analysis. The objectives and evaluation instrument appear in Volume III, in preparation, entitled *Driver Education Task Analysis: Instructional Objectives*. Volume I, entitled *Driver Education Task Analysis: Task Descriptions*, provides an inventory of the driver tasks from which the objectives were drawn, while Volume II, *Driver Education Task Analysis: Task Analysis Methods*, describes the procedures used in developing the task descriptions.

The work described in this volume of the report was performed by HumRRO Division No. 1 (System Operations), Alexandria, Virginia, Dr. J. Daniel Lyons, Director, under sponsorship of the National Highway Traffic Safety Administration (NHTSA), U.S. Department of Transportation (Contract No. FH 11-7336). Dr. A. James McKnight was in charge of the study and Dr. Alan G. Hundt was Project Director during the phase of the study described in this report. The project staff included Mrs. Jane V. Lee, Mr. Jerome P. Corbino, and Mrs. Mary E. Berry. Mr. Richard M. Gebhard assisted in preparation of the evaluation instrument.

Appreciation is expressed to the project advisory panel for assistance ranging from general guidance to direct participation, in carrying out activities of the project. Members were: Dr. Richard W. Bishop, Florida State University; Dr. Alphonse Chapanis, Johns Hopkins University; Dr. Leroy Dunn, NHTSA; Mr. Paul Halula, North American Professional Driver Education Association; Dr. Earl D. Heath, NHTSA; Dr. Francis Kenel, Illinois State University; Dr. P. Robert Knaff, NHTSA, and Dr. Robert O. Nolan, Michigan State University. Mr. Robert M. Nicholson, NHTSA, served as Contract Manager during the phase of the study reported in this volume.

SUMMARY

In an effort to educate young people in the fundamentals of safe driving, over 13,000 schools across the country conduct programs of driver education. Through these programs nearly two million students receive classroom and behind-the-wheel instruction each year. Additional numbers of people at all age levels receive instruction from the over 2,000 commercial driving schools in operation across the country.

Under the Highway Safety Act of 1966, the National Highway Traffic Safety Administration (NHTSA) is assigned responsibility for issuing guidelines to assist states in improving the quality of driver instruction programs. In several NHTSA-sponsored studies, attempts to evaluate the effectiveness of driver education programs have been hampered by a lack of explicit description of what constitutes "good" driving. In these studies it was concluded that a necessary step in both the development and evaluation of sound driver education programs is an analysis of tasks. Driving behaviors identified through this analysis would serve as performance objectives from which would be derived the knowledges and skills required for proficient driving, which, then, could be used to devise courses of instruction to impart these skills and knowledges.

OBJECTIVE

The study was undertaken by the Human Resources Research Organization, sponsored by the National Highway Traffic Safety Administration, to develop a set of performance-oriented driver education objectives and an evaluation instrument by which the attainment of these objectives could be assessed. In the first phase of the study, a comprehensive analysis of the driver's task was conducted in order to identify critical driving behaviors from which instructional objectives could be derived. That phase of the study has been described in two earlier volumes.[1,2] This report will describe the instructional objectives and evaluation instrument developed from the results of the task analysis. The objectives and evaluation instrument appear in a companion report entitled, "Driver Education Task Analysis, Volume III: Instructional Objectives."[3]

DEVELOPMENT OF PERFORMANCE OBJECTIVES

The task analysis produced a list of over 1700 specific driving behaviors grouped into 45 tasks. A panel of highway safety authorities selected behaviors that were critical enough to be considered essential requirements for all new drivers. These behaviors were designated as performance objectives. Objectives having common or similar purposes were grouped into individual "learning units." The performance objectives within each learning unit were

[1] McKnight, A. James, and Adams, Bert B. *Driver Education Task Analysis, Volume I: Task Descriptions*, U.S. Department of Transportation Final Report HS 800 367 (HumRRO Technical Report 70-103), Contract No. FH 11-7336, November 1970.

[2] McKnight, A. James, and Adams, Bert B. *Driver Education Task Analysis, Volume II: Task Analysis Methods*, U.S. Department of Transportation Final Report HS 800 368 (HumRRO Interim Report DI-70-1), Contract No. FH 11-7336, November 1970.

[3] McKnight, A. James, and Hundt, Alan G., *Driver Education Task Analysis, Volume III: Instructional Objectives*, U.S. Department of Transportation, Final Report (HumRRO Technical Report 71-9), Contract No. FH 11-7336, March 1971.

divided into five categories of criticality on the basis of criticality indices developed during the first phase of the study. The objectives were printed using a matrix format in which individual objectives were listed down the page according to their sequential or logical order, and across the page in terms of their criticality. A set of performance standards, specifying the minimum number of objectives to be performed correctly at each level of criticality, was developed by means of a rating process carried out by 48 driver educators. The standards are as follows: High Criticality—95% correct; Moderately High Criticality—85% correct; Moderate and Moderately Low Criticality—70% correct; Low Criticality—50%. Standards relating to quantitative *levels* of performance (i.e., measurable as to degree or amount), were found to be not appropriate, and, therefore, standards were treated as qualitative, "pass-fail."

DEVELOPMENT OF ENABLING OBJECTIVES

For each learning unit, the knowledges and skills that enable the performance objectives to be met were identified. Knowledge objectives consisted of the procedural, factual, and conceptual information that allowed students to carry out the prescribed performances. The knowledge objectives dealt with factual information primarily because procedural knowledge is redundant with description of the performance itself, and driving is not dependent upon conceptual information. One category of factual information played a purely enabling role by identifying such things as when, where, or to what degree an activity was performed, where things were located, what they looked like. The other category consisted of facts related to the reason an activity is performed and was intended primarily to influence attitudes toward performance of tasks. Skill objectives involved those perceptual and motor processes that are required, over and above possession of information, and which must be developed through practice in order that performance objectives be met. Specification of skill objectives dealt largely with descriptions of relevant cues and responses and was provided less to explain the nature of skills than to identify those performance objectives that could be met and evaluated only through actual performance.

DEVELOPMENT OF THE EVALUATION INSTRUMENT

Three types of tests made up the evaluation instrument, a Driving Fundamentals Test, a Driving Situations Test, and a Knowledge Test. The Fundamentals Test described a series of standardized, off-road maneuvers designed to assess the student's ability to control the speed and direction of the automobile. The Situations Test was essentially a checklist intended to assist an administrator in observing and recording the student's responses to such driving situations as occur in an essentially normal trip. All tests were scored in terms of percentage of items performed correctly in order that individual results could be compared with established performance standards. The evaluation instrument was administered to students at a neighboring high school to assess feasibility of administration. No reliability, validity, or normative statistics were compiled. However, because it was derived from an analysis of tasks, the measure is considered to have content validity; traditional concepts of psychometric reliability are considered not to apply.

CONTENTS

DRIVER EDUCATION TASK ANALYSIS

Volume IV: The Development of Instructional Objectives

Section I

STATEMENT OF THE PROBLEM

In an effort to teach young people the fundamentals of safe driving, over 13,000 high schools across the country conduct programs of driver education. Through these programs, nearly two million students receive classroom and behind-the-wheel driving instruction each year. An activity of such a magnitude is bound to draw the critical attention of the public which is called upon to support it. The question is whether formal driver education programs are more successful than ostensibly less costly "home grown" approaches to driving instruction.

Under the Highway Safety Act of 1966, the National Highway Safety Bureau, now the National Highway Traffic Safety Administration (NHTSA), is assigned responsibility for issuing guidelines to assist the states in improving the quality of driver education programs. In several studies sponsored by the NHTSA and the National Academy of Sciences, attempts to evaluate the effectiveness of driver education programs have been hampered by lack of an explicit description of what constitutes "good" driving.[1] While the quality of a driver's performance is believed to be reflected in his accident and violation record, such records, when used as a basis for evaluating driver education programs, have the following deficiencies:

(1) Accidents and violations result from many factors other than the quality of driving behavior, including driving conditions, amount of driving, and local enforcement practices.

(2) Even to the extent that accidents and violations reflect the quality of driving behavior, that behavior is itself a function of many factors other than driving skills developed through driver education programs, including fundamental personality characteristics, age, and experience.

(3) Should driver education be shown to have an effect upon accident and violation records, it would not be possible to determine which aspects of a driver education program were the effective ones and which ones had little or no effect.

The first step needed in the evaluation of driver education was a description of good driving stated in terms of what the driver must do, that is, what behavior is required. These behaviors could then form the basis of performance objectives—terminal performance objectives—to be achieved through driver education courses. From these performance objectives could be derived the knowledges, skills, habits, and attitudes that *enable* a student to obtain specified performance objectives. The terminal performance objectives and enabling objectives, if properly established, would serve as standards to guide both the development and the evaluation of individual driver education programs.

STUDY OBJECTIVE

As a step in the improvement of driver education programs and in the development of a standard against which to evaluate these programs, the Human Resources Research Organization undertook a study, the goal of which was to develop a set of performance-oriented driver education objectives and an evaluation instrument capable of assessing the extent to which objectives are attained by students. Both objectives and evaluation

[1] Harry H. Harmon, *et al. Evaluation of Driver Education and Training Programs*, Educational Testing Service, Princeton, N.J., March 1969.

instrument were based upon a comprehensive and detailed analysis of the tasks that drivers are required to perform and an evaluation of their criticality to safe and effective highway transportation. The study was planned for two phases. The first phase, completed in the fall of 1970, consisted of the task analysis and criticality evaluation and is described in two reports[1] [2] submitted to NHTSA and available through the National Technical Information Service.[3] It was also described in an article that appeared in *Traffic Safety*.[4] The first phase will be briefly summarized in this volume. The second phase of the study involved the development from the results of the task analysis a set of instructional objectives and an instrument to measure their attainment.

This volume deals primarily with the second phase of the project. Section 2, Development of Instructional Objectives, describes the process by which behaviors were selected to serve as performance objectives, the organization of the performance objectives, and the establishment of performance standards. Section 3, Development of Enabling Objectives, describes the manner in which the knowledges and skills related to the performance objectives were identified. Section 4, Development of an Evaluation Instrument, describes the preparation of an off-road fundamentals test, an on-road situations test, and a knowledge test.

REVIEW OF TASK ANALYSIS

The basic approach taken to the analysis of the driver's tasks was system analytic. An analysis was made of the highway transportation system—the driver, the vehicle, roadway, traffic, and natural environment—to identify those specific characteristics of the system capable of creating situations to which drivers must respond. Over a thousand behaviorally relevant characteristics of the highway transportation system were identified. These were analyzed individually and in combination with one another to identify the specific nature of the requirements they imposed upon the driver, both the situations they generated and the behaviors they demanded. A list of well over a thousand specific driving behaviors resulted from this analysis. These behaviors were organized into tasks, that is, behaviors that were related to one another either by having a common end-goal (e.g., passing or driving through an intersection) or by arising out of a common situation (e.g., car following, night driving).

Once behaviors had been organized into tasks, the analysis was continued to assure that every step in the completion of each task had been specified. The formal analysis was supported by behavioral information collected from a literature review which encompassed over 600 separate publications, including textbooks, research articles, accident reports and summaries, and engineering analyses. The analysis produced a list of more than 1700 specific behaviors grouped into 45 tasks.

The next step was to assess the criticality of each behavior to the safety and effectiveness of the highway transportation system. While an objective analytic determination of criticality would, in theory, have been the best approach, the relationships involved were too complicated and data concerning them insufficient to support such an approach. Instead, a judgmental approach was used. One hundred authorities in the field of highway safety, including law enforcement officers, fleet safety and training personnel specialists, driver educators, and driver licensing officials were asked to participate in the evaluation.

[1] McKnight, A. James, and Adams, Bert B. *Driver Education Task Analysis, Volume I: Task Descriptions*. U.S. Department of Transportation Final Report HS 800 367, (HumRRO Technical Report 70-103), Contract No. FH 11-7336, November 1970.

[2] McKnight, A. James, and Adams, Bert B. *Driver Education Task Analysis, Volume II: Task Analysis Methods*, U.S. Department of Transportation Final Report HS 800 368, (HumRRO Interim Report D1-70-1), Contract No. FH 11-7336, November 1970.

[3] National Technical Information Service, Springfield, Virginia 22151.

[4] McKnight, A.J. "System Analysis Pinpoints Driver Tasks," *Traffic Safety*, National Safety Council, vol. 70, no. 12, December 1970.

Each evaluator was provided three groups of 25 behaviors that had been drawn at random from the original list of behaviors. He was asked to rank order the behaviors in each group according to their criticality to traffic safety and effectiveness. This allowed each of the behaviors to be ranked five times in five different groups of driving behaviors.[1] The five ranks for each behavior were normalized and averaged to obtain an index of criticality. The driving behaviors and their associated criticalities were assembled into a set of Task Descriptions that constitute Volume I of this report. A detailed description of the methods used in analyzing the tasks and evaluating criticalities is provided in Volume II.

