

**A REVIEW OF THE LITERATURE ON REMEDIATION  
PROGRAMS FOR AT-RISK DRIVERS**

**For the LCES “DOME PROGRAM” Proposal to ICBC**

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# **A REVIEW OF THE LITERATURE ON REMEDIATION PROGRAMS FOR AT-RISK DRIVERS**

## **Introduction**

### ***Purpose and Rationale***

This *Review of the Literature* was conducted in order provide the Law Courts Education Society (LCES) with a summary of articles, studies, reports and research findings that pertain to at-risk driver education, re-education or remediation programs, especially as they might pertain to young drivers. The purpose of this review was to determine whether programs with objectives similar to those of the proposed “DOME Program” have been implemented elsewhere and, if so, to learn to what extent such programs have been found effective, effective with what kinds of subjects, and by offering what kinds of treatment and course content. In short, what was sought was evidence regarding not only the existence and location of similar programs but also their efficacy in changing the attitudes and behaviours of high-risk drivers, drivers whose personal motivations and needs come into conflict with their community’s rule-system. The goal of high-risk driver remediation and retraining programs is to inhibit those driver attitudes and behaviours that facilitate risk-taking rule violation.

### ***Parameters of the Review***

Given the constraints of limited time and research monies available to defray the costs of a more exhaustive literature search, a focussed and bounded review was undertaken using a highly selective range of “descriptors” to identify pertinent articles, studies, study abstracts and educational projects. What was sought was a sampling of both qualitative and quantitative

research pertaining to the effectiveness of driver training, retraining and remediation programs.

### *Conducting the Literature Search*

Manual and computerized literature searches were conducted over a six-week period. Two Internet search engines (Google and Yahoo) were used to identify relevant articles, reports, and press releases; ERIC (Educational Research Information Centers) was accessed to obtain educational journals, research publications, programs, projects, studies and study abstracts; reference-list bibliographies in studies so acquired were examined; a collection of Internet reviews and extracts downloaded by the Law Courts Education Society (LCES), as well as a paper from ICBC, was explored; and the UBC and SFU libraries were utilized in order to examine professional journals, periodicals, articles, programs, and the like.

The great many specific descriptors employed during the several literature searches are listed, for convenience sake, in Appendix A of this review; however, for all three key search engines, the major descriptors used were: Educational Programs; Driver Education; Risky Driving; At-Risk/High-Risk Driver Characteristics & Programs; Driving Offenses; Driving While Impaired /Intoxicated (DWI); Driving Under the Influence (DUI); and Driver Training Curriculum/Courses/Sessions/Workshops.

The literature search yielded a number of articles, reports and studies dealing with at-risk, higher-risk and high-risk drinking drivers, and with driver-training and remediation programs for both teenagers and adults in a number of U.S. states and Canadian provinces, as well as in other countries such as the United Kingdom, Sweden, Norway, West Germany, France, the Netherlands, Switzerland, Puerto Rico, New Zealand, and Australia.

## **Description of Articles, Studies, Reviews, and Reports**

The description of the literature located by our searches is presented here in three parts. The first part deals with studies that have attempted to identify the characteristics of at-risk drivers and driving offenders. In the second part, we describe programs that have been or are presently being used in a number of jurisdictions in an attempt to reduce recidivism among persons convicted of driving offenses. In the third part, we describe research studies and reviews of research in which a number of strategies were examined for their effectiveness in modifying deviant driver behaviors.

### ***Characteristics of At-Risk Drivers and Young Driving Offenders***

Our literature search revealed several reports of studies that examined the personality characteristics of high-risk drivers, looking at factors that appear to motivate risky-driving behaviour. There is a general consensus amongst these reports regarding the most significant characteristics. One such report (Burgess, c. 2000) explored the motivations prompting driver “rule-violation on the roads”. Hoping to better inform not only educational interventions for offending drivers but also training methods for novice drivers, this report identified two key factors as predictive of rule-breaking and risk-taking behaviours: “Thrill-Seeking”, and “Egoism” — the first seen wholly as a motivating element, and the second seen as a possible inhibiting element, inhibiting in the sense that drivers intend to take care of their own well-being, needs and interests first, even at the expense of community. A report by Derevensky (2003) identified the following characteristics of young problem drivers: “Rebelliouness,

Alienation, Independence, Defiant and oppositional behaviour, Excessive and heavy drinking, Past history of speeding or reckless driving, Driving violations, Delinquent and antisocial behaviors, Trouble with the law, Poor problem-solving abilities” (p. 2). Another report, (Teenagers and Driving, p 5.) dealing with young male drivers, noted the interrelationship among certain personality traits (e.g., rebelliousness, risk-taking, independence, defiance of authority), deviant driving practices (speeding, driving while impaired), and traffic violations and crashes, and observed that the traits, values, and peer associations of young high-risk drivers made changing behaviour through driver training or retraining programs and courses a difficult task. A review from Australia (Molloy & Develin, 2003) noted that young novice drivers differed from older experienced drivers in four key ways: Psychomotor skills (deficient in braking, steering, and speed adjustment); Perceptual skills (deficient in searching and scanning the environment for hazards); Cognitive skills (available attentional resources all required for monitoring of driving) and; Attitude towards driving (younger drivers stressing recreational purposes, older drivers stressing functional purposes) (pp. 2-3). One report (“Q&A: Teenagers: General, as of June 2003”, p. 2) concluded that, though driver education programs can successfully teach driver skills and impart knowledge about alcohol-impaired driving, teenage “attitudes seem to be largely unaffected by such programs -- and attitudes strongly influence how driving skills and knowledge are put to use”, with thrill-seeking tendencies often overwhelming the effects of increased driving skills and knowledge. Another report (NHTSA: “Addressing the Safety Issues Related to Younger and Older Drivers”, Chapter 2) noted that the key safety issues for drivers between the ages of 15 and 24 are

inexperience, immaturity and risk-taking, and went on to observe that behavioural research activities related to younger drivers had initially focussed almost exclusively on alcohol and under-age drinking and that only in recent years has this effort expanded to examine “many broader issues, including cultural norms, peer influence, and risk-taking attitudes” (p. 1). A term paper (Patterson, 2002) observed that in the illegal street racing sub-culture two critical motivators are masculinity and what the car stands for, the car having become “indelibly stamped . . . as a key symbol of masculinity” (p. 1). Finally, a paper by Vavrik & Turnball (n.d.) addressed “The Influence of Speed-Related Attitudes, Behaviours, and Personality Characteristics on Speeders’ Reactions to Anti-Speeding Messages”. Collecting data from a random sample of 151 drivers with repeated speeding violation convictions, it explored a “fairly consistent set of traits associated with deliberate risk-taking and particularly speeding” (p. 4), this set of traits including “high confidence,” “need for control, status and power,” “assertiveness and aggression,” “mild social deviance,” and “low conformity”. The authors remarked that “many of these traits reflect needs for superiority and control over others . . . coupled with lack of concern for authority and rules [suggesting] the presence of two primary personality factors referred to as Dominance and Rule-Consciousness” (p. 4). The authors observed that such findings “suggest that speeders’ resistance to persuasion may be rooted in the speeders’ need for control clashing with the perceived (and actual) manipulative aims of anti-speeding messages, [and that] direct attempts to influence the dominant influencer may only generate more resistance” (p.16).

