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RESEARCH PROBLEM STATEMENTS: OPERATOR EDUCATION AND REGULATION

mode
1 highway transportation

subject areas
51 transportation safety
52 human factors

OPERATION, SAFETY AND MAINTENANCE OF TRANSPORTATION FACILITIES

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INTRODUCTION

The Committee on Operator Education and Regulation, A3B03, considers the identification of research needs statements as one of its major functions. During 1985, the committee developed and prioritized ten research needs statements for transmittal to the transportation research community. After review and approval of the content by the entire committee, members then ranked the needs statements according to one of three priority ratings: high, medium, and low. The table on the following page records the priority ranking assigned to each need statement:

Statement Number	Topic	Ranking Score	Priority
1	General and Specific Deterrent Effects of Administrative License Revocation for Drunk Driving	52	High
2	Evaluation of Traffic Safety Instructional Techniques/ Strategies	48	High
3	Optimizing the Effectiveness of License Suspension	46	High
4	Dissemination and Feedback of Traffic Safety Education Research	38	Medium
5	Preparation and Certification of Traffic Safety Personnel	32	Medium
6	Development and Validation of Entry Level Testing Instrument for Driver Education Students	32	Medium
7	Development of Accident Avoidance Skill Training	26	Low
8	Frequency of Drinking and Driving	24	Low
9	Development of a Comprehensive Safety Program	22	Low
10	Identify Behavioral Influence of Teachers, Family Members, Friends/Peers and Other Community/ Sources in Traffic Situations	20	Low

RESEARCH PROBLEM STATEMENTS

PROBLEM NO. 1

TITLE: General and Specific Deterrent Effects of Administrative License Revocation for Drunk Driving.

PROBLEM: Administrative license revocation is a novel, increasingly-adopted, means of sanctioning drunk drivers. By short-circuiting the judicial process, it aims to increase the celerity of punishment -- in which matter it is unique -- as well as the certainty of punishment. The scientific literature indicates that, as compared with severity, these latter two variables show the most promise for affecting the behavior in question. However, the imposition of a driving ban has met with considerable political opposition, preventing the adoption of this measure in many states and weakening the sanction, e.g., by the issuance of limited licenses, in other places. The articulation of the administrative process with the judicial one is unclear in many places, and conflicts are being experienced which require some policy clarification. Research could help by demonstrating the costs and benefits of various approaches.

OBJECTIVE: A review of administrative license revocation schemes should be undertaken covering all U.S. jurisdictions.

(1) The provisions should be reviewed, especially with regard to absolute versus limited revocation, and the articulation with the judicial process should be made clear.

(2) An administrative evaluation should be performed to determine the extent of application of the various laws.

(3) Evaluation research should be performed to determine the effect of the various laws on indexes of drunk driving and of recidivism. Such evaluations should be performed at a variety of sites in order to include different forms of the policy in question.

KEY WORDS: Administrative License Revocation, Drunk Driving.

RELATED WORK: Isolated evaluations are being performed. One is being done by the State of Minnesota Department of Public Safety (Lowery), another by Ross for the State of New Mexico.

URGENCY: - High - Attention is shifting from deterrence to other approaches to the problem, including drinking-age measures and server liability. Recommendations for specific legislation and administrative policies could support successful approaches and guide additional jurisdictions to introduce policies that have been shown effective elsewhere.

COST: $125,000

USER COMMUNITY: State governments, state and national administrative agencies: Committee on Uniform Traffic Ordinances, Governors' Highway Safety Representatives, National Highway Traffic Safety Administration (NHTSA), etc.

IMPLEMENTATION: State Departments of Licensing, American Association of Motor Vehicle Administrators (AAMVA)

PROBLEM NO. 2

TITLE: Evaluation of Traffic Safety Instructional Techniques/Strategies

PROBLEM: Primary and secondary education is under increasing pressure to hold or reduce costs for providing instruction to students. Traffic Safety education, although theoretically addressing the number one health problem for students -- accidents, often does not receive the instructional commitment or time it should. Part of this problem stems from the perception of school administrators, teachers and parents that the benefits derived from traffic safety education do not equal or surpass the cost in educational resources (time and money) needed to provide this instruction. Sadly, such perceptions are often true. Part of the problem is that the instructional techniques/strategies needed to produce desired traffic safety behavioral outcomes have not been adequately defined, developed or evaluated. Without knowing what results in effective instruction nor what specific knowledge or skills result from current instruction, it is difficult to evaluate course content impact or cost-effectiveness of a program.