[1] The original list of behaviors was reduced to 1500 for purposes of the evaluation by combining those that were very closely related and, therefore, were expected to have the same level of criticality.

Section 2

DEVELOPMENT OF INSTRUCTIONAL OBJECTIVES

Instructional objectives represent statements of goals toward which the development of curricula may be directed. They do not constitute an instructional program themselves but rather define the end products that are to be developed through the instructional program. The instructional objectives developed for the driver education course were of two types:

Performance Objectives—descriptions of terminal performances expected of students as a result of instruction.

Enabling Objectives—descriptions of knowledges and skills that are believed to enable a student to meet performance objectives.

Performance objectives were taken directly from the results of the task analysis. From the list of driver behaviors, those that were judged by a panel of highway safety specialists as the minimum essentials for a qualified driver were selected to become the objectives of a driver education program. These behaviors then defined the goal toward which development of an instructional program would be developed, and against which the results of the instructional program could be evaluated.

Descriptions of enabling knowledges and skills represent inferences as to what it is that allows the individual to perform, inferences that are drawn from examination of the performance objectives themselves. Knowledge is essentially stored information of a procedural, factual, or conceptual nature that indicates how, when, or why an activity is to be performed. It enables in both an instructive and motivational sense. Skill, as the term is employed in this report, refers to that which is required over and above knowledge to allow the person to perform to an acceptable level.

The remainder of this report will describe the process by which performance and enabling objectives were developed. It will also describe the establishment of performance standards to be applied to both sets of objectives and the construction of knowledge and performance tests by means of which attainment of both sets of objectives may be evaluated.

DETERMINATION OF PERFORMANCE OBJECTIVES

The first step in establishing instructional objectives was to determine which of the behaviors that make up the driver's tasks should be included among objectives of the driver education course. The assumption was made that the purpose of driver education is not to teach a student all there is to know about driving, but rather to qualify him to meet the minimum essential requirements for safe and effective operation within the highway transportation system. Performance objectives, therefore, define the behaviors to be expected of a minimally qualified driver.

The selection of performance objectives was made at the level of specific behaviors rather than entire tasks. For example, each step in the act of passing, each aspect of night driving, each response to a traffic signal, was a potential performance objective. A task, as identified in the task descriptions, is nothing more than the total of the behaviors that comprise it. It has no *single* measurable outcome. This concept of driver behavior is clearly illustrated by the tasks of night driving, dealing with traffic situations, and handling various roadway conditions because these—and others—deal with groupings of similar but independent behaviors, rather than a single behavior with a single outcome. Even passing, which seems to have a very specific outcome, can be assessed only in terms of the driver's having successfully made the judgments, checks, signals, and so on, that are needed in a safe pass.

The first step in the selection of performance objectives occurred at the time the criticality of behaviors was being evaluated. Each ... s asked to designate those behaviors that were sufficiently critical to be ... driver before he could be considered "qualified to drive," that is, befo... ed a driver's license. Since each behavior was judged by five different e... judgments were made as to its inclusion or exclusion from a list of essential be... Those behaviors that were judged by at least four of the five evaluators to be required of a qualified driver were designated as performance objectives for driver education. Those that were excluded by four of the five evaluators were eliminated from further consideration.

A moderate number of behaviors fell between these two extremes. These behaviors were reviewed by a panel of driver educators[1] who considered at length the criticality of the behavior, as measured by the frequency with which it is performed as well as its relation to safety and efficient flow of traffic. Discussion continued until unanimous agreement was reached to include or exclude the behavior as a performance objective.

The selection of performance objectives was dependent solely upon its criticality to the highway transportation system and did not attempt to take into account how well the objective might be attained at the present time, given the technology and resources available for driver education programs. This approach was adopted in order that performance objectives might serve to guide the development of future driver education courses as well as the technology and resources that support them.

A number of relatively uncritical behaviors were thought by the panel to warrant inclusion in a driver education course, even though students should not be held accountable for demonstrating their ability or tendency to perform them. Examples included behaviors concerned with reducing effects of fatigue, pushing and towing disabled vehicles, and use of various accessories such as windshield washers. These items were included among enabling knowledge objectives but not among performance objectives. The disposition of all behaviors is shown in Appendix A. All behaviors are listed by their code numbers as they appear in the task descriptions (Volume I), and disposition of each behavior by (a) selection as performance objectives, (b) inclusion among knowledge objectives only, or (c) elimination from further consideration, is indicated.

ORGANIZATION OF PERFORMANCE OBJECTIVES

The behaviors that make up the act of driving, and its supporting functions, were given a *situational* organization in the task descriptions that make up Volume I of this report. The principal reason for this treatment was that the behaviors were identified primarily through analysis of traffic situations. However, an organizing scheme that serves the purposes of analysis is not necessarily the best scheme for teaching purposes. While the scope of this study did not encompass development of a driver education curriculum, attempts to utilize the objectives in development or revision of driver education curricula would be greatly facilitated if the objectives were ordered in terms of some commonly accepted or maximally effective learning units.

[1] The following individuals participated in the selection of performance objectives, and also served in an advisory capacity throughout the project: Dr. Richard W. Bishop, Florida State University; Dr. Leroy Dunn, NHTSA; Mr. Paul Halula, North American Professional Driver Education Association; Dr. Francis Kenel, Illinois State University; and Dr. Robert Nolan, Michigan State University. Dr. Alphonse Chapanis, Johns Hopkins University, served as an advisor to the project as a whole but did not participate in the selection of performance objectives.

To determine what systems have been used to organize instructional content in the driver education area, a number of textbooks and curricula were examined. The following fundamental organizing principles were identified:

Behavioral—content organized in terms of driving tasks, e.g., "Passing," "Night Driving."

Psychological—content organized in terms of psychological processes, e.g., "Hazard Detection," "Risk Taking," "Visual Perception."

Structural—material organized in terms of the structures that help make up the highway transportation system, e.g., "The Eye," "Traffic Courts."

Conceptual—material organized in terms of psychological, physical, social, legal, or other concepts, e.g., "Gravity," "Emotion," "Liability."

Most curricula and texts were found to be a mixture of three or four of the above classification systems. No one favored system was identified, nor was there a particular constellation of content categories that appeared with high frequency. There being little concurrence on an "ideal" organizing scheme, no value could be seen in departing from the behavioral, situation-oriented approach used in assembling the task descriptions. Some of the larger tasks, such as dealing with other vehicles, were divided into somewhat smaller units. These units became modules that might be organized in different ways by different educators in building curricula. Educators could, of course, extract individual performance objectives from any tasks and combine them in the way they wish.

Description of "Purpose"

Each group of performance objectives or "learning unit" was accompanied by a statement of "purpose" which summarized the general nature of the objectives that made up the unit. Examples of such statements are:

"To enable the student to accelerate smoothly and safely from a standing position."

"To enable the student to make a safe comfortable turn."

"To enable the student to enter traffic without interfering with other vehicles."

"To enable the student to adjust his course if necessary when meeting oncoming vehicles and to take evasive action when necessary to avoid a head-on collision."

While the statements of "purpose" may appear similar to instructional "objectives" as they are stated for many programs, they do not describe an outcome that is capable of being measured, nor do they specify the conditions under which the objective is to be attained or the facilities and aids that will be utilized. Measurement and conditions of performance are generally regarded as essential characteristics of instructional objectives.

Criticalities of Performance Objectives

The performance objectives that made up a particular learning unit typically spanned two or more levels of criticality. In the task description, the criticality levels were indicated alongside the behavior description. However, such a listing would require a teacher whose resources would not permit him to deal with all performance objectives to work through a long list of behaviors in order to identify those that were above his particular threshold of criticality. Some means of separating performance objectives by criticality level was believed essential. Finding this means proved to be a time-consuming activity.

The first approach was simply to sort the performance objectives into categories according to their criticality. Five categories were generated by dividing the full range of criticality values into five equal scale intervals. The categories were given the following labels:

High Criticality
Moderately High Criticality
Moderate Criticality
Moderately Low Criticality
Low Criticality

The labels are used for ordinal position only and are not intended to imply any absolute reference points. They could just as well have been numbered "1," "2," "3," "4," "5." Word labels, however, were believed to be more useable.

Unfortunately, organizing behaviors by criticality level disrupted any sequential or logical relationships that existed among the behaviors. For example, the various steps involved in the task of *passing another car* were dispersed across several levels of criticality, making it difficult to discern how the operation was to be performed. Or, in dealing with limited visibility, by being spread across several criticality categories those behaviors concerned with *sunglare* and those concerned w[illegible] *fog* became, in essence, intermixed with one another to the extent that each becam[illegible]ult to identify. The attempt was made to reunite groups of objectives when it a[illegible]peare[illegible]gically, that they "belonged" together, and where the differences in rated critical[illegible] small enough to be within the range that random error in the criticality judgment process would be expected to produce. While the step was a reasonable one to take and helped to some extent, the description of performance objectives still remained difficult to comprehend.

The problem was finally overcome by means of the matrix format illustrated in Figure 1 where a portion of the learning unit associated with *parking* is shown. Those behaviors involving the location of a parking space and the determination of its suitability are grouped together in one row as a specific category, while behaviors of differing criticality levels are distributed across the five columns. Performance objectives concerned with the category of "parallel parking" are dealt with similarly, as are "angle parking" and "perpendicular parking" (not shown). Where the categories of objectives follow a particular sequence, as do the two categories in the example, that sequence is shown by the order in which the categories are listed, Any sequences within a category are similarly indicated by the vertical positioning of the statements. This is true not only within a particular criticality level, but across all the criticality levels for a given category. In order to prevent confusion, all five criticality levels are shown in the matrix even though one or more of them may be unused on a particular page or for an entire learning unit. A narrow band varying in shade from white to black is provided as an additional cue to the level of criticality for each column. Because the narrow columns limit the amount of indentation possible, "•" symbols are used to indicate sub-elements of an objective.

While the statement of purpose described what the learning unit was to accomplish, the performance objectives described what the *student* was to do. In the case of several learning units, however, the activities that the students were to perform would take place far away from the scene of instruction. These learning units included those concerned with alcohol consumption, inspection and maintenance of the car, licensing and registration, and post-accident functions. In order to avoid giving the impression that the student was to be held accountable for evidencing his ability to perform, the purpose of these learning units was stated as to "educate" rather than to "enable," and reference was made to "the driver" rather than to the student.

PERFORMANCE STANDARDS

Each of the performance objectives provides a description of the behavior that a driver education student must be capable of exhibiting if he is to be considered a minimally qualified driver. However, in order for these objectives to meet the needs of curriculum development or student evaluation, the qualitative descriptions of behavior must be accompanied by quantitative standards that prescribe how well they are to be carried out. Such standards would include both (a) the *level* of performance to be required for each objective, and (b) the *number* of behaviors that must be performed to the specified level.

ion of the Learning Unit on Parking

PURPOSE: To enable the student to park the car safely and legally, and to exit from the car, with minimal interference with other vehicular or pedestrian traffic.

CATEGORY	CRITICALITY				
	HIGH	MODERATELY HIGH	MODERATE	MODERATELY LOW	LOW
Seeking Space and Determining Suitability		The student will not double park, that is, park on the roadway side of any vehicle parked or standing at the edge of the street or curb.	When looking for a parking space, the student will maintain a speed that is close to the posted speed. Before decelerating to inspect the suitability of a parking space, he will signal his intention to slow down or stop to the vehicles behind him. He will pause briefly to inspect the space to minimize the hindrance to following traffic. When a parking space is adjacent to or opposite a street excavation, he will make sure the car would not impede the traffic flow if parked in this space.	In determining the suitabilit[illegible] parallel parking space, the stu[illegible] will drive alongside to see if the s[illegible] exceeds one and one-half car le[illegible] The student will look for sign curb or pavement markings to determine whether parking is allowed.	The student will not park in a space where the car would overlap a driveway, except momentarily to discharge or pick up passengers.
Parallel Parking		Before attempting to parallel park, the student will signal following traffic to pass if the roadway width permits.	When entering a parallel parking space the student will back the car slowly, while turning the steering wheel sharply to the right.	When preparing to parallel park the student will position the car alongside and about two feet from the vehicle parked in front of the space to be occupied. To back into a parallel parking space he will: • Look over his right shoulder and out the back window. • Back slowly while turning the steering wheel sharply to the right. • Straighten the steering wheel when the back of the front seat is in	

Figure 1

Performance Level

Arriving at acceptable levels of performance that would uniformly cover everyday driving turned out to be impossible. An acceptable response to any situation is almost totally dependent upon conditions of traffic, the roadway, weather, light conditions, and other factors. For example, how closely a driver should keep to the center of his lane—that is, "tracking accuracy"—is related to the presence of other traffic on the roadway, among other things. In car following, the "one car length for every 10 miles an hour" distance separation that is popularly accepted as a standard (more recently simplified to "two seconds") relates to free-flowing traffic on a open road with a dry surface, good visibility, and following a conventional automobile. If any of these conditions change, the standard is no longer appropriate.