### *Educational Programs*

Over the last 30 years, in a number of U.S. states (e.g., New York, Vermont, California, Illinois, Maryland, Texas, Florida) and Canadian provinces (Ontario, New Brunswick, Manitoba, Saskatchewan, Alberta), and countries such as the United Kingdom, West Germany, Sweden, Australia, and New Zealand, a variety of educational programs, ranging in length from four to six hours during a single day and up to 20 or more hours over five days or several weeks, have been developed as interventions aimed at retraining high-risk drivers, teenage and older driving offenders. These courses tend to be focussed on improving driver knowledge and safety awareness and employ a variety of teaching strategies aimed at positively influencing attitudes and therefore changing behind-the-wheel behaviour. Frequently the participants on these courses have been ordered by courts to attend. The majority of programs located in this literature review dealt with remediation and retraining required because of alcohol-related offenses. Nonetheless, a few studies, reports and articles were found that dealt with (or included) non-alcohol related reasons for retraining. For example, the content of one defensive driving program (Canada Safety Council) was comprised of eight modules: Six categories of driving conditions; Driver attitude; Intersections; Passing; Other road users; Winter driving; Fuel Efficiency; Aggressive driving. Certified programs developed in the U.S.A. (National Safety Council Driving Programs, 2003) include four, six, eight and ten-hour defensive driving courses entitled “Attitudinal Dynamics of Driving”. The course content of a five to six hour Massachusetts program (Governor’s Highway Safety Bureau, 2002) for example included presenters from, and visits to, Emergency Medical Care Centers, Intensive Care Services, Morgues, Substance Abuse & Rehabilitation Centers, and discussions and inter-

actions with Neuropsychologists, Trauma Victims and Therapists. A Traffic Offender's program in Australia (Symes, 2003) requires participants to attend 8 two-hour Thursday evening sessions and employs presenters from the following organizations: Ambulance Service; Drug & Alcohol Awareness; Insurance Industry; NSW Police; Motor Maintenance; Spinal Injury Prevention; Roads & Traffic Authority; Legal System. Another program aimed at adolescent health and safety includes a component entitled "Unintentional Injuries" (Hatcher & Scarpe, n.d.) and offers presentations on: Preventing risky behaviours (such as substance use and reckless driving); Promoting safety habits (such as the use of seatbelts); Addressing aggression; Instilling in adolescents a realistic sense of their ability to drive after drinking as well as the believe that drinking after driving is dangerous and undesirable (p. 1).

Missouri's THINK FIRST "Traffic Offenders Program" (<http://www.muhealth.org/~thinkfirst>) is an example of a course that participants are mandated to attend. This day-long program, conducted monthly for a dozen or so young driving offenders, focusses on informing them about the consequences of unsafe driving, and on providing them with a graphic and realistic view of life as a crash survivor. Beginning with a tour of a hospital's trauma center, the program's content includes interviews with traffic-crash patients and their medical personnel, followed by a slide presentation of a crash-victim's autopsy, and then afternoon talks and discussions with a police officer and a Highway Patrol representative. Similarly, in Houston's Harris County, Texas, Sugar Land City's half-day mandatory "2002 Program" for driving-offense teenagers includes a visit to the morgue, a graphic traffic fatality slideshow, and instruction regarding the "dangers of handling an automobile, hazardous driving

conditions, exceeding posted speed limits and the dangers of alcohol and drugs in combination with driving” (<http://www.ci.sugar-land/Content>).

Whether intended only for drivers with drinking offenses or not, this literature review discovered that nearly all retraining and remedial programs included a dealing-with-alcohol component, based on a number of findings reporting that the majority of offenses committed by young adults are alcohol related. In Florida, the *Driver Training Associates* developed a “Traffic Violator School Course” of 16 Units, 15 dealing with requisite driver knowledge and understanding (such as defensive driving skills, safety equipment, traffic laws, intersection interactions, passing, the demands of driving, traffic signs/signals/controls, and the like), with a later unit addressed to “Alcohol and Other Drugs” (<http://www.drivertrainingassociates.com/TVS200>). In Minnesota, the National Safety Council has developed a 4½ hour course (tuition costing \$65) aimed at reducing “traffic accidents, fatalities and general violations” (<http://www.mnsafetycouncil.org/>). Among its 11 components, this course includes such topics as preventable collisions, common driving errors, how alcohol and drugs affect driving, and statistics on drinking and driving. In New York State, the “Drinking Driver Program” (Preusser et al., 1976), a seven Thursday-evenings program (at a cost of \$175) focusses on alcohol and drug abuse problems, offering a conditional driver’s license during the course and a full driver’s license upon course completion. In the state of Vermont, a Driving Education Program (CRASH school) is offered to persons whose licenses have been suspended and includes both a driver education component and a treatment program which is mandatory for second-time offenders.

Maryland has developed a number of “Driver Alcohol Education” programs for first-time offenders and second-time offenders, offering these programs as alternatives to a judge’s “guilty” sentence and then possible incarceration (<http://www.baycove.org/Outside/catalog/Substance-Abuse/DUI.pdf>). Course content includes individual assessment, 16 Educational /Motivational driver-responsibility sessions of one hour each, three one-hour mandatory self-help group sessions, and a half-hour discharge evaluation. The state of Virginia has developed a number of driver-education programs (<http://www.vasap.state.va.us/programs>) including “Ordered Driver Improvement”, a court-referred minor traffic violation program, a mandated “Points Driver Improvement” program for individuals who have accumulated over-many points, a “Driving Suspended” program, a “Reckless / Aggressive Driving Education” program aimed at non-alcohol related charges and convictions, a “Juvenile Driver Improvement” course for youths referred by a court for minor traffic violations, an “Aggressive Driver” class, and an “Ignition Interlock” mandatory program for second-time major driving offenders.