OBJECTIVE: The objective of this research will be to evaluate a small number of different instructional techniques/strategies in terms of resources needed to achieve determined knowledge and skill objectives for students. This will be accomplished through the: determination and specification of a manageable number of student objectives; development of various instructional procedures that a teacher might use to provide/transfer/enhance student learning of the objectives; identification and if necessary the development of materials and resources to support each instructional technique/strategy; the identification and/or development of testing procedures and instruments for determining objectives obtainment; and, the testing, with comparisons, of the instruction in terms of impact and cost-effectiveness.

KEY WORDS: Instructional procedures, Traffic safety education, Educational evaluation.

RELATED WORK: There has been little related work in this area.

URGENCY: - High - Initial effort will document a small number of procedures to reduce costs associated with providing traffic safety education and to assure that such education is being presented in the most effective manner to result in learning by students.

COSTS: It is estimated that identifying 3-5 cost-effective instructional procedures will cost $100,000.

USER COMMUNITY: Driver education teachers, Curriculum developers

IMPLEMENTATION: Teacher preparatory institutions, State Departments of Education, American Driver and Traffic Safety Education Association (ADTSEA), Traffic safety vendors

PROBLEM NO. 3

TITLE: Optimizing The Effectiveness of License Suspension.

PROBLEM: The deterrent effects of license suspensions (or revocations) on subsequent driving behavior are well documented. Suspended drivers have significantly fewer traffic convictions and accidents than do drivers who avoid the license action. However, the important parameters of the effect are unknown. For example, studies showing positive effects examined license denial periods of one to five years. Other studies have failed to find an effect of short-term suspensions of 30 to 60 days. Duration of the suspension appears to be an important factor. Another issue related to duration of the suspension is the question of whether significant improvements in driving behavior continue following reinstatement of the license. Research findings on this issue have been mixed.

OBJECTIVE: A research program directed at determining the optimum parameters of the suspension effect should be initiated that would provide essential information for policy decisions. Evaluation studies should address: (1) The degree of restriction (complete driving restriction versus partial restriction as in the case of hardship licensing), (2) driver sub-populations (driving while intoxicated (DWI) versus drivers convicted of other offenses), (3) reinstatements (full reinstatement versus a probationary or gradual reinstatement of the driving privilege), (4) duration of the suspension, and (5) administrative versus judicial suspension.

KEY WORDS: License suspension, License revocation, Driver control.

RELATED WORK: National Highway Traffic Safety Administration (NHTSA) contract to study hardship licensing.

URGENCY: - High - License controls are effective, but could be enhanced. Findings would be used to improve the administration and the effectiveness of driver control programs.

COST: $125,000.

USER COMMUNITY: State Departments of Licensing, Traffic judges

IMPLEMENTATION: State Departments of Licensing, American Association of Motor Vehicle Administrators (AAMVA), Attorney Generals

PROBLEM NO. 4

TITLE: Dissemination and Feedback of Traffic Safety Education Research

PROBLEM: Presently, in the field of traffic safety education, there does not appear to be uniform and effective means by which research results are disseminated to target users and

program decision makers. Likewise, there is no existing formalized network by which user types can effectively channel perceived research needs. As evidenced by repetitive research projects which are primarily intended to develop curricula or other program improvements, there is an apparent need for involved parties to know what others have similarly attempted or successfully completed. In order that this phenomenon known as "Re-invention of the Wheel" is minimized and that intended resources can best be spent on upgrading and advancing the state-of-the-art, such an interaction should take place. Therefore, it is proposed that a study be conducted to determine the feasibility of developing a communication channel for program administrators, educators, and researchers.

OBJECTIVES:

- Explore various delivery and presentation formats for best communicating useful information.
- Survey the population of persons who are associated with the field of traffic safety education to determine their willingness to participate in an information exchange program.
- Explore organizations which are more likely to successfully maintain and/or finance such services.
- Pilot-test the channel(s) to determine the (a) efficiency; (b) related cost; (c) user reactions; and (d) perceived benefits derived.

KEY WORDS: Information exchange, Research needs, and Technology transfer.