To furnish quantitative standards of performance to cover real-world driving would require development of complex formulas. In most cases, the highway and traffic engineering data required to support such formulations are not available. Moreover, even if valid formulas were available, their application in many cases would require elaborate instrumentation that is not practical even to contemplate for educational purposes.

Two facts make the lack of quantitative and uniform performance levels less of a handicap than it might seem. First, when driving tasks are reduced to their constituent behavioral elements, these elements are found, in most cases, to be discrete responses that either occur or do not occur. For example, actuating a turn signal or checking for traffic to the side represent all-or-nothing events. While it might be possible to quantify the behavior involved, it is certainly not necessary to do so.

Second, where behaviors can be easily represented on a quantitative measuring scale, it was the almost unanimous opinion of driver educators that they can easily establish a performance level that is appropriate to the combination of factors prevailing in a specific situation. They can, for example, judge whether a driver entered a curve at too high a speed, whether he stopped too abruptly, or whether he accelerated too sharply for prevailing conditions. While their judgments may be crude and there might be sizable differences among equally qualified instructors, the standards are probably well enough within the bounds of safe driving to distinguish those neophyte drivers who are minimally qualified from those who are not.

While no valid prescriptions of performance level in quantitative terms could be set forth, a limited amount of data concerning the levels at which experienced drivers perform, on the average, was uncovered during the literature review that preceded the task analysis. These data included the time required to pass another car, tracking error, lateral accelerations during curve, and speed control error. Such information as could be found was added to the instructional objectives under the title "Normative Information," following the description of the enabling knowledges and skills. Such information may be of some value in describing the general levels of performance that may be expected of drivers.

Reliability of Performance

The number of times a person performs an activity correctly in relation to the total number of times he is called upon to perform it, is an index of what has been called "human reliability." If in 100 lane changes a driver remembers to use his turn signals 95 times, he could be said to have a reliability of .95 in use of turn signals. Instructors would, of course, like to have their students exhibit perfect "1.0" reliability for all tasks. However, that is an unrealistic expectation, even for experienced drivers. In settling for somewhat less, the instructor must, to be efficient, set goals in terms of the criticality of the behavior involved. While he might require only a .5 reliability in signaling lane changes, he would most certainly require something over 9 reliability in observing stop lights.

The concept of the reliability as applied to a specific behavior is useful only where the behavior occurs over and over again as it does in many routine, repetitive jobs. However, most driving behavior does not recur in precisely the same form with sufficient frequency—at least within the period of time available for its observation in a driver education course—to permit valid estimates to be made of an individual's reliability with respect to that behavior.

While it may not be possible to estimate or to apply standards of reliability to a particular behavior, this can be done for groups of behaviors. If the highway transportation system were to require .9 reliability for each of a group of behaviors, then one would expect a student to perform 90% of them correctly. Which behaviors were performed correctly and which were not would vary from time to time. However, if each had a reliability of .9, then one would expect that, on the average, 90% of them would be performed correctly on a specific occasion.[1]

While the concept of reliability is a useful one, the actual setting of reliability standards is difficult. Each standard should represent a value that would minimize the total costs associated with instruction, accidents, and traffic flow. In reality, such a standard is a phantom. Many costs, particularly those associated with highway fatalities, are incapable of being reckoned, and the relationships among the events that intervene between the classroom and the highway are far too complex to be accurately quantified. The setting of reliability standards, therefore, proceeded in the same manner as the development of criticality indices, namely, through a process of judgment.

If the rationale that underlies the previous discussion of reliability had been followed, standards would have been set for each individual behavior and the behaviors grouped according to the resultant standards. However, the procedure that was adopted was precisely the opposite. Behaviors were combined into groups thought to be reasonably homogeneous with respect to their criticality, and reliability values were then assigned to the groups. The reason for proceeding in this manner was a practical one. To have required judges to establish reliability standards for over 1700 specific behaviors would have been undertaking too much. A more feasible procedure was to ask judges simply to rank behaviors in terms of their criticality—which was done with relative ease during Phase one—and then to set reliability standards for groups of similarly ranked behaviors.

The rankings of criticality and the establishment of five criticality levels were described earlier. A set of 10 performance objectives was drawn from each of the five levels of criticality to serve as examples in the establishment of reliability standards for each criticality level. While it would have been possible to use more than the five levels that had been established, the use to which the standards were to be put and the fact that they were based upon approximate judgments did not justify any greater level of refinement. The selection of objectives was confined to those dealing with on-road performances. Some preliminary study indicated that the people who would serve as judges showed much higher agreement in specifying *absolute* standards for on-road behaviors than they did in the case of such peripheral activities as trip planning, inspection of the vehicle, and correcting visual defects.

An obvious question arises as to whether the selection process that was used introduced bias into the setting of standards. Might the on-road behaviors be more critical or less critical than off-road behaviors at the same criticality level? Such did not appear to be the case. The fact that on-road behaviors were more meaningful to a particular group of judges did not mean that they were more or less critical than other behaviors. The issue is of little practical import anyway since the standards of reliability would be used only in assessing the on-road performance of students. The application of standards to off-road behavior would involve only the assignment of *relative* priorities to various phases of classroom instruction and could be handled euqally well through use of the original criticality indices.

The five lists of 10 illustrative behaviors were submitted to a group of 48 driver education specialists who were asked to specify how many of the behaviors they would allow a student to perform incorrectly—or not perform at all—and still consider him qualified to drive an automobile. The standards were to be set in terms of the criticality of

[1] Just as the educator may average across many behaviors in assessing reliability for a single individual, system designers frequently average across many individuals in assessing the reliability with which a particular system task is performed.

the behavior to highway safety and effectiveness, but were, of course, to reflect their knowledge of what could reasonably be expected of a student. The judges were *not* informed of the criticality level from which each of the sample of behaviors was drawn. This provided an independent assessment of the reliability of the original criticality ratings. The individual judge's assignment of "maximum error" was averaged and converted to a percentage to yield a "maximum percent error" which was then subtracted from 100 to provide a "minimum percent correct" for each criticality level. The results are shown in Table 1.

Table 1

Judges' Ratings of Reliability Requirements for Behaviors at Each of Five Levels of Criticality

Criticality Level	High	Moderately High	Moderate	Moderately Low	Low
Reliability Requirement (i.e., minimum percent correct)	94%	84%	69%	67%	55%

The fact that the reliability requirements follow the ordinal progression of the original criticality levels is reassuring. Driver educators would reuqire approximately 95% reliability on the highway critical tasks, approximately 85% on the tasks of moderately high criticality, between 65 and 70% on the tasks of moderate and moderately low criticality, and only 55% on tasks of low criticality..

The distribution of individual judgments is shown in Figure 2. As might be expected. the judgments of highly critical standards were quite homogeneous, most judges allowing

Frequency Distribution of Judgments of Maximum Permissible Error in Lists of Ten Behaviors Drawn From Five Criticality Levels

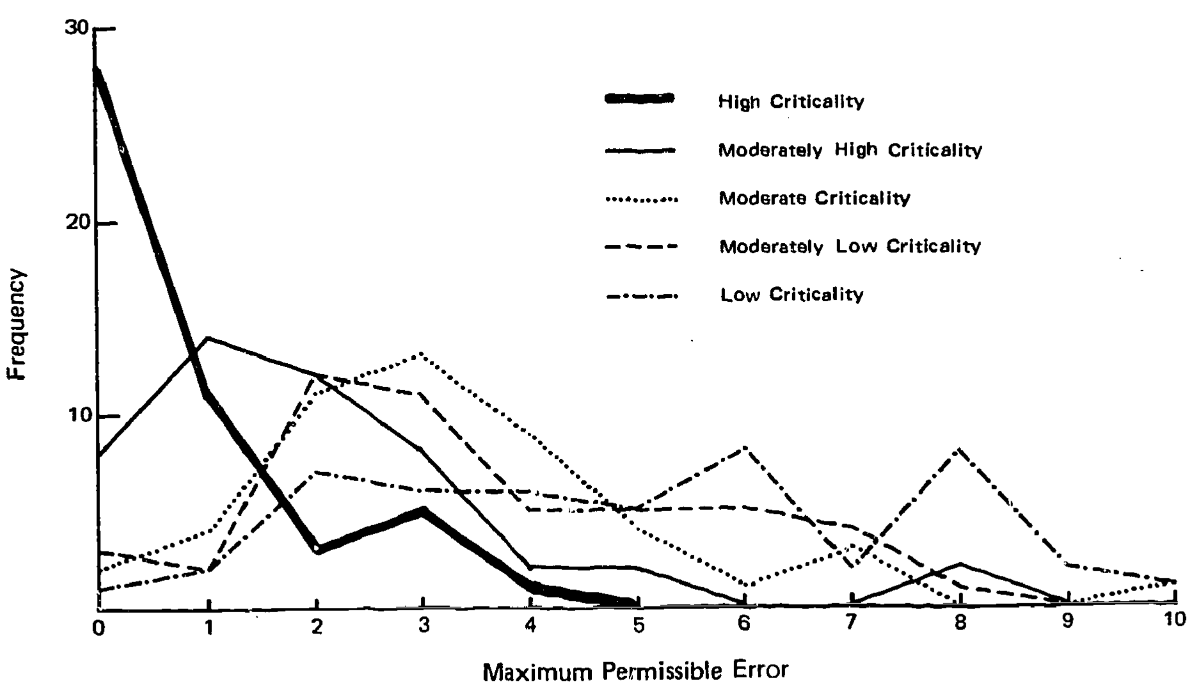


Figure 2

either one or no errors in the list of objectives. Judgments of low criticality objectives, on the other hand, were widely disbursed.

The distributions of the objectives in the "moderate criticality" and the "moderately low criticality" categories almost overlap. This is probably due, at least in part, to the fact that many of the less critical behaviors listed in the original task descriptions were eliminated from the list of performance objectives. Such a screening process would tend to reduce differences among the performance objectives in the lower half of the distribution. Had the sample behaviors been drawn from the original task descriptions rather than the performance objectives, the assigned reliability standards for the two lower [illegible] levels might have been somewhat lower than the 67% and 55% shown in Figure 2.

Regardless of the reasons underlying the similarity between the "moderate criticality" and the "moderately low criticality" standards, the difference is too small to justify any distinction between the two categories. Readjusting the value somewhat in the interests of simplicity, final reliability standards were specified as follows:

High Criticality Objectives - 95%
Moderately High Criticality Objectives - 85%
Moderate and Moderately Low Criticality Objectives - 70%
Low Criticality Objectives - 50%

Use of Performance Standards

The purpose in preparing a set of performance objectives was to provide driver education instructors with a specification of performance on the basis of which courses could be developed and administered, and by means of which both the courses and students could be evaluated. While the reliability standards that are furnished do not represent a complete and final solution to the crucial problem of deciding "how good is good enough," the set is more valid than individual standards devised and used by driver education instructors.

Each instructor, in deciding how much effort to devote to a particular subject, makes some judgment as to what is desirable and what can reasonably be expected. At the conclusion of the course, he makes another judgment as to whether a particular student should be permitted to graduate. It is quite possible that the standards set by certain instructors are more valid than those arrived at through the systematic process described in this report. However, probably only a small minority of instructors ever make explicit the standards that they are attempting to achieve or by which they evaluate their students. The availability of explicit standards offers the following:

(1) *A basis for optimizing allocation of available resources.* Where explicit standards are lacking, the efforts devoted to various subjects in subsequent performance of students are generally not in line with the criticality of the subjects to the overall goals of the course.

(2) *A basis for establishing total resource requirements.* Most driver educators feel that the 30 hours of classroom and six hours of on-the-road instruction that has become a standard in many states is not adequate to prepare a driver fully. Yet, without some specification of what needs to be done that is not now being accomplished, there is nothing substantial on which to base a plea for more resources.

(3) *A basis for evaluating the qualifications of students.* Each driver education instructor is confronted with the problem of deciding whether a student has made too many mistakes to be allowed to "pass" the course. This decision will become even more important when completion of a driver education course replaces some components of the licensing procedure. The standards provide an outside reference to which instructors may turn in deciding on "pass" or "fail." The fact that standards are explicit renders them capable of being tested; those standards found to be too severe or too lax may be modified. This cannot be done with standards that exist only in the minds of individual instructors.

Section 3

DEVELOPMENT OF ENABLING OBJECTIVES

An instructional program does not manipulate performance directly, but endows the students with those knowledges and skills that enable them to perform. The next step in the study was to identify an appropriate set of enabling knowledge and skill objectives.

KNOWLEDGE OBJECTIVES

The ability of a student to meet a performance objective is dependent in part on his "knowledge," that is. his possession of information related to the activity to be performed. Much, if not most, of this information takes the form of *procedures*—descriptions of the behaviors involved in carrying out the activity. While each of the performance objectives, as a *description* of driving behavior, constitutes a procedural knowledge objective, there is no value in reproducing all of the performance objectives preceded by the phrase "knowledge of." Therefore, the listing of knowledge objectives was reserved for information of a factual nature.