The state of Texas has developed a number of DWI Education Programs, three of which are: “Texas DWI Education Program”(<file:///c:/windows/TEMP/TTOAZ0JB.htm>), a 12-hour mandated, \$80 program for first-time offenders that centers on driving laws, driving abilities, and the effects of alcohol on the body when driving; “DWI Education”, a court-referred program consisting of three 4-hour sessions that utilizes film, lecture and group therapy (costing \$45); and a 12-hour “Basic DWI Education Program” involving three 4-hour Wednesday to Friday evening sessions (\$60) — all that address a variety of topics such as Alcohol/Drug Traffic Safety, Texas Driver’s Laws, and the Physiological and Psychological

## Effects of Alcohol and Drugs on Human Motivation and Driver Skills.

The US National Commission Against Drunk Driving (NCADD, n.d.) conducted a 14-week substance abuse program in North Carolina that incorporated alcohol safety education and alcohol abuse treatment (<http://www.ncadd.com/tsra/abstracts/002.html>). The goal of the program was to promote attitudinal and behavioural change in DWI offenders in terms of both accepting responsibility for their drinking and driving and of becoming aware of their alcohol problem. The reviewer, however, concluded by saying only that, upon course completion, “offenders showed a greater willingness to accept personal responsibility” (p. 1). Meanwhile, an innovative NCADD program (<http://www.ncadd.com/tsra/abstracts/036.html>), consisting of 20 once-a-week group sessions was premised on the assumption that if people learn active social skills to deal with life, taking responsibility for their behaviours including feelings and thoughts, then it isn’t necessary to tackle specific problems, such as DWI and alcoholism, which are passive ways of handling life’s tasks. The report concludes that “the authors report a recidivism rate of less than 1%, but don’t explain how the evaluation was conducted” (p. 2). At the same time, in California, two studies of the state’s 5-hour Traffic Violator Schools program (<http://www.dmv.ca.gov/about/profile/rd/resnotes/tvs.htm>) concluded that “TVS had only a small effect in improving the knowledge level of attendees. Though gain in knowledge was statistically significant, the gain was small . . . [and] the level of knowledge retention 6-12 months after class was even smaller” (p. 1). The report added that the knowledge gain was “associated” with fewer subsequent traffic citations but that the relationship was small.

The National Driver Improvement Scheme (NDIS) in the United Kingdom and driver

therapy courses in West Germany are examples of similar courses offered elsewhere. The NDIS program, a driver rectification strategy offered as an alternative to court prosecution for minor offences, has developed a one and a half day course, offering it as a National Model to police districts throughout the U.K (Burgess & Webley, 1999, p.3). The first morning, spent in a classroom, “is divided into a number of sections, each of which tackles specific driving issues.” For example, participants’ beliefs regarding the causes of traffic collisions are elicited, discussed and disputed; and evidence from empirical studies into the causes of traffic violations is examined. Then small groups (3-5 individuals) are formed: to explore social issues that contribute to unsafe driving practices, from peer pressure to the influence of corporate culture; to discuss a commonly seen traffic collision and draw relevant group conclusions; to check out viewpoints regarding voluntary and calculated risk-taking, hazard perception and risk control, stress and time management in driving, and the effects of fatigue. In the afternoon and the following morning, qualified driving instructors take groups of three participants out on a series of practical driving exercises aimed at highlighting and eliminating any dangerous or inappropriate participant driving style elements, based on feedback from the instructor and the other two passengers in the car. Both sections of the program employ an ongoing interactive approach.

In West Germany during the 1980s, two types of educational driver therapy courses were developed for “drink/drive offenders”: one designed for first-time offenders, and the other for recidivists — but both courses specifically targetted at social drinkers. First-offender courses of three 4-hour sessions included role playing, “. . . rehearsing participants in high risk

situations and teaching them defence mechanisms by which they can deal with social situations where drink is offered” (Schneider, Vol. 27. No. 1). The course content for recurrent drink/drive offenders was comprised of units on Group Dynamics, Behaviour Modification by Reinforcement, and “Style of Live Analysis” based on the theories of Adler, and aimed to teach social drinkers “to separate drinking from driving” (p. 57).

Many of the reports and articles claim that driver-training programs reduce further traffic violations and that they are successful in reducing participant recidivism rates. One such review from New York State (<http://www.nysp.com/Proof.htm>), downloaded by LCES, cited a reduction as high as 65% in terms of later traffic violations. The findings upon which these particular claims were based, however, are not specified, and it may well be that rigorous assessments were either not published or perhaps not conducted. At any rate, there is no evidence readily available that these programs have been the subject of evaluative research studies, for no research could be located that described their referred-to findings.

### ***Research Studies and Reviews of Research***

Twenty-six research studies and seven relevant reviews of the literature were identified through ERIC searches and through the reference-lists in studies published in scholarly journals and periodicals. Only two of the studies did not specifically deal with alcohol-related offenses (Governor’s Highway Safety Bureau, 2002; National Safety Council Driving Programs, 2003).

### ***Research Studies***

An examination of the 26 studies located revealed that the interventions in only four of the studies appear to have been postulated on “change theory,” with three of these only briefly referring to the theory upon which they were founded. Furthermore, not one of the 26 studies was able to use an experimental design, but 16 employed a quasi-experimental design — typical of educational studies where experimental approaches using random sampling methods were either not possible, or were impractical or undesirable — and 10 utilized the weaker one-group pretest-posttest design, a pre-experimental design where results may be difficult to interpret. Assessment in most of the studies (16) consisted of evaluating driver behaviour after education, usually looking for rates or recidivism. In terms of the three driver measures of knowledge, attitude, and behaviour, one study assessed only knowledge gains, two assessed attitude change, three assessed both knowledge and attitude, one assessed attitude and behaviour change, while three studies assessed all three outcomes. It is interesting to note that in these studies frequently only an opinion survey was utilized to assess treatment effects. Moreover, long-term assessment was a feature in only nine of the 26 studies. In three studies, the assessment was conducted one year after the completion of the intervention or treatment program, in five studies the assessment was conducted after a two-year period, and in one study assessment data were collected at the end of three years. Of the 26 studies, 19 yielded positive results according to their authors’ analysis, whereas in four studies, program effects were either somewhat or mostly positive, while in three studies no effects were evident due to treatment. Replication depends upon a clear description of the treatment program; however, only eight of the 26 studies provided good descriptions of their programs, and an additional

seven offered only adequate descriptions. In the remaining 10 studies, the programs were either poorly described or not described at all. In 19 of the studies, education was the only treatment, while in five studies education was part of a larger treatment program. The 26 studies are described below, arranged according to outcomes assessed.