RELATED WORK: National Highway Traffic Safety Administration "Highway Safety Literature"

URGENCY: - Medium - It can be expected that the promptness in which this work is completed will enhance the quality of traffic safety education.

COST: It is estimated that this work will cost $75,000.

USER COMMUNITY: Traffic Safety Administrators, Teachers, Curricumum Developers.

IMPLEMENTATION: Traffic safety organizations/ associations, National Highway Traffic Safety Administration (NHTSA), Universities with safety programs.

PROBLEM NO. 5

TITLE: Preparation and Certification of Traffic Safety Personnel

PROBLEM: The success of traffic safety education programs is dependent upon qualified personnel. Education and training programs in this area have evolved based upon little research evidence. For example, most teacher preparation courses are based upon generalized content derived from experience and consensus. There is a need for research in this area in order for a more substantial base to be established for the preparation of traffic safety personnel.

OBJECTIVES: a. Identify current and projected personnel needs, assignments, skills and knowledge required of traffic safety personnel; b. Develop criteria for teacher preparation, certification and accreditation activities; c. Develop criteria on procedures needed for working with special populations, determination of needs and assessment of proficiency; d. Convene concensus workshop to establish recommended preparation and certification requirements/standards.

KEY WORDS: Certification, Accreditation, Driver Education, Safety Personnel, Special Populations, Teacher Preparation, Training Standards.

RELATED WORK: Research done by American Driver and Traffic Safety Education Association (ADTSEA), National Highway Traffic Safety Administration (NHTSA), Aaron, Hartman, and others have quantified certain aspects of this problem.

URGENCY: - Medium - In view of the fact that traffic safety education is being evaluated on the basis of its potential to reduce accidents and/or violations, it is imperative that personnel be prepared to cope with the assignments given to them to assist in the accomplishment of this objective. Most preparation and certification programs appear to be substandard; therefore, the establishment of an acceptable base for this program is vital. Implementation of the results of this study could be accomplished through the conduct of a series of in-service seminars for college and university teacher preparation personnel plus state and national accreditation personnel.

COST: Initial Research - $75,000.
Implementation Seminars - $125,000.

USER COMMUNITY: State Departments of Education, Safety preparatory universities/colleges

IMPLEMENTATION: State Departments of Education, American Driver and Traffic Safety Education Association (ADTSEA), National Highway Traffic Safety Administration (NHTSA)

PROBLEM NO. 6

TITLE: Development and Validation of an Entry Level Testing Instrument for Driver Education Students

PROBLEM: Driver education courses for beginning drivers, particularly those offered in the public school system, have and are continuing to come under increasing pressure to reduce costs. This is partly due to the increasing need for all school curriculums to reduce costs and partly the result of recent criticisms of driver education which have indicated the lack of safety benefits.

One existing problem which plays a part in generating costs for driver education is the fact that while a variety of students with a variety of skills and ability levels enter the program, all students are required to begin at the same level of instruction, usually the lowest level, and are required to continue the training for some prescribed number of hours. The implicit assumption is that all students know very little about driving. By beginning all students at the same point, the instructor is required to teach the same material to all. In reality, because of

their past history with vehicles, students will enter the course with a wide range of entry level skill. One method of reducing program costs might be to measure the entry level skill and to provide individualized instruction for each student based on this skill. Thus some students would require less training than is now being demanded of the instructor. Currently, there is no entry level testing instrument which could aid the instructor in determining the skill level of the entering student. Such determination must now be made based on the instructor's inherent ability to measure skill and his experience with many students, an ability and experience that varies greatly among driver education instructors. In addition, the usual requirement of a prescribed number of hours of on-range and off-range instruction for each student regardless of entry level skill adds to these (perhaps unnecessary) costs. Thus, there is a need for an entry level testing instrument to aid the instructor in determining at what level to begin instruction and at what level to end the instruction for a driver education student.

OBJECTIVES: To develop and validate an entry level testing instrument which would aid the instructor in determining the level of skill and knowledge already possessed by the beginning driver student. The research also would need to determine the feasibility of the developed instrument being used in the existing driver education community and to specify methods in which the instrument could be distributed to driver education instructors and methods for "selling" both the instructors and administrators (including insurance companies) on a program incorporating flexibility in training hours as an acceptable means of educating beginning drivers. In addition, the research would assess the feasibility of such an entry level instrument also being used to determine the skill needed to successfully complete driver education.