Factual information fell into two categories. One category consisted of information that enables a student to carry out procedures by describing such things as when and where the activity takes place, to what degree it should be performed, what various objects look like, or where they are located. While this information might be made a part of the procedures themselves. both the procedures and the facts are frequently given somewhat more generality by being considered separately.

A second category of factual information is that intended to increase the likelihood that students *will* carry out activities required to meet performance objectives. Knowledge objectives based upon such information enable in a motivational sense. The large volume of information dealing with accident causation that appears in current driver education texts and lesson plans is intended primarily to serve in this capacity. For example, it takes but a few seconds to teach someone the procedures involved in fastening a seat belt; most of the time spent on the subject is devoted to facts about accidents intended to convince the student that use of the seat belt is a good idea. Other subjects that contain a great deal of motivating knowledges include treatment of *alcohol*, *fatigue*, *vehicle components* (e.g., tires, lights), *speed*, and *car following*.

The term "attitude" is frequently used in driver education as that which is responsible for the willingness of the driver to employ safe driving practices. It is difficult to identify just what it is that distinguishes knowledge from attitude, belief, and opinion. The distinction seems to have something to do with the degree of consensus or certainty regarding an item of information. For example, the statement "the majority of highway fatalities involve excess speed" is generally accepted as fact. However, the statement "speed is dangerous" is more likely to be viewed as reflecting an "attitude," "belief," or "opinion" than a statement of fact. In setting instructional objectives, the distinction between fact and belief is not useful. The instructor cannot directly manipulate the student's acceptance of information, only the information itself. That information he wishes the student to accept he must first establish as a knowledge objective. While there are many things he may do as a part of actual instruction in order to increase the likelihood that certain objectives are accepted and do influence the student's later performance, these are questions for course development, not for establishing objectives.

A third type of knowledge [illegible] which might be called "conceptual," that is, information dealing with *relationships*, including those of the following types:

Physical - gravity, friction, centrifugal force
Mechanical - engine operation, cooling system
Physiological - fatigue, intoxication
Psychological - emotion, distance perception

It is through the study of such relationships that many driving procedures are established in the first place, at least those that are not developed on a trial and error basis. The objectives in communicating concepts involving these relationships to students is primarily to (a) give them the ability to determine what to do in situations where it is impractical to teach specific procedures, and (b) give them a better grasp of the reasons why procedures have been established, thereby influencing their attitudes concerning the importance of these procedures. Whether either of these functions is well served by many of the concepts dealt with in current driver education is questionable. While an appreciation of centrifugal force may have some influence on the way drivers approach curves in a roadway, it is doubtful that students profit materially from a knowledge of the inner workings of an automobile engine.

Derivation of Knowledge Objectives

A three-step process was used in developing knowledge objectives to support established performance objectives. The first step was to review a volume of factual content that was generated during the early literature survey and provided as ancillary information in the task descriptions that constitute Volume I of this report. Those items found to be relevant to the behaviors that had been designated as performance objectives were selected for inclusion among knowledge objectives.

The second step was to review a large number of driver education publications including all major textbooks in the field, curricula, manuals, and other related materials developed by each of the States, and a variety of training materials developed by individual school districts. Each of these documents was examined for additional information of clear relevance to established performance objectives. The test of "clear relevance" resulted in the exclusion of a great deal of traditional conceptual content.

The final step in the development of knowledge objectives was used to submit the information items gathered from the above sources to a panel of driver educators[1] for review and discussin during a two-day meeting. At this time, items were added, deleted, or modified until the list of objectives was unanimously accepted by the panel.

In preparing a list of knowledge objectives, a major question to be resolved was the level of detail to be used in describing them. Knowledge objectives might range all the way from descriptions of the type of knowledge involved (e.g., "the knowledge of the relationship between following distance and accidents") to specific information items (e.g., "approximately 11% of all accidents in 1969 were attributed to following too closely"). If objectives are stated too broadly, there is no assurance that critical items of information will be included. On the other hand, if they provide only specific detail, instructors may be inhibited from presenting relevant information that for one reason or another was omitted from the objectives. Upon the advice of the advisory panel, the decision was made to introduce each objective with a broad statement defining the area of concern and then to augment this statement with sample specific information items to illustrate the objective.

Listing of Knowledge Objectives

Knowledge objectives appeared following the performance objectives for each learning unit. A sample description of the objectives dealing with the parking task appears in Figure 3. No attempt was made to divide descriptions of knowledge objectives according to either

[1] The panel described in the Preface was augmented by the addition of Mr. Warren Rumsfield, North Shore Driving School, Chicago, Illinois; and Mr. William Reese, Easy Method Driving School, Washington, D.C.

Example of Enabling Objective—Parking Safely

KNOWLEDGES

The student must know the procedures for entering a parking space with the least amount of maneuvering, the laws that govern parking, and the possible impact on traffic flow of a car being parked.

Parking restrictions associated with roadside traffic controls, crosswalks at intersections, safety zones, fire hydrants and fire houses, and railroad tracks are generally the same in most states. However, knowledge of the local requirements is imperative.

Specifically, the car will not be parked:

Within 30 feet of a traffic light or sign located at roadside.

Within 20 feet of a crosswalk at an intersection, except momentarily to discharge or pick up passengers. With this margin of clear space, right-turning vehicles can turn into the lane closest to the curb.

Between a safety zone and the adjacent curb or within 30 feet of the rear side of a safety zone, except to avoid a traffic conflict. Safety zones are meant for exclusive use of pedestrians.

Within 15 feet of a fire hydrant.

Within 20 feet of a fire station entrance or within 75 feet across from a fire station entrance, except momentarily to discharge or pick up passengers.

Within 50 feet of the nearest railroad track.

"No Parking" zones frequently are marked by curbs painted yellow.

In many communities, illegally parked cars are towed away by the police at the driver's expense. A fine is also imposed.

In addition to the traffic delay created by a car being parked, the sudden interruption of the traffic flow increases the likelihood of a rear-end collision.

By "creeping" into a parking space the student will gain more time for turning the steering wheel and for checking the car's position as it enters the parking space.

Parking on hills necessitates special actions to offset the effects of gravity.

By applying the parking brake *before* shifting to the park position, the load on the transmission and parking mechanism can be reduced. This sequence is the reverse of the procedure used on level roadways. Movement of the gearshift lever from the park position when leaving the parking space will be easier if the "apply brake—shift to park" sequence is followed. Also, shifting to park or reverse is imperative on hills to keep the car from coasting.

Leaving on electrically operated controls and accessories, such as the lights and the radio, without the engine running will drain the battery if continued for an extended period. There is a tendency to leave headlights on when parking in a brightly lit area (shopping center, garage) or when driving with lights on in the daytime (fog, rain).

The hazards of getting out of a car on the street side have prompted some states to forbid the opening of car doors on that side.

Securing the car (closing windows, removing ignition key, and locking all doors) before leaving it will greatly reduce the chance of its being stolen. About 80% of stolen cars are parked with the doors unlocked. The chance of stolen cars being involved in accidents is 200 times greater than for owner-driven cars.

SKILLS

The student must:

Be able to perceive that the size of a parking space is sufficient to accommodate the car.

In the absence of signs and curb markings as guides, estimate the appropriate parking distances from "no parking" zones.

Develop the perceptual-motor coordination required to back the car slowly into a parking space while looking out the back window. The skill includes controlling speed with the clutch (manual transmission) or the brake (automatic transmission), rather than the accelerator.

Figure 3

criticality levels or the sequential/substantive categories by which performance objectives were classified. Too many elements of the knowledge objectives could not be related to individual performance objectives. A great many of the knowledge objectives, including those concerned with accident statistics, relate to all aspects of a particular task.

Initially, an attempt was made to reference sources of information used in preparing knowledge objectives. However, many objectives were synthesized from a number of sources, making meaningful documentation difficult. Moreover, scattering reference numbers throughout the narrative gave the latter a highly technical appearance which it was feared might discourage its use by driver educators. Since the task descriptions documented information sources completely and were intended as the primary repository of technical data for the instructional objectives, references were not provided in the knowledge objectives.

SKILL OBJECTIVES

Skill, as it is used in this report, refers to that which is required, over and above the mere possession of information, to enable an individual to carry out the activities required to fulfill a performance objective. Three types of skills were identified:

Perceptual skills—the ability to interpret stimuli correctly, e.g., the judgment of passing distance.

Motor skills—the ability to execute motor responses rapidly and smoothly, e.g., coordinating clutch and accelerator.

Intellectual skills—the ability to see relationships, e.g., interpreting information on a road map to select an efficient route.

While the true "essence" of a skill is not yet established in the discipline of the behavioral sciences, it is apparent that skills require repeated performance or practice for their development. It is the need for practice that, in a practical sense, defines skills and justifies their being distinguished from those activities that require mere possession of information for training purposes.

In the case of perceptual skills, improvement seems to be associated with the ability to identify relevant cues and to form appropriate sensory images. In the judgment of passing distance, for example, the driver learns to associate the image size of an oncoming car with a particular distance and time. These, in combination with his perception of his own speed, combine to form a single perception of a "safe" or "unsafe" passing distance. Motor skills apparently involve the formation of subconsciously mediated, "reflex" or automatic connections between both internal and external stimuli on the one hand, and motor responses on the other. For example, turning a corner requires a rapid, continuous responding to a rapidly occurring sequence of both visual and muscle feedback cues. The "unconscious" or automatic nature of the activity can be inferred from the ability of experienced drivers to turn a corner while attending to another car or conversing with a passenger. The demand for intellectual skills in driving is not great, as is evidenced by the success with which individuals of moderate or even relatively low levels of intellect are able to drive.

A sample skill description is provided in Figure 3. Description necessarily focused upon input and output responses, dealing with them in as much detail as available information permitted. The primary source of information was empirical research in which cues were either manipulated experimentally or allowed to vary freely and the driver's response to the cues was measured. Studies of this nature disclosed, for example, that drivers cannot perceive accurately the speed of an oncoming car and that they are primarily distance cues that enter the passing decision. It is unfortunate that such empirical research is concentrated upon a minority of tasks including passing, following, lane keeping, and speed control, and does not provide information concerning such critical tasks as skid control, merging, or night driving.

Section 4

DEVELOPMENT OF AN EVALUATION INSTRUMENT

Included within the objectives of this study was work toward developing an evaluation instrument capable of assessing the degree to which students had met the objectives of a driver education course. Two elements of testing were envisioned, a performance test to measure attainment of performance objectives, and a written test to measure attainment of enabling knowledges. The evaluation instrument described in this report was developed, in a preliminary manner, for application in driver training and for research purposes. It may be considered an interim measure, pending development of more refined tests.

Work is now under way, on a longer-term basis, on the development of knowledge and performance tests by the University of Michigan and Michigan State University, respectively. These research efforts, also under the sponsorship of the National Highway Traffic Safety Administration, are directed toward development of tests for broader application, in testing for driver licensing and related applications.

GENERAL CONSIDERATIONS

No attempt was made to assess the "validity" or "reliability" of either test or to compile norms. Insofar as validity is concerned, tests may be considered to have content validity if they constitute a representative sample of the class of behaviors they are devised to measure. Thus, a driving performance test would be valid so long as the performances that constitute driving had been correctly identified and the test constituted a representative sample of the performances. Similarly, a driving knowledge test would be valid if it comprised a sample of the knowledges that were found to underlie driving performance. The "validity" of either test would, of course, refer specifically to its ability to measure the set of driver performances and knowledges that had been defined through the task analysis. Without subsequent empirical evidence of relationships with an appropriate criterion, neither test could be considered a valid measure of performances not included in the analysis, such as the safety with which drivers would operate in the future. Since the purpose of the tests was to evaluate the student relative to his training—not to other aspects of driver performance—validity for *other*, long-range performances was not assessed.

Classical psychometric "reliability" (e.g., split-half correlation) is, in essence, an index that rests on the assumption that a test measures a *unitary* characteristic or construct. If all portions of the test measure the same unitary characteristic, limited only by errors of measurement, all of the items will correlate highly with one another. If the unitary characteristic is fairly stable, over time one would further expect high test-retest correlation—that is, that repeated measures would give stable and consistent results. The tests under consideration were not intended to measure a unitary characteristic or construct, but rather to sample from populations of performances and knowledges that are not necessarily correlated with one another. Thus, there is no necessary expectation that items sampled should correlate highly with one another.

The acquisition of statistical "normative" data for the tests was believed unnecessary for two reasons. First, both performance and knowledge tests were developed to assess attainment of performance and enabling objectives by students whose instruction had been directed toward the objectives defined in this study. Norms compiled on students whose instruction was not based on these objectives would, thus, be inappropriate and have no value. Second, it is a major premise for the system that driver education courses should enable graduates to meet specified minimum standards of qualification for entry into the highway transportation system. Under this concept, students should be evaluated against a set of absolute "specification" standards, such as those described earlier under performance standards.