*Studies assessing participant behaviour.* The ultimate objective in implementing driver retraining, remediation, and rehabilitation programs and courses is to change driving-offender behaviours. Of the 26 research studies acquired through the literature search, 17 were conducted to assess participants' post-treatment behaviour. An early study from New Zealand (Hill & Jamieson, 1978) compared 275 accident-involved drivers required by court order to attend a Defensive Driving Course (DDC, 2003) with 275 drivers who also had accident-involved court appearances but did not attend DDC. The experimental group attended eight one-hour DDC sessions covering the following topics: (a) determining accident preventability, (b) avoiding collision with the vehicle ahead, (c) avoiding collision with the vehicle behind, (d) avoiding collision with an oncoming vehicle, (e) avoiding an intersection collision, (f) passing and being passed, (g) the mystery crash, (h) avoiding other common types of collision. The study found that the DDC participants showed greater reduction in serious and accident-promoting driver convictions, but no significantly greater reduction in accidents than the control group, although the authors concluded that "there is some suggestion from the results . . . that the DDC treatment may have been effective in terms of attitudinal intervention" (p.127). An Australian study (Foon, 1987) aimed at changing attitudes toward drinking and driving, rather than trying to directly alter the drinking behaviour of participants

(whose mean age was 30 years), compared 236 people who completed the drink-driver education course (length unspecified) with 145 who failed to complete and concluded that “the completion of the course was associated with a greater decrease in the number of total offences and traffic-related violations,” though “no differences were obtained between the groups in terms of drink-driving re-arrest rates” (p.191).

Fourteen of the studies evaluating participant behaviour were from the U.S.A. They ranged from treatments focussed on “Moral Reconciliation Therapy” through “Rehabilitation Sanctions” to “DUI Offender Characteristics and Traditional Intervention Modalities,” though all but Finigan, 1995, discussed in the next paragraph, and the “Defensive Driving Courses” (DDC, 2003) developed by the National Safety Council in the U.S.A. were aimed at training or rehabilitating drinking drivers. The DDC study, done in Massachusetts for six and eight hour programs for problem drivers, focussed on the “Attitudinal Dynamics of Driving”. Comparing the incidence of traffic violations of participants the year before taking the program to the year following the program, researchers found: a 77% reduction in collisions, a 70% reduction in major violations, and a 78% reduction in minor violations. On the other hand, less striking results were elicited in the Little and Robinson (1989) “Treating Drunk Drivers with Moral Reconciliation Therapy” study which was designed “to raise clients’ levels of moral reasoning while enhancing ego, social, and positive behavioral growth” (p.961). The re-arrest rate was 20% for the treated group as compared to 28% for the control group, the study tentatively concluding after a 6-month follow-up that “trends are apparent” (though only approaching statistical significance) for this therapy treatment group in terms of effectively “reducing the

post-release recidivism rate for clients who have been convicted of DWI” (p. 962). A follow-up on this study (Little, Robinson & Burnette, 1990) nearly two years later revealed that 10.4% of the treatment group experienced additional DWI arrests compared to 15.6% of the control group, and concluded that “antisocial behaviors and inability or unwillingness to act in accordance with accepted societal standards of conduct are mediated, at least significantly, by low levels of moral reasoning” (p. 1387).

A quasi-experimental study of a Traffic Violator School (TVS) program in California involving over 35,000 drivers (Finigan, 1995), using randomly assigned treatment and control groups, found that a Level I eight-hour course for driver offenders resulted in 12% fewer accidents and convictions over a 6-month period than for the control group, and that a Level II, 12-hour advanced course for more frequent offenders resulted in a 16% reduction in subsequent accidents over the no-treatment control group six months after completion and, even after two years, a decrease of 9%. Earlier in Iowa, a 3 hours one-day-a week-for-4 weeks course for “second” reckless driving convictions required offenders to take a Drinking Drivers Course (Tigges, 1978). Follow-up evaluations found “that recidivism rates for persons taking the DDC course were lower for 1 year after conviction than the rates for persons not taking the course”(p. 431). When, however, the researcher examined rates for two years after conviction, the results were inconclusive, leading Tigges to conclude that there was “no evidence that the course has any lasting effect on the recidivism rate”(p. 431).

The nine remaining U.S. studies evaluated programs designed to retrain or rehabilitate drinking and alcohol-involved drivers. The state of Massachusetts, concluding that multiple

offenders were at high risk for continued drunken driving, mandated that individuals convicted of a second drunken driving offense either be committed for a minimum of 7 days in a house of correction or enter a 14-day residential alcoholism treatment program for second offenders. A 2-year follow-up study by McCartey and Argeriou (1988) compared the DUI rearrest rates of the 199 treatment program participants with the rates of the 190 individuals who had selected incarceration and found that “almost 20% of the house of correction sample were rearrested compared with 10% of the 14-day group” (p. 5). Owing to the self-choice factor between treatment or incarceration conditions, however, the follow-up study was only able to conclude that “mandated short-term residential treatment may provide an effective intervention among repeat offender drunken drivers” (p. 1).

Several studies similar to the above evaluated the effectiveness of treatment programs for alcohol-involved drivers. These studies drew slightly differing conclusions, finding instead that treatment groups generally “tend” to experience somewhat lower re-arrest and recidivism rates. The Alcohol Safety Action Program (ASAP), conducting treatment and rehabilitation services in a number of US states for DWI clients, found over a 1-year period that “DWI groups are generally better off than the Non-ASAP group” (Rosenberg et al., 1976, p. 15), adding the observation that “behavioral impairment caused by drinking decreased, and self-esteem improved . . . [albeit] treatment outcome was more successful with clients showing less involvement with alcohol” (p. 11). Meanwhile in California, the court-referred Don’t-Drink-and-Drive Program (3-D) compared the 1-year driving records of 876 3-D graduates with the records of 802 drivers who were exposed only to the usual court procedures of probations and

finer. It was found that this 3-day “classroom and behind-the-wheel” curriculum resulted in the “no-treatment” group having “78% more alcohol-related violations, 23% more moving violations, 40% more suspensions of license, and 34% more accidents than the 3-D graduates” (McGuire, 1978, p. 517), and concluded by remarking that “these results are consistent with the theory that the 3-D treatment program works” (p. 524). As well, Anson’s 1987 study of Georgia’s “Criminal Alcoholic Program” involved a 3-year longitudinal study of 71 criminal offenders who were required to take 12 two-hour classes in a “judicial diversion” probation program for alcohol offenders. Offender histories were compared two years before and after program completion and the finding was that “statistically significant reductions in criminal behavior were observed between pre and posttesting periods. The most significant reductions in criminal behavior were for traffic and alcohol-related offenses” (p. 271).