KEY WORDS: Driver performance assessment instrument, Entry-level driving skill.

RELATED WORK: A review of the literature indicates that very little past research involving the development of entry level testing as related to driver education has been done.

URGENCY: - Medium - Because of the fact that driver education is coming under increasing pressures to produce drivers with an acceptable level of skill at a lower cost, there is an urgent need to examine ways in which teachers can eliminate unnecessary instruction time for individual students and thus can individualize their instruction techniques. The instrument developed in this research could help meet this need.

COST: Cost would be based on the following tasks:

1. Review of existing testing literature and assessment of current levels of "acceptable" skill - three months, $10,000.
2. Initial development of both knowledge and skill testing instruments - thirteen man months, $60,000.
3. Validation of the testing instrument - six man months, $30,000.
4. Development of strategies for guaranteeing use of the instrument in current driver education programs - one man year, $50,000.
   Total: $150,000.

USER COMMUNITY: Driver education teachers

IMPLEMENTATION: State Departments of Education, American Driver and Traffic Safety Education Association (ADTSEA), National Highway Traffic Safety Administration (NHTSA)

PROBLEM NO. 7

TITLE: Development of Accident Avoidance Skill Training

PROBLEM: Young drivers continue to be over represented in traffic crashes. One educational approach to this problem is accident avoidance training where vehicle handling skill, decision-making and situational/perceptual awareness is taught. Previous National Highway Traffic Safety Administration (NHTSA) research has demonstrated that it is possible to train young drivers in certain accident avoidance situations. Even though the technology exists for providing such training, a number of issues still need to be resolved. The training techniques developed to date are expensive and instructor intensive. Methods need to be developed which reduce these costs and allow for better instructor-student ratios. One possible means to accomplish this is to devise techniques which would provide some of the training in the classroom. For example, certain decision-making skills might be capable of being taught and practiced through simulation in a classroom setting. Such an approach would be more cost-effective for providing this type of training. In addition, the development of more cost-effective instructional procedures for providing accident avoidance training would then allow for the accident reduction impact of such training to be determined.

OBJECTIVES: The objective of this research would be to identify and develop more cost-effective instructional procedures for providing accident avoidance training. The effort would include: The review of past NHTSA research in this area and any other that has been conducted in the meantime; the identification and delineation of knowledge and skill to be taught; the identification of classroom instructional procedures that could be used; the development of a selected number of instructional procedures and support equipment; the pilot testing of these procedures; and, recommendations for the research/development needed to complete such training.

KEY WORDS: Accident avoidance training, Decision-making, Simulation

RELATED WORK: None at this time

URGENCY: - Low - As young drivers are still over-represented in accidents, different/enhanced training procedures for driver education are needed. Such procedures, however, must be cost-effective to implement and use. This effort is an initial step toward that goal.

COST: Estimated at $150,000

USER COMMUNITY: Researchers, Driver education teachers

IMPLEMENTATION: State Departments of Education, Defensive Driving Course Planners

PROBLEM NO. 8

TITLE: Frequency of Drinking and Driving

PROBLEM: Considerable economic and human resources have been devoted to the reduction of drinking and driving during the last decade. Yet, a valid indication of the frequency of drinking and driving has not been collected during this time period. From 1972 to 1976, several attempts were made in different States to measure the extent of the drinking driving problem through roadside breath testing. However, little such roadside testing has been attempted since then. In order to provide information that could be used to better define this drinking driving problem and for evaluation of comprehensive alcohol traffic safety programs, it is necessary to initiate efforts to collect data concerning the extent to which people are drinking and driving.

OBJECTIVES: This effort will design a survey, develop the needed procedures, and conduct a representative roadside survey of randomly selected drivers. The survey will provide blood alcohol concentration (BAC) and self reported information. Issues that the research will address include: representative sampling (time, place, respondent, etc.), data collection design, instruments and protocol to comply with scientific and legal requirements; training of survey personnel, delineation of researchable questions and appropriate data analyses to address the drinking driving issue (e.g., are there significant demographic differences between drivers who have been drinking and those who have not? -- is this changing over time? - are the programs reaching the target population?)