While no quantitative performance data suitable for establishing validity, reliability, or norms were collected on either test, both were administered during their development to samples of driver education students in order to assess their ease of administration and their ability to provide apparently meaningful results. The final forms of both tests reflect the results of these trial administrations.[1]

DEVELOPMENT OF PERFORMANCE TESTS

The performance test was limited to tasks associated with operation of the vehicle. Those tasks concerned with maintenance, pre-trip planning, and meeting legal responsibilities were dealt with exclusively through written tests. In evaluating vehicle operation, a distinction was made between those behaviors concerned with fundamental control of the vehicle, and those involving the interaction of the vehicle with the roadway, traffic, or external environment.

Driving Fundamentals Test

Those behaviors involved in basic control of the vehicle were assessed by a Driving Fundamentals Test that was to be administered either in an off-road setting, or on little used roadways where the influence of other vehicles would be minimal. In keeping with a requirement that the test be capable of administration within existing driver education programs, facilities requirements were kept simple. The tests included the following nine sequences:

(1) Pre-driving Inspection
(2) Starting
(3) Accelerating
(4) Parking
 Parallel
 Perpendicular
(5) Shifting
(6) Turning
(7) Stopping
(8) Use of Passing Gear
(9) Starting on Upgrades

The first four sequences can be administered in an off-road facility using traffic cones and other parked vehicles. The last five sequences require either a driving range or roadway. Separate tests were prepared for use with automatic and manual shift vehicles. The "turning" sequence, the same for both tests, appears in Figure 4.

Each sequence consists of a set of behaviors, taken from the performance objectives, which are scored "pass" or "fail" depending on whether the behavior was performed to the satisfaction of the administrator. Where acceptable levels of performance could be specified objectively (e.g., stopping distance), they were made a part of the behavior description and scored in the same pass-fail manner as qualitative behaviors.

The total test is scored for "pass-fail" against the performance standards described earlier. Students would be expected to perform 95% of the highly critical behaviors correctly, 85% of the behaviors of moderately high criticality, 70% of those of moderate and moderately low criticality, and 50% of those of low criticality. This necessitated totaling the number of items passed and failed separately for each category of criticality. To expedite scoring, it was decided to record the student's results upon a single score sheet.

[1] Mr. Randolph Scott and members of the instruction staff of the Driver Education Department, Fairfax County School, Virginia, cooperated with the HumRRO research staff in administration of the Knowledge and Performance tests.

Portion of Fundamentals Test

SEQUENCE 10 - Turning Left

Select uncontrolled intersection, ascertain there is no traffic immediately behind and say to the person being examined:

"Now I want you to prepare to turn left at the next intersection."

Then say:

"Go ahead and complete the turn."

OBSERVE:

Activates directional signal. No closer than 100 feet from intersection------------------------------------

Checks traffic to the left--------------------------------

Checks blind spot---

Positions car in far left lane---------------------------

Keeps both hands on outside of steering wheel rim--------

Does not cross center line until reaching the center of the intersection-------------------------------------

Turns into first lane to right of center line------------

Turns steering wheel at the proper time to round out smoothly---

If wheel is allowed to return by slipping, grasps outside of wheel slightly with palms--------------------

Figure 4

This format allowed the administrator, by means of a scoring stencil, to obtain totals for a particular criticality category at one time, instead of having to obtain four separate totals for each page of the test booklet. A single score sheet was placed at the bottom of the test booklet and the right-hand margin of each page of the book was cut so that each time the examiner turned a page, a new column of the score sheet was exposed. Following completion of the test, the administrator would remove the score sheet and total the correct responses.[1]

Driving Situations Test

Once a driver has mastered the fundamental skills and knowledges involved in control of his vehicle, the safety and effectiveness with which he operates will depend on his ability to deal with situations that develop on the road, situations resulting from characteristics of traffic, roadway, the external environment, his vehicle, or even his own physical or mental states. Because of the difficulties involved in establishing situations that involve these conditions, people are rarely tested for their ability to deal with them. Yet to ignore these situations is to provide an incomplete evaluation of the student's ability to fulfill instructional objectives. If it is not possible to establish and standardize the situations involved in "real-world" driving, it is at least possible to take advantage of this type of situation that occurs naturally through normal traffic. In a test of sufficient length, 30 minutes or more, enough situations should develop to permit a good sampling of the student's ability to cope with the problems of everyday driving.

Selection of Performance Objectives. One difficulty encountered in the attempt to use natural situations as a means of assessing a student's ability with regard to performance objectives is the large number of objectives that are potentially involved. That is, when a situation occurs, the test administrator must be able to (a) identify the student performances that are to be observed, and (b) be able to locate the appropriate place to record the student's response. The more observations there are to be made, the more difficult this becomes.

To improve the practicality of using natural situations for testing, a number of restrictions were posed on the selection of objectives included in the test. These restrictions were as follows:

> *Observability* - Only those performances that are capable of being observed by an administrator were selected. A number of perceptual responses and a few subtle motor responses were eliminated due to their inability to be observed.
>
> *Frequency of Occurrence* - Situations that were very unlikely to occur would, if they were included, lengthen the test needlessly. To simplify the administrator's task, they were eliminated. (Unfortunately, these infrequent situations included many of a highly critical nature, e.g., impending collisions.)
>
> *Administrative Restrictions* - A number of situations were eliminated for administrative reasons. These included situations such as the following:
>
> > *Risk* - Situations risking damage or excessive wear to the vehicle or injury to its occupants, e.g., pulling onto a shoulder at very high speed.
> >
> > *Vehicle Characteristics* - Situations concerned with identifying or reacting to vehicle-generated problems would be very unlikely to occur since the test vehicle would be maintained by the school district.

[1] **Actually it was mechanically easier for the administrator to total the number of "failed" items—they were fewer in number than "passed" items—and convert the results to a "percent passed" by means of a prepared table.**

Time-Related Effects - Situations that develop with the passage of time, such as increasing fatigue, could not be evaluated during the limited test period.

Regional Characteristics - Situations confined to certain relatively small regions and affecting only a fraction of the student population were not included, (e.g., reacting to sand storms, intense heat, or heavy snow drifts).

Format. The major problem in devising a format was finding a means of informing the administrator as to the performances he was to observe and providing him a readily accessible place to record his observations. Two categories of situations were identified, each creating somewhat different requirements.

One category of situations, the easiest to deal with, involved events that could be planned by the administrator. These included the following:

Passing	Hills and Curves	Intersections
Simulated Evasive Action	Off-street Driving	Bridges or Tunnels
Entering and Leaving Traffic	Freeways	Emergency Planning

Each of the general situations was arranged in a sequence by the administrator, either as part of a standard route or one that he devised as the test drive developed. When a situation was encountered, the administrator would turn to the page containing the performances to be observed. Where the performances occur in a particular sequence, they are listed on the page accordingly, the page serving as a checklist. Each page was tabbed so that it could be located quickly. The page dealing with a left turn at an intersection is shown in Figure 5. The right-hand side of each page was cut in the manner described for the Driving Fundamentals Test in order that scoring could be recorded on a single answer sheet.

There were a great number of situations with which drivers are confronted that cannot be uniform from time to time and planned in advance; they may occur at almost any time. The following is a list of the *unplanned* situation categories:

Weather Conditions	Oncoming Vehicles	Lane Changing
Vehicles Ahead	Special Vehicles	Road Surface Conditions
Parked Vehicles	Traffic Signals	Pedestrians and Cyclists
Passing Vehicles		

The unplanned situations are the second major division of the Driving Situations Test. A page containing the parked vehicles situations is shown in Figure 6. Since the specific situations in each category do not occur in any general sequence, the problem of giving each one sufficient visibility to enable administrators to find them quickly is much greater than was true with planned situations. The use of line separation and bold face type is intended to provide this. A summary of both the planned and unplanned situations is provided as Appendix B.

In assembling a test booklet, the planned and unplanned sections were placed "back-to-back" with the answer sheet in the middle and instructions on the cover of each section. Usually the administrator would have the planned section up, open to the page containing the category situation with which he was dealing. Anytime a particular unplanned situation arose, he would turn the booklet over, open to the page dealing with that situation, and record the student's response.

Administration of Tests

The test format permitted the administrator to record responses to situations encountered in driving. While a set of planned situations was identified, no attempt was made to prescribe a particular sequence or even how many of what types of situations should be included. The conditions prevailing within different regions across the country differ too greatly for such standardization. Some school districts lack accessible freeways, some lack steep hills, and some even lack curves in the roads. The selection of situations was therefore left completely to the administrator. The student's response to a particular

Page From Driving Situations Test—Intersections

The following behaviors are to be evaluated when making a left turn at an intersection

APPROACHING INTERSECTION

- **Begins** to **slow down** at a point appropriate to traffic and road surface conditions ________
- Enters **left lane** at proper time (lane changing) ____
- **Signals** at proper time ________

AT INTERSECTION

If required to stop:

- Makes a **smooth stop** using technique appropriate to road surface conditions ________
- Stops **before** reaching **crosswalk** or path of pedestrians (if lead car) ________

- **OBSERVES TRAFFIC FROM LEFT** (EVEN AT CONTROLLED INTERSECTION) ________
- **OBSERVES TRAFFIC FROM RIGHT** (EVEN AT CONTROLLED INTERSECTION) ________

IF TRAFFIC SIGNALS (E.G., GREEN ARROW, DELAYED GREEN, ADVANCED GREEN) ARE PROVIDED:

- Obeys them ________

ENTERS INTERSECTION

IF THERE IS **CROSS TRAFFIC:**

- **Begins turn** only when it can be completed **without interrupting** traffic from right or left and on-coming traffic ________

IF TRAFFIC PERMITS MOVING **HALF-WAY** ACROSS INTERSECTION:

- Does so only when and where it **can not interrupt** traffic from the left ________

WHEN **ON-COMING TRAFFIC** IS PRESENT:

- Pulls into intersection ________
- **Remains right** of center line ________
- Keeps **wheels** pointed **straight ahead** ________
- Keeps **foot on brake** ________
- Waits for **sufficient gap** to permit turn without interrupting on-coming traffic ________

IF INTENDED **LANE IS BLOCKED** BY OTHER VEHICLES:

- **Does not begin** turn until it is clear ________

IF ON-COMING VEHICLES HAVE **INDICATED A TURN:**

- **Waits** until they have committed themselves before beginning turn ________

IF **PEDESTRIANS** ARE IN OR NEAR INTERSECTION:

- **Observes pedestrians** ________
- Does not begin turn (that would cause stop in path of on-coming cars) ________

MAKING THE TURN

- Begins turn at **proper point** ________
- **Turns into left-most** transit lane ________

IF DIRECTIONAL SIGNAL FAILS TO CANCEL:

- Cancels manually within a reasonable time ________

INTERSECTION — LEFT TURN

Figure 5

Page From Driving Situations Test—Parked Vehicles

PERSONS ALIGHTING

The following behaviors should be evaluated anytime a person emerges from a vehicle on the street side

- Was driving at appropriate speed for passing parked cars ____

IF THE PERSON'S ALIGHTING COULD HAVE BEEN **ANTICIPATED** (DOOR OPENING, HOOD UP).

- Exercised proper **caution**, i.e., sounded horn, **slowed down**, steered away, covered brake ____

WHEN PERSON ALIGHTED:

- **Responded immediately** by slowing down, stopping, steering, as appropriate ____

IF FOLLOWED BY OTHER VEHICLES:

- Gives appropriate **signal** to alert other drivers ____

CAR PULLING OUT

The following behaviors are to be evaluated each time a parked car starts to pull out in front of the student

- Was driving at **appropriate speed** for passing parked cars ____

IF MOVEMENT OF PARKED CAR COULD HAVE BEEN **ANTICIPATED** (PERSON IN DRIVER'S SEAT, EXHAUST, WHEELS TURNED):

- Exercised proper **caution**, i.e., sounded horn, **slowed down**, **steered away**, covered brake ____

WHEN CAR PULLED OUT:

- **Responded appropriately**, i.e., slowed down, stops or changes lanes as appropriate ____

IF FOLLOWED:

- Gives appropriate signal to vehicles behind ____

OTHER VEHICLES – PARKED

Figure 6

situation was to be recorded—"pass" or "fail"—any time that situation arose. Provision was made for multiple scoring if the situation arose more than once.

The wording was designed to focus attention upon situations rather than responses. For example, exercising caution with respect to children was worded—"If children are playing near or walking along the edge of the roadway:

Applies brake to slow down.

Watches children closely."

This makes it clear that the response is to be scored only if children are encountered. Had the statement been worded "applies brake and watches closely when passing children" there might have been confusion about what to do if no children were encountered. The latter wording, by starting with the response, makes it easy for the instructor to overlook the situation entirely if the student failed to make the appropriate response.