On the other hand, three studies found that treatment for “drink drivers” produced no statistically significant effect. In New York’s Nassau County, a driver rehabilitation program for convicted DWI offenders assessed 2,805 drivers who had been invited to the program and 2,660 who had not been invited. The program was comprised of 11 group meetings consisting of discussions of individual driving problems and the presentation of 11 driving “didactic topics” (Preusser et al., 1976). The results, collected over a period of two years, indicated that “at least on an overall basis . . . the program did not achieve its objective of reducing the number of repeat convictions for a drinking driving offense among the invited drivers” (p. 101), though a mitigating factor here was that “the invited group had more drivers involved in reported motor vehicle accidents than the noninvited group” (p. 98). In a California study,

Werch and Damron (1985) compared two experimental conditions into which 14 self-referred drink driving convicted individuals were randomly assigned: Conventional Alcohol Education, and Behavioural Self-Control Training — both programs consisting of four two-and-one-half hour small group sessions held over a five week period. Examining such variables as alcohol consumption, drinking-driving episodes, and blood alcohol concentration during drinking-driving episodes, the study found no significant differences between the two programs. This finding suggested that a controlled drinking goal may not be feasible for all drinking-driving populations. In Tennessee, in the “Rehabilitative Sanctions For Drunk Driving” project, 4126 DWI offenders were classified as either social or problem drinkers and were randomly assigned to one of the four following treatments: (1) control, (2) probation supervision, (3) education/therapy, or (4) supervision plus education/therapy, and each client was followed for at least two years after referral (Holden, 1983). The author of this study concluded that “treatment programs were not effective in reducing rearrests for DWI, or for other misdemeanors and felonies” (p. 55), although when two-year re-arrest rates were computed, the rate for social drinkers was found to be lower than that for problem drinkers.

Two Mississippi studies into the long-term effects of DUI treatment were conducted in the 1980s. Hundreds of driving offenders were randomly assigned to one of the following options: (1) a year’s monthly probation, (2) a short-term intervention, (3) a combination of probation and short-term intervention, (4) a control condition. Six to nine years after project entry, a DUI “Probation Follow-up” (Wells-Parker et al., 1988) revealed that “a small but statistically significant effect of probation for reducing long-term recidivism was found for

offenders classified both as low-risk and high-risk drinkers” (p. 415), while a positive interaction effect for probation and short-term intervention, evident after a two-year follow-up, was “not significant after the longer tracking period,” although it was observed that “at least some intervention effects are sustained over time” (p. 420). Attempting to increase the effectiveness of remedial programs with DUI offenders, one year later Elisabeth Wells-Parker led another long-term recidivism follow-up, examining interactions among DUI offender characteristics and traditional intervention modalities (Wells-Parker et al., 1989). She found that “short-term rehabilitation was modestly effective for those with less than 12 years of education, but less effective or detrimental for the more highly educated” (p. 381). She concluded, nonetheless, that “it is unlikely that any single intervention strategy will be consistently effective across diverse groups of offenders. Specific interventions will only be effective for specific types of offenders, and the same intervention strategy . . . will have very different overall effects when evaluated within demographically diverse samples” (p. 388). In this regard, it was observed that one year probation was more effective with “young offenders, particularly less-educated (predominantly Black) Minority offenders, and . . . better educated older (55+ years) offenders” (p. 389), whereas short-term rehabilitation was deemed more effective for offenders with less than 12 years education.

*Studies assessing participant knowledge, attitude, and behaviour.* A number of studies were located that assessed the effect that driver education programs had on improving knowledge, attitude and “course-subsequent” behaviour of participants. In Massachusetts, a study of the state’s “‘Teens at Risk’ Intervention/Prevention Program” (Governor’s Highway

Safety Bureau, 2002) found that when 406 surveys were tabulated 30% of the students in the pre-survey stated they would wear their seatbelts, whereas in the post-survey 70% said they would. In an ancillary study, of 89 “Teens at Risk” participants over a 1½ year period only seven (8%) were found to have re-offended. Key elements in the program included adult mentoring, good role modeling, and the “social normalizing” of positive behaviours (p. 2), with one teenage participant writing, “This program changed the way I think of my life by showing me that choices have consequences”, and another saying, “. . . do your best to control what you can -- example: wear seat belts, or don’t drive under the influence.”

In a New Zealand study (Anderson & Merrick, 1980), 290 alcohol-convicted drivers were ordered to attend the Dunedin Course for Impaired Drivers (DCID) and 281 drivers were used as a non-treatment control group. The course incorporated lectures, films, questionnaires, group discussions and individual exit interviews in a series seven day-long classes. In terms of knowledge, course-completion assessments revealed that DCID participants “demonstrated a statistically significant increase in knowledge about drinking and driving” (p. 137). In terms of attitude, rating scales showed that most of the participants had come to the course “believing they were to blame for their offense, that the conviction was fair, that they were unlikely to be apprehended again, and that the course would be valuable” (p. 137). Assessment of behaviour, however, was hindered by the Dunedin study’s inability to identify subsequent convictions of drivers on a national basis, although “11 drivers from the DCID group and three from the contrast group are known to have had reconvictions for blood alcohol offences” (p.138). The differences between the DCID and contrast groups with respect to

recidivism was statistically significant. This study suggested that although improvement in knowledge and attitude may be statistically evident, change in behaviour may not be. The authors concluded that “the assumption that the convicted driver can be encouraged to desist from driving after drinking excessively by providing information and the opportunity to consider the implications of behaviour . . . may be incorrect” (p. 140).

In Contra Costa County, California, an 18-hour educational program for juveniles found guilty of DUI was conducted for six hours on three consecutive Saturdays. Of 600 juveniles so convicted, over 100 participated in the program. The curriculum, designed to provide informational, attitudinal and behavioural components, offered information on driving laws and consequences, alternatives to replace DUI, and general life skills, as well as specific skills to resist peer pressures. “All four components of the educational intervention were designed to produce an internalized norm of driving sober and . . . the attitudinal and behavioral components supporting such a norm”, (Kooler & Bruvold, 1992. p. 89). The findings revealed that “class participants had a significantly lower number of repeat offenses, compared to non-program participants, that could not be explained by race, offense severity, age or gender” (p. 87). The researchers concluded that “knowledge change alone is not enough, [because] attitude change is also required,” and that “educational programs focussed on adolescents will . . . be effective in modifying behavior only if fundamental attitude change occurs as a result of intervention” (p. 98).