KEY WORDS: Drinking drivers, Roadside survey

RELATED WORK: The only other known current work, is a roadside survey being done in Minnesota during 1985 to determine the magnitude of the States drinking driving problem.

URGENCY: - Low - It is not known what is the frequency of drinking and driving, who is doing it, and whether comprehensive alcohol countermeasures are reaching and having any affect on appropriate target audiences. This effort will provide data to address these issues.

COST: Estimated cost for designing and conducting a national representative survey of the drinking driving problem is $200,000.

USER COMMUNITY: Alcohol safety/rehabilitation administrators, Public health administrators/ officers, Enforcement agencies

IMPLEMENTATION: Normal traffic safety distribution channels

PROBLEM NO. 9

TITLE: Development of a Comprehensive Safety Program

PROBLEM: It is vital that education for safe living begin during the pre-school years and continue through elementary and secondary schools and into adult life. Safety practices must become a way of life, learned and applied at school, work, while using the highway system, and while at play. With over 100,000 accidental deaths each year, it is apparent that a problem exists that needs assessment and subsequent development of a viable school safety program. There are many safety programs in effect throughout the nation's schools and support organizations, but they are at best fragmented with little effort made to coordinate or evaluate program activities. Therefore, a comprehensive program needs to be developed for all levels of education. Such a program should include and have as an integral part of it, evaluation.

OBJECTIVES: Identification of specific safety behaviors and content areas necessary for a comprehensive safety program; Development of curriculum outline for various age levels including desired behavioral outcomes, instructional goals, specific knowledge and skill objectives, and performance levels (evaluation criteria) for the outcomes, goals and objectives; Identification of the most suitable approaches for teaching safety to specific ages of learners; Identification of appropriate resources to implement, administer and evaluate a comprehensive safety program; Identification and suggested approaches for overcoming issues and obstacles concerning such a program; and recommended procedures and resources for field testing such a program.

KEY WORDS: Model Safety Program, Traffic Safety, School Safety, Home Safety, Recreational Safety, Work Safety, Accident Record System, Evaluation.

RELATED WORK: Work done by National Highway Traffic Safety Administration (NHTSA), American Driver and Traffic Safety Education Association (ADTSEA), selected State Departments of Education, and others have been completed to provide a basis for this work.

URGENCY: - Low - With the increased rate of school age youths being involved in a variety of injury producing accidents, it is imperative that a comprehensive program of education for safe living be developed to help off-set this increase in deaths and injuries. Overall instruction needs to be improved and enhanced to assure that the increasing accident rate be curtailed.

COST: $225,000 for the development of the program.

USER COMMUNITY: Elementary and secondary schools

IMPLEMENTATION: State Departments of Education, ADTSEA, NHTSA

PROBLEM NO. 10

TITLE: Identify Behavioral Influence of Teachers, Family Members, Friends/Peers and Other Community Sources in Traffic Situations

PROBLEM: For many years, traffic safety educational programs designed to reach young children and students have been questioned as to validity of content and results. These programs have depended almost entirely on the school to provide education for behaviors that are used, for the most part, outside the school. Teachers generally present factual information and try to create awareness of traffic safety hazards. Often, other sources, such as parents, siblings and friends have a stronger influence on the child/students behavior and may nullify the teacher's instruction. By identifying behavioral influences and designing coordinated educational programs around these, teachers can be more effective educators for traffic safety programs.

OBJECTIVE: The objective of this research is to identify traffic safety behavioral influences and recommend changes in school programs to take into account such influences to best maximize positive outcomes. The work would involve: designing procedures for determining the sources of child/student behavioral influences; developing appropriate measuring instruments; designing experimental procedures for collecting the relevant information; reviewing a sample of current programs to identify whether they take into consideration such influences; and, recommending necessary changes in the programs to account for the influences.

KEY WORDS: Traffic safety education, Behavioral influences

RELATED WORK: Parental and peer programs which have been developed.

URGENCY: - Low - This research would be important to State Departments of Education, school administrators, teachers and curriculum developers.

COST: $150,000.

USER COMMUNITY: Traffic safety teachers, Curriculum developers

IMPLEMENTATION: State Departments of Education, American Driver and Traffic Safety Education (ADTSEA), National Highway Traffic Safety Administration (NHTSA), Traffic safety program vendors