Scoring. The scoring procedure for the Driving Situations Test was similar to that used in the Driving Fundamentals Test, the percentage of items passed being determined separately for each level of criticality. The essential difference between the two tests was that the nature and number of observations made in the Fundamentals Test was always the same, whereas in the Situations Test it varied from one application to another. Two students with the same percentage of items correct on the latter test might well have faced entirely different situations. If one set of situations turned out to be more "difficult" than another, the test would be inequitable. Yet, if the test were long enough and a sufficient number of situations were encountered, differences in difficulty would be likely to "even out." This is particularly applicable where the instructor employs a standard route that at least exposes all students to the same planned situations.

Despite these tempering effects, the Driving Situations Test poses a conflict between considerations of equity and those of validity (i.e., testing in a natural environment). Such a conflict, it is believed, must be resolved in favor of the validity; it is more important that the test be a reasonably representative sample of natural driving situations than that it be "fair."

Administrator Preparation. It is essential that test administrators be thoroughly familiar with the situations to which the student's responses are to be scored. There is a danger that administrators who lack close familiarity with the situations would tend to react to the student's performance rather than to the performance in situations encountered. If, for example, the test administrator isn't alert to the fact that the student is supposed to check over his shoulder before changing lanes, he might attend to "check over shoulder" requirement only when the student did so, and not notice an omission. The result, in this instance, would be an over-estimation of the student's driving ability. On the other hand, if unfamiliar with the test, the administrator might fail to notice either a situation or a response and react only when the situation produced an adverse consequence (e.g., attending to following distance only when the student stopped abruptly to avoid a rear-end collision). Under these circumstances, failures would be recorded more often than passes and the student's ability would be under-estimated. If a student is to be properly evaluated, his performance must be scored each time a "scoreable" situation arises, and that can only be done if the instructor is aware of and alert to all of the situations that make up the test.

Even where the administrator is thoroughly familiar with the observations that are to be made, the rate at which situations arise will frequently preclude his recording all the student's responses. While this is particularly evident in city driving, even a half hour of rural driving will produce over a hundred scoreable situations. The administrator, in selecting which of the student's responses to record, is very likely to be subjected to the kinds of biases described above.

This measurement flaw may be substantially reduced and the ease of administration improved if as many as possible of the observations are planned in advance. For example, the administrator may schedule situations to score that are sufficiently far apart to enable him to prepare to carefully observe all responses in that situation. In between, he would ignore, for scoring, all traffic lights, other vehicles, lane changes, and so on. For accurate measurement, it is far less important that all available situations be used than it is that the selection of situations be planned and the recording of the student's response in that situation be accurate. The administrator may even select, to some degree, the "unplanned" situations that he will record. For example, he may record the student's response to oncoming traffic or parked vehicles along a particular stretch of roadway where other situations are relatively unlikely to occur.

KNOWLEDGE TEST

A 105-item knowledge test was developed from the list of enabling objectives. To make the most efficient use of the student's and examiner's time, the test concentrated on information that was related to performance objectives of moderate to high criticality. A multiple-choice format was used because of its administrative advantages. However, a number of completion-type items were prepared to cover situations where it was thought that students not knowing the correct answer could readily identify it from a list of alternatives.

The content of the knowledge test dealt primarily with factual rather than procedural information. In general, the best way to find out whether an individual possesses a particular item of factual information, such as accident causes, is to ask him a direct question—that is, a knowledge test. Possession of factual information is difficult to infer from performance, at least within the limited time available for observation of students. Procedural information, on the other hand, is best reflected in the student's performance because it is often difficult to phrase a procedural question in such a way that the question does not betray the answer. This is particularly true where one is not so much concerned whether the student knows *how* to perform the procedure correctly but rather whether he remembers to *do* it correctly. Those procedural items that were included in the knowledge test dealt primarily with off-road behavior or responses to infrequently occurring situations. Thus, with regard to measuring frequent and infrequent occurrences, the knowledge and performance tests tend to complement one another.

Many of the specific items of factual information included among the enabling objectives were provided to illustrate rather than to define the objectives. In such cases it was not specific facts but general implications that were important. Questions were therefore worded so that they could be answered by students whose instruction had covered the subject matter appropriately, even though instruction had not included the same set of facts cited in the enabling objectives. For example, it was not necessary to know the precise percentage of accidents occurring at intersections in a particular year; knowing that intersections account for between one-quarter and one-half of accidents is sufficient to impress students with the hazard involved.

In order to minimize the reading skill (in contrast to knowledge) requirement for the test, the attempt was made to avoid technical terminology and to phrase questions and answers in terms readily understandable to the tenth-grade student of somewhat below average intelligence. Early versions of the knowledge test did not succeed in this regard and substantial revision was necessary.

LIMITATIONS OF THE EVALUATION INSTRUMENT

The performance and knowledge tests make up an evaluation instrument based on a set of instructional objectives that were in turn derived from an analysis of the driver's task. The knowledge test, in its appearance, is similar to a number of driver knowledge tests in use today. It differs, however, in that its content, because of the way it was derived, is of more direct, practical relevance to the driving task than are most other knowledge tests. Moreover, it is scored against a set of absolute standards that reflect the judged criticality of the performances to which they relate. The Driving Fundamentals Test, except for the use of absolute performance standards, also resembles tests now in use.

The major innovative feature of the test development program was the Driving Situations Test. Actually, it is not a "test" in the strict sense of the term, but rather a checklist of real-world driving situations. Its primary purpose is to alert the driver educator to the situations that make up the driver's task and to provide him a system of scoring students relative to these situations. Its major limitation is its lack of standardization. Yet, in the absence of highly sophisticated simulation devices capable of creating a wide range of traffic situations, it is not possible to devise a test that is both standardized and a natural representation of the driver's task.

The three tests—knowledge, fundamentals, and situations—taken together sample an unusually wide range of performance and enabling objectives. The degree to which this battery of tests represents the full set of driver instructional objectives, however, is limited by the following omissions:

> *Emergency Situations.* Coverage of evasive tactics, skid control, blowouts, and brake failures is limited to knowledge of appropriate procedures. Assessment of the critical motor skills involved depends upon highly sophisticated simulation devices and specialized driving ranges that are not available to most schools.
>
> *Environmental Situations.* Environmental conditions of a purely regional nature are, like emergency situations, covered only in terms of related knowledges. While such situations could be covered, their infrequent occurrence makes it inefficient to do so.
>
> *Driving Habits.* Limitations in representativeness apply not only to driving situations but to the student's responses. While the test probably provides an accurate assessment of what the student is capable of doing, the presence of an observer doubtless distorts the picture of what he generally does. For example, his use of turn signals or adherence to speed limits will be far greater during the test than during everyday driving.
>
> *Citizenship Responsibilities.* The evaluation instrument is concerned only with those behaviors that are directly or indirectly concerned with operation of an automobile. It does not attempt to assess behaviors that are concerned with improving the transportation system, upgrading enforcement, reducing the crime rate, or other tasks associated with responsible citizenship.

While the performance standards that have been applied to all three tests represent a consensus, they were derived judgmentally. They should for this reason be considered provisional. Acquisition of new data on driving (e.g., accident data), will show, over time, certain behaviors to be either more or less critical than they are now rated. Attempts to apply the standards may show some of them to be impossible or impractical of attainment, even with the best curriculum. Furthermore, a driver educator need not, of course, accept the standards in their absolute sense. In fact, criticality indices may be used to weigh individual items of the knowledge and performance tests, just as relative standards can be used in establishing priorities during the development and administration of an instructional program. Some system of weighting must be employed; so-called "unweighted" systems of simply adding scores do not, in fact, produce non-weighting, but rather, weights in proportion to item standard deviation. It produces better measurement to weight items planfully, even if according to a system of only potential validity rather than to allow weighting by happenstance of item standard deviations.

Instructional Implications

Administration of the entire evaluation instrument consumes a great deal of time. The knowledge test requires between one and two hours, depending upon the intellectual ability of the student. No time limit should be set if it is to remain a test of achievement of driver knowledge and not become an indirect, partial measure of intelligence. The Fundamentals Test averages about 45 minutes to complete. The length of time to be devoted to the Situations Test is, of course, adjustable by the instructor; 30 minutes are needed to obtain a reasonable sample of driving situations.

Devoting up to three or four hours to evaluation would represent an extravagance, particularly in a course that totals not much more than 40 hours. That amount of time, however, is justified if the examination serves an instructional as well as an evaluative function. The instructor should, therefore, discuss the results of both performance tests with the student to inform him of his errors. In trial administrations of the Driving Situations Test recalling student errors was easily accomplished by using the score sheet as a reminder. For the Knowledge Test, an Answer Booklet was prepared to save time for the instructor. The student looks up the number of an item which has been scored as incorrectly answered, and reads the correct answer and an explanation of why it is correct.

RECOMMENDATION FOR ADDITIONAL TEST DEVELOPMENT

The Driving Knowledge Test and Driving Fundamentals Test were found to be relatively easy to administer and capable of providing meaningful results, as is the case for tests similar to them in method and content that are currently in use. In the Driving Situations Test, the rate at which situations occur in normal driving made it extremely difficult for the administrator to record even a majority of the student's responses. This was true even when the administrator was thoroughly familiar with the contents of the test and had planned his route well. A sequential listing of the situations as they will arise along a particular route is needed. Some combination of written and graphic format would be the most effective in attaining the fullest possible use of driving situations.

An example of the format that might be used in a particular locale is shown in Figure 7. Although the figure covers only the beginning portion of the test, it illustrates a number of points. First, all planned situations are listed in the order in which they will arise, making it unnecessary for the instructor to decide which observations to make and allowing him to record his observations readily. To avoid overloading the administrator, the situations to be scored are spaced out and only those responses that are most critical or most likely to be required are specified. For example, in the illustration the response to traffic lights is observed at one intersection and response to oncoming traffic at another. Since neither intersection involves much pedestrian traffic, no observations are made.

Unplanned situations may be entered into the sequence of planned observation at those points where they are most likely to occur and where the administrator is free to attend to them. For example, parked cars and their passengers are observed in a particularly busy shopping area. A lane change is observed where a lane change is going to be necessary.

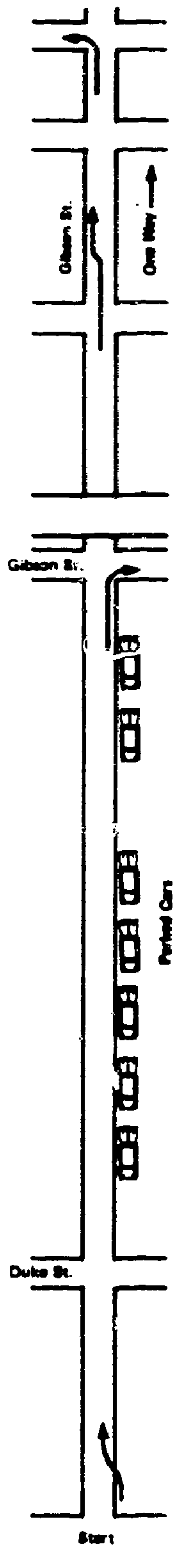
Observations of continuous behaviors, that is, speed control and a car following, must still be made at specific times. However, rather than being tied to a general class of events, such as speed signs and cars slowing down, observations can be made at points along the road where they are most relevant.

Results obtained from a route-specific test such as that shown in Figure 7, should have a great deal more objectivity than those obtained from administration of the more free-form driving situations test. First, the format forces the administrator to plan his route and observations in advance. Second, it identifies a specific observation to be made in planned situations and greatly circumscribes those observations to be made in unplanned situations. While a certain number of prospective observations have been eliminated in both planned and unplanned situations, the sacrifice will be relatively small if the observations are selected with due consideration to criticality and the likelihood that particular situations will arise at particular points.

A test such as that illustrated in Figure 7 can be prepared only by an individual driver education instructor for his own local area. In preparing a local test, such as that shown,

Sample Format for Local Driving Situations Test

Read UP From Bottom



Turns into the far left lane ______

Checks traffic to the left before starting ______

Making turn

Keeps wheels straight ahead ______

Pulls to center of intersection ______

If required to stop

Waits for suitable gap ______

If oncoming traffic

Signals left turn ______

Begins to slow down at appropriate time ______

Approaching Intersection

6. **Intersection**

Steers smoothly into left lane ______

Signals turn ______

If traffic, waits for suitable gap ______

Checks mirrors, looks out side window ______

Begins lane change before left-turn intersection ______

5. **Lane Changing**

"Make a left turn at the third traffic light."

Rounds out turn smoothly ______

Avoids turning too sharply ______

Avoids encroaching upon left lane ______

Enters right-hand transit lane ______

Maintains proper speed (5-15 mph) ______

Begins turn at proper point ______

Making turn

Waits for light to change (doesn't anticipate) ______

Keeps foot on brake ______

Stops before crosswalk (if applicable) ______

Stops smoothly ______

If required to stop

Signals right turn at appropriate time ______

Enters right lane ______

Begins to slow down at appropriate point ______

Approaching

4. **Right Turn**

"Turn right at Gibson Street."