Australia’s “Three Year Outcome Evaluation Of A Theory Based Drink Driving Education Program” (Sheehan et al., 1996) was taught to grade ten high school students, its

goal being to reduce the incidence of drink driving by young people. In randomly assigned control and intervention schools, 1,774 students were involved in the study and were followed up three years later. The program was comprised of 12 one-hour lessons using strategies based on planned behaviour. The theory of reasoned action (Ajzen & Fishbein, 1980) is premised on the assumptions that most actions of social relevance, including driving, are under volitional control and that a person's intention to either perform or not perform a behaviour is the immediate determinant of action. The constructs of this theory being motivational "led to a series of formative decisions for the educational program. The aim of the lessons was to enable students to establish intentions to use safe alternative behaviors rather than drink drive or be a passenger of a drink driver" (Sheehan et al., 1996, p. 299). The study found that "there was a trend toward reduced drink driving in the intervention group and a significant reduction in passenger behaviour in this group. Readiness to use alternatives suggested that the major impact of the program was on students who were experimenting with the behavior at the time the program was taught" (p. 295). The authors of this study concluded that "the program changed students' attitudes and intentions at the time it was taught . . . [and] at this three year follow-up, it had changed students' passenger behavior, moderated drink driving, and strengthened their use of alternatives" (p. 309).

*Studies designed to modify drinking behaviour.* Six studies were specifically prepared for persons convicted of alcohol-related offenses. Assessment in these programs was designed to measure the efficacy of programs for modifying the drinking behaviour of persons who, for the most part, had been convicted of driving under the influence (DUI). Papandreou

and his colleagues (1985) examined such a program in Western Australia that was aimed at providing information to people “who, through unwise use of alcohol, are experiencing or have experienced problems” in terms of drink driving offenses, and offenses against property and persons — not unsurprisingly found that the 229 participants, referred by their local probation and parole service over a 2½ year period, experienced an overall group mean score increase in knowledge of almost 21% (p. 67). The course was comprised of five weekly sessions, each approximately 1½ hours duration, and included pre- and post-questionnaires and a film, and covered such topics as Alcohol, Law and Problem Drinking, Physical and Psycho-Social Effects of Alcohol, and Alternatives to Drinking. The researchers concluded that the program was “achieving its fundamental objective of developing participants’ awareness of alcohol and its effects” (p. 72), albeit that neither attitude nor behaviour modifications were features of this study. Another New Zealand study (Brown, 1979), focussed on drink-driver attitude change, assessed participants randomly assigned to one of two five-session courses, the first a traditional alcohol education course (films, talks, and discussion groups talking about responsible drinking), the second a controlled drinking educational course (practicing reduction in alcohol intake, drink strength and sip size, and including breathalyser feedback, modelling, and supervised practice). The conclusion that the controlled drinking course was “of greater personal relevance to participants than the traditional education course” (p. 579) was of little importance since attitudes and behaviours had not been evaluated.

A study in Alabama (Pipes & Walters, 1983) assessed attitude change of DUI offenders

following an eight-hour treatment (two group sessions twice a week for two weeks). The study was designed to investigate some of the explanations used by individuals in their attempt to understand their arrest for driving while intoxicated, while one of the goals of the actual training was “to weaken the belief that luck (i.e., a lack thereof) is the major reason for the arrest” (p.39). The four attributions focussed on were: Lack of Ability, Bad Luck, Personal Motivation, Task Difficulty. The pretest-posttest scoring found that the due-to-bad-luck attribution decreased by 25% while the motivation and task difficulty attributions increased by 12% and 19% respectively. The study concluded that “the increase in the attribution to motivation may suggest that participants were becoming more aware of how alcohol affects their attitudinal process” (p. 43), while the increase in task difficulty was seen as favorable with the driving offenders now perhaps less likely to tempt fate in terms of driving while intoxicated, “the difficulty of operating a motor vehicle [being] a constant and predictable fact” (p. 43).

Two studies assessed both knowledge and attitude amelioration. In Oshawa, Ontario, a course of nine weekly 2½ hour sessions that examined the effects of alcohol and drugs on driving ability, skills in coping with stress, defence mechanisms, role of the police, drinking-driving legislation, and the like, found that “positive results were observed for the knowledge measure” (Vingilis et al., 1980, p. 99). The 70-member treatment group “demonstrated a significant increase in scores on the posttest when compared to the pre-test, a finding not observed with the [61-member] probation-control group. This would suggest that the educational-treatment programme had a positive effect on knowledge about drinking and

drinking-driving” (p. 99). The pre- and posttesting of attitude also indicated a significant increase in results, but for both groups, “suggesting the passage of time, *not* the programme caused the positive changes” (p. 99). The second study (Malfetti & Simon, 1974), addressing “drunken driver” knowledge and attitude amelioration, involved 332 people in New York state who were convicted of a DWI offense and court-recommended to attend five weekly evening 2 1/2 hour sessions. Study results revealed “that knowledge scores improved significantly for all classes combined, from a pretest mean score of 20.15 to a posttest mean score of 26.45 [40 items] . . . . Attitude scores also improved significantly for all classes combined” ( p. 55).

Finally, a study (Strachan, 1973) that assessed both attitude and behaviour, examined the Alberta impaired drivers’ course, consisting of four two-hour “lectures” held in a Traffic Court. The primary purpose of the course was to “help all offending drivers achieve a better attitude toward driving behavior and a better understanding and attitude toward individual overuse or misuse of alcohol [while enabling] students to learn to modify, correct and control their own driving and drinking behavior” (p. 36). For the 20 courses, involving over 800 participants, the results “while only trends” suggested that attitudes were improved, greater appreciation of the problems faced by authorities was achieved, a recognition of the tragic costs and implications of impaired driving resulted, and there was a slight “reduction of impaired repeaters between attendees to the course and those who did not participate” (p. 42).

### ***Reviews of Research***

The seven reviews of research considered here were located by ERIC searches and by scrutinizing the reference lists in the various studies described above. Six of the seven reviews

were traditional narrative in style, while the remaining review was an extensive meta-analysis involving over 200 studies. Although the population of concern in six of the seven reviews tended to be persons convicted of alcohol-related offenses —Molloy & Develin (2003) being the exception — the foci of the reviews varied, ranging from descriptions of programs offered to driving offenders to an examination of particular strategies utilized in these programs.

Kunkel (1983) examined DWI programs in Europe, the United States and Canada and found that there was a need for a clearer definition of the aims of such programs and that a fundamental prerequisite was to ensure that all parts of each course were consistent with these aims, including the attitude and training of their various leaders. Three salient conclusions were drawn:

(1) If arrest rate is the criterion of course effectiveness, the evaluation design must take into account the low probability of arrest. (2) If important data in an evaluation study are gathered from self reports, the validity of these data must be investigated. (3) The report about evaluation results must include an exact description of the psychological aim of the course program. (p. 437)

A wide-ranging review by Mann et al. (1983), probing the effectiveness of drinking-driving rehabilitation programs, surveyed 29 DUI studies (14 experimental studies and 15 quasi-experimental studies) from around the world, and concluded that there was a critical need for researchers to “employ rigorous designs which will permit identification of effective programmes and programme components, and of individuals who will receive the most benefit” (p. 458). Mann and his colleagues also remarked on the documented necessity for improved implementation and evaluation procedures.

Recidivism was investigated in reviews reported by Schneider (1987), Nichols et al.

(1978), and Hagen (1985). Schneider's 1987 review examined a number of studies of drink/driver improvement programs in West Germany and found such programs to be more effective with first offenders than with redivists, a fact "probably explained by an underlying alcohol problem for which these short term improvement courses offer no remedy" (p. 59). The review by Nichols et al. (1978) of U.S. rehabilitation, school, and non-school therapy programs for DWI offenders examined for the deterrent effect as opposed to a crash reduction effect. Research reports of 35 programs were reviewed to see if reductions in drunk driving arrests had occurred. According to Nichols:

The results indicated a small positive effect for social drinkers but none for problem drinkers. Schools of all types appeared to have an effect in deterring social drinkers. Some small group-participation schools may have a slight positive effect on problem drinkers, but lecture classes have no effect or negative effect. Group therapy programs also had little effect on problem drinkers (p. 177).

Hagen's (1985) review of studies in California evaluated "sanctions" for drinking driver offenders and found that the use of educational and rehabilitation sanctions does have at least a marginally positive impact on DUI recidivism, leading him to conclude that these two sanctions were "probably better than doing nothing at all" (p. 181). Then, as a final recommendation, Hagen suggested that "any new program development effort should include at least a quasi-experimental analysis of its impact on traffic safety" (p. 182).

The Molloy & Develin (2003) review identified a number of major risk factors related to young male drivers and road accidents. Such factors included: Speeding; Socio-Cultural Background; Rural/Remote Area; Alcohol; Stress & Aggression; Driving Experience Skill and Age; Carrying Passengers; and Lack of Seat Belt Wearing (pp. 3-6). The review then

examined interventions attempted over the past 15 or so years under such headings as “Driver Education versus Driver Training Programs,” “Programs Targeting High Risk Groups,” “Media Campaigns,” “Incentive Schemes,” “Peer Support Programs,” “Stigmatization,” “the Role of Family and Friends,” “Decreasing Exposure to Hazards,” and “Strategies to correct misconceptions of skill” (pp. 6-10). This Australian review noted that a significant influence on risk taking with young male drivers was the degree of social acceptance or rejection of the behaviour, principally among peers, with a variety of reasons for such risk taking including: to show-off to friends, to combat boredom, for the adrenalin rush and, to seek attention (p. 3).

Finally, an exhaustive meta-analysis of 215 studies of the results of remedial programs for “drink/drive offenders” was conducted by Wells-Parker and her colleagues (1995). They found that among those studies employing “adequate” research methods, “the average effect of remediation on drinking-driving recidivism was an 8-9% reduction over no remediation” (p. 907). As well, the review suggested that a combination of intervention modalities, “. . . in particular, those including education, psychotherapy/counseling and follow-up contact/probation — were more effective than other evaluated modes for reducing drinking/driving recidivism” (p. 907). Wells-Parker noted that combined-modality interventions tended to involve more hours than single ones and that “treatments involving only education averaged 10 hours (SD=5); combinations averaged 36 hours (SD=24)” (p. 918). Additionally, it was observed that “intervention, primarily education, tended to produce ‘favorable’ gains in knowledge and attitude toward DUI behaviors, but no pattern was shown in behavioral intentions” (p. 922), although studies with adequate methodology and calculable effect sizes

were few and frequently only small samples were involved.

## **Discussion**

### ***Educational Programs***

The reports and articles describing the 16 educational programs were examined for intended participants, for specific and overall objectives, for content and teaching strategies, and for length of time. As might be expected, the programs had been prepared for persons convicted of driving offenses and, in at least four programs, for first and second time offenders. The population of concern in three programs was young (teenage) offenders and, in another three programs, persons convicted of alcohol or drug-related driving offenses. Two programs had been developed specifically for persons who had committed minor traffic violations and, in one instance, the program was offered to individuals who had accumulated a certain number of minor driving infractions.

Either stated or implied, the primary objective of each of the 16 programs was to modify deviant driver behaviour, aiming to reduce recidivism among persons convicted of driving violations. Other objectives included the development of the attitudes and skills required to refuse alcohol in social situations, and the acknowledgment of a willingness to accept personal responsibility for one's behaviour. As has been mentioned earlier in this literature review, the majority of programs located were addressed to alcohol-related traffic violators, although most programs incorporated non-alcohol-related components, with a number, as previously described, focussed on young offenders.

Driver education — consisting for the most part of safe-driving techniques, defensive

driving skills, common driving errors, violations of traffic laws, and the consequences of unsafe driving — comprised major content in at least 12 of the 16 programs. In seven of the programs, instruction in the dangers of alcohol and drug use was an integral part of the program. Other components of several of the programs also included a consideration of such topics as what it would be like to be a seriously injured crash survivor, the effects of peer pressure on deviant driver behaviours, and how to manage stress and time pressures while driving. Teaching strategies used to present the content utilized *role-play* (e.g., being a participant in a high-risk driving situation), *behaviour modification* designed to reduce risky and illegal driving, graphic and realistic *slide* and *video presentations* of accident scenes and victims, *field trips* (in one program, a visit to a morgue) and *interviews* (with, for example, crash survivors and hospital trauma staff) and, as well, actually engaging in *driving practice*. In at least three cases, self-help *group therapy* classes were used as a means for aiding convicted drivers to modify their driving behaviours. One U.S. program aimed at young adult offenders even included, as a component, an experts-recommended list of “do’s and don’ts when trying to reach young adults” (NCADD, p. 3), and concluded by suggesting the creation and marketing to employers of an anti-drinking driving informational “campaign kit” (p. 4).