If person starts to get out or enter a car, stops, slows, or changes lanes ______

If person is about to get out or enter a car, covers brake, watches person ______

Persons Getting Out of, Entering Cars

If car pulls out, slows down, stops, or changes lanes ______

If car is about to pull out (turn signal, exhaust, wheels), covers brake and observes car ______

Cars Pulling Out

3. **Parked Cars**

Doesn't exceed 25 mph between start and Duke Street ______

2. **Speed**

"When it is safe, pull out into traffic and continue down Washington Street."

Stays in lane ______

Pulls out smoothly ______

Activates turn signal at the right time ______

Selects adequate gap ______

Checks mirror, looks over shoulder ______

Seat belt buckled ______

1. **Start**

Instructions to Driver | READ UP | Observations

Figure 7

the instructor could utilize the Driving Situations Test as a guide to the types of observations that can be made in various situations. However, if he is to prepare a truly effective test, the instructor needs a great deal more guidance than is furnished in the test itself. Such guidance would include (a) procedures for selecting highly efficient routes, that is, routes with a large number and range of situations per unit of administration time, (b) guidance on the selection of multiple routes for testing more than one student in a single trip, (c) ways of involving the non-driving student that will improve their learning and enable them to provide assistance to the instructor, and (d) methods of providing feedback to student drivers on the nature of their errors. Preparation of such guidance fell outside the scope and resources of the present study. It should, however, be pursued.

The results obtained in pilot administration of the Driving Situations Test provide evidence that students can be effectively evaluated through their responses to real-world driving situations. Furthermore, until the facilities and the devices available to driver educators are greatly improved, the highway will remain the only setting in which many highly critical performances, knowledges and skills can be evaluated. It is recommended, therefore, that the National Highway Traffic Safety Administration foster the continued development of on-road performance tests as part of driver education programs, either through its own research programs or through its support of individual State programs.

Appendix A

DISPOSITION OF TASK ELEMENTS

ITEM – THE CODE NUMBER OF THE TASK ELEMENT(S) IN THE TASK DESCRIPTIONS (VOLUME I).

P – TASK ELEMENTS SELECTED AS PERFORMANCE OBJECTIVES.

K – TASK ELEMENTS ELECTED AS KNOWLEDGE OBJECTIVES ONLY.

O – TASK ELEMENTS OMITTED FROM INSTRUCTIONAL OBJECTIVES.

TASK # 11

PRE-OPERATIVE PROCEDURES

ITEM	P	K	O	
11-11		X		
11-12	X			
11-13	X			
11-141	X			
11-142	X			
11-143	X			
11-144	X			
11-145	X			
11-146	X			
11-15	X			
11-16	X			
11-17		X		
11-21	X			
11-22	X			
11-23	X			
11-24	X			
11-2511		X		
11-2512		X		
11-2521	X			
11-253		X		
11-31	X			
11-32	X			
11-33	X			
11-41	X			
11-411			X	
11-42	X			
11-43	X			

TASK # 12

STARTING

ITEM	P	K	O	
12-1		X		
12-12	X			
12-13		X		
12-131		X		
12-14		X		
12-142			X	
12-15	X			
12-16		X		
12-21		X		
12-22	X			
12-23	X			
12-2411			X	
12-2412	X			
12-2421	X			
12-252	X			
12-26		X		
12-271		X		
12-272	X			
12-273	X			
12-28	X			

TASK # 13

ACCELERATING

ITEM	P	K	O	
13-1	X			
13-2	X			
13-3	X			
13-4		X		
13-5			X	

TASK # 14

STEERING

ITEM	P	K	O	
14-11	X			
14-12	x			
14-131		X		
14-132	X			
14-133	X			
14-134		X		
14-2	X			

TASK # 15

SPEED CONTROL

ITEM	P	K	O	
15-1	X			
15-21	X			
15-22	X			
15-23		X		
15-31	X			
15-32		X		
15-41	X			
15-51	X			
15-52			X	

TASK # 16

STOPPING

ITEM	P	K	O	
16-11	X			
16-121	X			
16-1221	X			
16-1222	X			
16-13	X			
16-14	X			
16-211	X			
16-212			X	
16-22			X	
16-23	X			
16-24	X			
16-31	X			
16-32			X	
16-33	X			
16-4			X	

TASK # 17
BACKING UP

ITEM	P	K	O	
17-12		X		
17-13		X		
17-21			X	
17-22	X			
17-23	X			
17-25	X			
17-311	X			
17-312	X			
17-313	X			
17-314			X	
17-322	X			
17-331			X	
17-333	X			
17-334	X			
17-41			X	
17-42	X			
17-43	X			

TASK # 18
SKID CONTROL

ITEM	P	K	O	
18-1	X			
18-2	X			
18-3	X			
18-4	X			
18-5	X			
18-6	X			

TASK # 21

SURVEILLANCE

ITEM	P	K	O
21-111	X		
21-112	X		
21-113	X		
21-114		X	
21-121		X	
21-122	X		
21-123	X		
21-124		X	
21-125		X	
21-126	X		
21-13	X		
21-2	X		
21-31	X		
21-311	X		
21-312			X
21-32	X		
21-33	X		
21-4	X		

TASK # 22

COMPENSATING FOR PHYSICAL LIMITATIONS

ITEM	P	K	O
22-111	X		
22-112		X	
22-113		X	
22-114		X	
22-121		X	
22-122	X		
22-123	X		
22-124		X	
22-125		X	
22-126		X	
22-127		X	
22-13		X	
22-211		X	
22-212	X		
22-2121			X
22-2122			X
22-213			X
22-214	X		
22-215			X
22-22			X

TASK # 23

NAVIGATION

ITEM	P	K	O	
23-1		X		
23-2		X		
23-3			X	
23-4		X		
23-5			X	
23-6	X			
23-61			X	
23-62			X	
23-63	X			
23-64		X		
23-65		X		
23-66	X			
23-7			X	
23-8			X	
23-81		X		
23-82			X	
23-83			X	

TASK # 24

URBAN DRIVING

ITEM	P	K	O	
24-11	X			
24-121			X	
24-122	X			
24-123	X			
24-13	X			
24-14	X			
24-2	X			
24-31			X	
24-32	X			
24-33	X			
24-34	X			
24-35	X			

TASK # 25

HIGHWAY DRIVING

ITEM	P	K	O	
25-11	X			
25-12	X			
25-13	X			
25-14		X		
25-15	X			
25-2	X			
25-31	X			
25-32	X			
25-33		X		
25-4		X		

TASK # 26

FREEWAY DRIVING

ITEM	P	K	O	
26-1	X			
26-22	X			
26-221			X	
26-23	X			
26-24	X			
26-31	X			
26-32	X			
26-33	X			
26-34			X	
26-41		X		
26-42	X			

TASK # 31

FOLLOWING

ITEM	P	K	O	
31-11	X			
31-12		X		
31-13	X			
31-2	X			
31-3	X			

TASK # 32

PASSING

ITEM	P	K	O	
32-11	X			
32-111	X			
32-12	X			
32-13	X			
32-14	X			
32-15	X			
32-2112	X			
32-2113	X			
32-212	X			
32-213	X			
32-411	X			
32-412	X			
32-5	X			
32-61	X			

TASK # 33

ENTERING AND LEAVING TRAFFIC

ITEM	P	K	O	
33-11	X			
33-12	X			
33-13	X			
33-21	X			
33-22	X			
33-23	X			
33-231		X		
33-24	X			
33-25	X			
33-26	X			

TASK # 34

LANE CHANGING

ITEM	P	K	O	
34-1	X			
34-2	X			
34-3	X			
34-4	X			

TASK # 35

PARKING

ITEM	P	K	O	
35-11	X			
35-12			X	
35-13			X	
35-21				
35-22				
35-231				
35-232				
35-2331		X		
35-2332		X		
35-2333		X		
35-2334		X		
35-2335		X		
35-2336		X		
35-2337	X			
35-2338	X			
35-2339	X			
35-24	X			
35-311	X			
35-312	X			
35-313	X			
35-315	X			
35-316	X			
35-317	X			
35-32	X			
35-3311	X			
35-3312	X			

TASK # 35 (cont.)

ITEM	P	K	O	
35-3313	X			
35-3321	X			
35-3322-2	X			
35-3322-3	X			
35-3322-4	X			
35-3322-5	X			
35-3322-6	X			
35-4	X			
35-511	X			
35-521	X			
35-522			X	
35-6	X			
35-712	X			
35-721	X			
35-722	X			

TASK # 36

REACTING TO TRAFFIC

ITEM	P	K	O	
36-111	X			
36-112	X			
36-113	X			
36-114	X			
36-115	X			
36-116	X			
36-1161	X			
36-1162-21	X			
36-1162-3	X			
36-12	X			
36-131	X			
36-132	X			
36-133	X			
36-1331	X			
36-1332	X			
36-1333	X			
36-1334-1			X	
36-1334-2	X			
36-1335			X	
36-1336	X			
36-134	X			
36-141	X			
36-142	X			
36-143	X			
36-144	X			
36-145	X			
36-146	X			

TASK # 36 (cont.)

ITEM	P	K	O	
36-1471	X			
36-1472	X			
36-1473	X			
36-1474-11	X			
36-1474-12		X		
36-1474-13		X		
36-1474-2	X			
36-1474-3	X			
36-1474-5	X			
36-1475-1	X			
36-1475-2	X			
36-1475-3			X	
36-1475-4			X	
36-151	X			
36-1521	X			
36-1522	X			
36-154	X			
36-161	X			
36-162	X			
36-163	X			
36-164	X			
36-165	X			
36-166	X			
36-167	X			
36-1681	X			
36-1682	X			
36-1683-1			X	

TASK # 36 (cont.)

REACTING TO TRAFFIC

ITEM	P	K	O	
36-1683-2	X			
36-21	X			
36-22	X			
36-231	X			
36-232	X			
36-24	X			
36-251	X			
36-252			X	
36-253	X			
36-254	X			
36-26	X			
36-31	X			
36-32	X			
36-33	X			
36-341	X			
36-342	X			
36-3421	X			
36-3422	X			
36-3423	X			
36-3424	X			

TASK # 41

NEGOTIATING INTERSECTIONS

ITEM	P	K	O	
41-11	X			
41-121	X			
41-122	X			
41-1221-1		X		
41-1221-2			X	
41-1222	X			
41-1223	X			
41-13	X			
41-14	X			
41-151	X			
41-152	X			
41-153	X			
41-1541	X			
41-1542-2	X			
41-1542-3	X			
41-16	X			
41-17	X			
41-18	X			
41-21	X			
41-223	X			
41-2231	X			
41-2232			X	
41-2233	X			
41-224	X			
41-225	X			
41-226	X			
41-23	X			
41-24	X			
41-25	X			

TASK # 42

ON-RAMPS and OFF-RAMPS

ITEM	P	K	O	
42-1	X			
42-211	X			
42-213	X			
42-214	X			
42-215	X			
42-22	X			
42-23	X			

TASK # 43

NEGOTIATING HILLS

ITEM	P	K	O	
43-11	X			
43-121	X			
43-1211	X			
43-1212	X			
43-1213	X			
13-1213-1		X		
43-1213-2	X			
43-122	X			
43-13	X			
43-2	X			

TASK # 44

NEGOTIATING CURVES

ITEM	P	K	O	
44-11	X			
44-12	X			
44-2	X			
44-31	X			
44-32	X			
44-34	X			
44-35	X			
44-41			X	
44-42	X			

TASK # 45

LANE USAGE

ITEM	P	K	O	
45-11	X			
45-12	X			
45-13	X			
45-14	X			
45-15	X			
45-21	X			
45-31	X			
45-32	X			
45-33	X			

TASK # 46

ROAD SURFACE AND OBSTRUCTIONS

ITEM	P	K	O	
46-1	X			
46-21	X			
46-22	X			
46-23	X			
46-24		X		
46-31	X			
46-321	X			
46-322	X			
46-323	X			
46-3231			X	
46-324	X			
46-325	X			
46-326	X			
46-327	X			
46-328	X			
46-329			X	
46-3311	X			
46-3312	X			
46-3313	X			
46-3314	X			
46-3315	X			
46-3316-1			X	
46-3316-2			X	
46-3316-32	X			
46-3321-1	X			
46-3322-1	X			
46-3322-2	X			

TASK # 46 (cont.)

ITEM	P	K	O	
46-3322-3	X			
46-3322-4			X	
46-3323	X			
46-3324	X			
46-3325	X			
46-333	X			
46-334	X			
46-34	X			
46-4	X			
46-5	X			

TASK # 47

TURNABOUTS

ITEM	P	K	O
47-1	X		
47-2		X	
47-3	X		

TASK # 48

OFF-STREET AREAS

ITEM	P	K	O
48-1	X		
48-2	X		
48-31			X
48-32	X		
48-33	X		
48-34	X		
48-35	X		
48-36	X		
48-37	X		
48-41	X		
48-42			X
48-43			
48-44			
48-45			

TASK # 49

RAILROAD CROSSINGS, BRIDGES AND TUNNELS, TOLL PLAZAS

ITEM	P	K	O	
49-11	X			
49-121			X	
49-122			X	
49-123	X			
49-13	X			
49-141	X			
49-1421	X			
49-15	X			
49-16	X			
49-2	X			
49-311	X			
49-312	X			
49-313	X			
49-3141	X			
49-3142	X			
49-3143		X		
49-32	X			
49-33	X			

TASK # 51

WEATHER CONDITIONS

ITEM	P	K	O	
51-11	X			
51-1211	X			
51-1211-1	X			
51-1211-2	X			
51-1211-3	X	X		
51-1212	X			
51-1221	X			
51-1221-1		X		
51-1222		X		
51-1231	X			
51-1232		X		
51-1233		X		
51-1234	X			
51-131	X			
51-132		X		
51-14	X			
51-151	X			
51-152		X		
51-153	X			
51-16	X			
51-211		X		
51-212	X			
51-213		X		
51-214	X			
51-215		X		
51-22	X			

TASK # 51 (cont.)

WEATHER CONDITIONS

ITEM	P	K	O
51-231		X	
51-232	X		
51-233	X		
51-234	X		
51-235	X		
51-236		X	
51-3	X		

TASK # 52

NIGHT DRIVING

ITEM	P	K	O
52-11	X		
52-12	X		
52-13	X		
52-141			X
52-15	X		
52-16	X		
52-17	X		
52-18	X		
52-19	X		
52-2	X		
52-31			X
52-32	X		
52-331	X		
52-333	X		
52-334	X		
52-34	X		
52-35	X		
52-36	X		
52-37	X		
52-38	X		
52-41	X		
52-42			X
52-43	X		
52-44			X
52-5	X		

TASK # 61

HAULING AND TOWING LOADS

ITEM	P	K	O	
61-1	X			
61-2	X			
61-3	X			
61-41	X			
61-42	X			
61-43	X			
61-44	X			
61-45	X			
61-46	X			
61-471	X			
61-472	X			
61-4731	X			
61-4732		X		
61-481	X			
61-482	X			
61-483	X			
61-4841	X			

TASK # 62

RESPONDING TO CAR EMERGENCIES

ITEM	P	K	O	
62-11	X			
62-12	X			
62-13	X			
62-14	X			
62-15	X			
62-1611	X			
62-1612	X			
62-1613			X	
62-162	X			
62-163	X			
62-17	X			
62-18	X			
62-191	X			
62-192	X			
62-193	X			
62-194			X	
62-21	X			
62-22	X			
62-23	X			
62-241		X		
62-242	X			

TASK # 63

PARKING DISABLED CAR

ITEM	P	K	O	
63-1	X			
63-21	X			
63-22	X			
63-23	X			
63-24		X		
63-321	X			
63-322		X		
63-323		X		
63-324	X			
63-41	X			
63-42	X			
63-43		X		
63-44		X		
63-45		X		

TASK # 64

ROADSIDE SERVICING

ITEM	P	K	O	
64-1	X			
64-21			X	
64-221		X		
64-222	X			
64-23			X	
64-24			X	
64-25		X		
64-261			X	
64-262			X	
64-2631		X		
64-2632		X		
64-2633		X		
64-2634	X			
64-2635	X			
64-271	X			
64-2721	X			
64-2722	X			
64-2723			X	
64-273			X	
64-274			X	
64-275			X	
64-276			X	
64-277			X	
64-278			X	
64-279			X	
64-31	X			
64-32		X		

TASK # 64 (cont.)

ROADSIDE SERVICING

ITEM	P	K	O	
64-33	X			
64-34		X		
64-35			X	
64-351			X	
64-3511	X			
64-361			X	
64-362	X			

TASK # 65

PUSHING AND TOWING

ITEM	P	K	O	
65-1		X		
65-2		X		
65-3		X		
65-4		X		

TASK # 71

PLANNING

ITEM	P	K	O
71-11		X	
71-12		X	
71-13		X	
71-21	X		
71-22		X	
71-23		X	
71-24		X	
71-25		X	
71-3		X	
71-41		X	
71-42	X		
71-43		X	

TASK # 72

LOADING

ITEM	P	K	O
72-111	X		
72-112	X		
72-113	X		
72-114	X		
72-115	X		
72-116		X	
72-117		X	
72-118			X
72-119	X		
72-121	X		
72-122	X		
72-123			X
72-124	X		
72-125			X
72-126			X
72-1261	X		
72-127	X		
72-1281	X		
72-1282	X		
72-1283	X		
72-1284	X		
72-1285	X		
72-1286	X		
72-1287			X
72-133	X		
72-134	X		
72-135			X

TASK # 72 (cont.)

LOADING

ITEM	P	K	O	
72-137	X			
72-141	X			
72-142			X	
72-143	X			
72-144	X			
72-145	X			
72-146	X			
72-147	X			
72-148	X			
72-149	X			
72-21	X			
72-22	X			
72-231			X	
72-232	X			
72-233	X			
72-234	X			
72-235	X			
72-236			X	
72-237	X			

TASK #73

USE OF ALCOHOL AND DRUGS

ITEM	P	K	O	
73-11	X			
73-121		X		
73-122		X		
73-123	X			
73-124	X			
73-125		X		
73-2	X			

TASK # 74

MAINTAINING AND ACCOMODATING PHYSICAL AND EMOTIONAL CONDITION

ITEM	P	K	O	
74-1			X	
74-21	X			
74-22	X			
74-23	X			
74-24	X			
74-241			X	
74-25	X			
74-31		X		
74-32		X		
74-33	X			
74-34	X			
74-4	X			
74-5	X			

TASK # 81

ROUTINE CARE AND SERVICING

ITEM	P	K	O	
81-11	X			
81-21	X			
81-221		X		
81-222	X			
81-223		X		
81-2231	X			
81-231	X			
81-232	X			
81-233	X			
81-234			X	
81-235	X			
81-24	X			
81-2413	X			
81-2413-1		X		
81-242	X			
81-243	X			
81-25	X			
81-261	X			
81-262		X		
81-2621		X		
81-2622	X			
81-263	X			
81-27	X			
81-281				
81-282	X			
81-2831		X		
81-2832	X			

TASK # 81 (cont.)

ROUTINE CARE AND SERVICING

ITEM	P	K	O	
81-2833	X			
81-2834	X			
81-2835	X			
81-2836	X			
81-2837	X			
81-284		X		
81-291	X			
81-292	X			
81-2921	X			
81-293	X			
81-31			X	
81-32	X			
81-33	X			
81-34			X	
81-35			X	
81-351			X	
81-352			X	
81-353			X	
81-354	X			
81-4		X		

TASK # 82

PERIODIC INSPECTION AND SERVICING

ITEM	P	K	O	
82-11			X	
82-12	X			
82-131	X			
82-132	X			
82-133	X			
82-134			X	
82-135			X	
82-136	X			
82-137	X			
82-138	X			
82-139			X	
82-14	X			
82-15			X	
82-16	X			
82-211			X	
82-212			X	
82-213			X	
82-214			X	
82-215			X	
82-216			X	
82-217			X	
82-218		X		
82-221	X			
82-222			X	
82-23	X			
82-24	X			

TASK # 83

REPAIRS CAR SUBSYSTEMS

ITEM	P	K	O	
83-1	X			
83-2	X			
83-3	X			

TASK # 91

DRIVER AND CAR CERTIFICATION

ITEM	P	K	O	
91-1	X			
91-2		X		
91-31	X			
91-32	X			
91-33		X		

TASK # 92

POST ACCIDENTS

ITEM	P	K	O	
92-1	X			
92-2	X			
92-31	X			
92-311		X		
92-32			X	
92-33	X			
92-34	X			
92-35	X			
92-4	X			
92-5	X			
92-51	X			
92-521			X	
92-522	X			
92-523			X	
92-524		X		
92-531	X			
92-532	X			
92-533	X			
92-534	X			
92-535			X	
92-536	X			
92-54	X			
92-551			X	
92-552			X	
92-553			X	
92-554	X			
92-555	X			

TASK # 92 (cont.)

ITEM	P	K	O	
92-556			X	
92-557			X	
92-6	X			

Appendix B

SUMMARY OF PLANNED AND UNPLANNED DRIVING SITUATIONS

Driving Situations Test

Summary of Planned Situations

Situation	Nature of Observation	When Observation Performed
Emergency Planning		
Rear Vision	Student's use of mirror to check traffic behind	When followed closely by different types of vehicles
Collision Avoidance	Student's tendency to scan roadside when approached by an oncoming car	When approached by an oncoming car
Brake Failure	Student's tendency to scan the roadside for escape route when approaching an intersection	When approaching an intersection—may be preselected
Curves	Student's ability to enter, drive through, and leave curve safely	At moderate to sharp curves—may be preselected
Bridges or Tunnels	Student's ability to approach, enter, and exit a bridge or tunnel safely	Whenever the student approaches a bridge or tunnel—may be preselected
Passing		
Judgment—Oncoming Car	Student's ability to judge the passing distance of an oncoming car	When approaching an oncoming car visible for a long distance
Judgment—Roadway Restriction	Student's ability to judge passing distance to some roadway restriction	When passing distance is restricted by the roadway—may be preselected
Passing Restrictions	Student's knowledge of safe and unsafe passing zones	Safe and unsafe locations selected by administrator—may be preplanned
Passing Procedure	Student's ability to pass safely	Whenever initiated by student or administrator on any type of highway.
Off-Street Areas	Student's ability to drive into, through, and out of an off-street area	A preselected off-street area
Evasive Action	Student's ability to leave the roadway, drive onto the shoulder, and return to the roadway safely	At a preselected location where the shoulder is firm enough to be driven on safely

(Continued)

Planned Situations *(Continued)*

Situation	Nature of Observation	When Observation Performed
Hills	Student's ability to drive up and down a hill safely and effectively	At a preselected steep hill
Freeways	Student's ability to enter, drive on, and exit a freeway safely	At a preselected, relatively short segment of expressway or limited-access highway entered or exited by means of a ramp or other oblique configuration
Entering and Leaving Traffic	Student's ability to enter and leave the flow of traffic safely	At the beginning and end of the road test
Intersection—Right Turn	Student's ability to approach and make a left turn at an intersection	At preselected controlled and uncontrolled intersections
Intersection—Proceeding Through	Student's ability to approach and drive through intersection safely	At preselected controlled and uncontrolled intersections
Intersection—Left Turn	Student's ability to approach and turn left at an intersection	At preselected controlled and uncontrolled intersections

Driving Situations Test

Summary of Unplanned Situations

Situation	Nature of Observation	When Observation Performed
Other Vehicles— Entering	Student's perception of vehicles entering the highway	Whenever vehicle approaches highway other than a scored intersection
Other Vehicles— Slowing, Overtaking		
Slowing	Student's attention and ability to react to cars ahead while following	Whenever the brake lights on the vehicle ahead indicate that it is slowing down
Vehicle Being Overtaken	Student's attention and ability to react to vehicles that are being overtaken	Whenever a slower vehicle is being overtaken
Other Vehicles— Parked		
Persons Alighting	Student's ability to anticipate and respond to persons alighting from a parked vehicle	Whenever a person alights from a parked vehicle
Car Pulling Out	Student's ability to anticipate and react to previously parked cars pulling out to enter traffic	Whenever a parked car pulls out to enter traffic
Pedestrians and Cyclists		
Pedestrians	Student's attention to and his ability to react safely to pedestrians	Whenever a pedestrian is close to, about to enter, or in the roadway
Cyclists	Student's ability to drive safely in the presence of cyclists	Whenever a mototcycle, scooter, or bicycle appears in front of the driver
Weather Conditions	Student's ability to react correctly to extreme weather conditions	Whenever confronted by (1) limitations in visibility caused by rain, sleet, snow, fog, sunglare, sand, or frost; (2) extreme temperature, (3) extreme wind
Special Vehicles	Student's ability to respond appropriately to special vehicles	Whenever student is confronted by a stopped bus, a school bus, or an emergency vehicle

(Continued)

Unplanned Situations *(Continued)*

Situation	Nature of Observation	When Observation Performed
Oncoming Cars	Student's ability to respond correctly to oncoming cars	When confronted by an oncoming car at preselected locations
Lane Changing	Student's ability to change lanes safely	Whenever a lane change is initiated by the student or administrator
Road Surface Conditions	Student's ability to identify and respond correctly to roadway irregularities or slippery conditions	Whenever an irregular or slippery surface is encountered (irregular surfaces may be preselected)
Traffic Signals and Signs	Student's observation of and ability to respond correctly to traffic signals and signs	Whenever a traffic signal or sign is encountered at an otherwise unscored location—can be preselected