The length of the specific programs located for this literature review, where actual times were mentioned or could be determined, varied from 4 hours to 20 hours, with the median being 12 hours. In some cases, where the number of hours was not given, program length was variously described as being one day, seven evenings, 14 weeks, and 20 once-a-week sessions. For four programs, the length of time was simply not available.

The programs described in the reports available for this review were usually presented without rationales or any reference to the theories that underlay their development, although it is quite possible that these are considered in other documents. Additionally, we could find no evidence that any of the programs had been the subject of a research study. That aside, the numerous descriptions of programs, discovered for the most part by Internet searches, provide evidence of the wide acceptance of such programs as vehicles for reducing recidivism rates among both young drivers and adults convicted of driving offenses. Clearly, then, the large number of such programs indicates a widely-held belief that these programs can be effective and are necessary and useful instruments for ameliorating problems associated with repeat driving offenses.

### ***Research Studies and Reviews of Research***

#### ***Research Studies***

Reports of a number of the studies we examined attempted to determine the attributes of drivers, particularly youthful drivers, who had been convicted of driving offenses or whose driving practices were likely to result in driving violations. In general, these drivers were characterized as being aggressive and rebellious individuals, lacking concern for conformity but with a need to exercise power and control. Additionally, with young at-risk drivers in particular, a willingness to respond to peer pressures and a tendency to thrill-seeking were proposed as factors that influence deviant driving practices. The authors of several of these reports suggested that these characteristics may be highly resistant to change, making programs intended to modify behaviour by means of driver-skills retraining or even persuasive

arguments about the dangers and consequences of alcohol-impaired driving, risk-taking, or even simply speeding, of questionable value.

Nevertheless, researchers in 14 of the 18 studies that examined the effects of educational programs on driving violations, convictions for driving offenses, and accident or recidivist rates reported at least some degree of program success, with one study of teenagers finding improved seat-belt wearing behaviour and a reduction in re-offender rates (Governors Highway Safety Bureau, 2003). Such conclusions were customarily determined either by a percentage difference between program and non-program groups on the particular variable being assessed, or a statistically significant difference in offender or recidivist rates that favoured program groups, or by a pre-program post-program difference when a comparison group was not utilized. The educational or practical implications of the findings in studies where only statistical significance was reported — or, as in the case of five studies, where terms such as “greater,” “lower,” “better off” and “positive trends” were used to describe program effects — is difficult to determine since effect sizes could not be calculated from the information provided in the reports. Moreover, we noted that in at least two studies, positive program effects were not maintained over a period of several years, implying that in these studies the effects were, at best, only short-term modifications.

Thirteen of the 16 studies that appeared to have produced positive findings had been conducted with subjects convicted of drunk-driving offenses. Subjects in the remaining three studies were described simply as “accident involved drivers” and “driving offenders,” although the latter group included persons charged with alcohol-related offenses. It is not

surprising, then, to note that the interventions in many of the studies were designed to reduce alcoholism and were patterned after what seems to have been traditional alcohol rehabilitation treatment programs. In several studies, these programs had also included instruction in moral reasoning, and in at least six studies, instruction in traffic violations, safe-driving techniques, accident-avoidance strategies, and the consequences of being charged with a driving offense formed part of the treatment. In one study, “general life skills” and the “skills to resist peer pressure” were significant components of the program. Where actual program length could be determined or were mentioned in the studies, it was found that treatments varied from 8 to 24 hours. Other studies described the length of treatment as being three days, seven days, and 14 days (for a residential drug-rehabilitation program).

Quite obviously, the treatments in all of the 16 studies would likely have contained a knowledge or information component; however, in only three studies was knowledge (e.g., traffic laws, dangers of driving under the influence of alcohol or drugs, defensive driving techniques, etc.) a dependent variable included in the assessment. In these cases, pretest-posttest knowledge gains for the experimental or treatment groups were, in terms of statistical significance, greater than the pretest-posttest differences for the control groups on this variable. Moreover, that the primary objective in each of the 16 studies was the reduction of driving offenses among convicted drivers implies that attitude change was also expected to result from the intervention programs. However, it appears that attitude was a dependent variable in only one study. In this study, “trends” in subjects’ attitudes toward driving in a responsible manner and toward acceptance of their need to control their use of alcohol were

perceived by the researchers to be the result of an impaired drivers' course. In another study, improvement in self-esteem, an attitudinal attribute, was an outcome of the treatment program.

Although the subjects in another five studies had been convicted of alcohol-related driving offenses, recidivism rates, for whatever reason, were not included in the assessments. In a sixth study, the researchers had planned to measure the effects of the treatment program on recidivism but the data were simply not available to do so. For the most part, the treatments in the six studies resembled those described for the studies that have been discussed above. Program length varied from 7½ hours to 22½ hours, with a mean time of 10¾ hours.

Information about the deleterious relationship between drinking and driving was assessed as the knowledge variable in four of the studies. In each study, knowledge gains were found to favour the treatment group. Attitude, however defined, was assessed in four of these studies; while, in a fifth study, participants' preferences for a "traditional alcohol education program" over a "controlled drinking educational course" were examined. The findings in only two of the studies revealed that the treatments had a significantly positive effect on subjects' attitudes. In one, the treatment was found to reduce subjects' opinions that their arrests had been due entirely to "bad luck". In the second study yielding positive attitude gains, the actual factors assessed were unclear. In another study, the pretest-posttest gain on an instrument purported to measure the effect of the treatment on participant's attitude toward their convictions found results that were not statistically significant, perhaps due, as the authors suggested, to the fact that most subjects had entered the program already believing that they were responsible for their convictions and that their sentences were fair. In the

remaining study in which attitude was an independent variable, pretest-posttest gains on the attitude measure for the treatment group were matched by similar gains for the control group.

Only one study whose subjects were not convicted drivers was located by our literature search. After a treatment program of 12 one-hour lessons based on the theory of reasoned action, Grade 10 students were found to be less likely to drive while intoxicated, or ride in a car with a drinking driver, and were more likely to use alternative behaviours.

An important finding resulting from this literature review that has implications for developers of programs for at-risk drivers and particularly those drivers convicted of alcohol-related offenses is that programs may yield different results with different subject groups. For example, in two studies, treatments were found to be more successful with social rather than problem drinkers while, in another study, treatment effects were greater for the less well educated than for the more highly educated. It seems reasonable to conclude, therefore, that the particular characteristics of the participants for whom any program is intended should be an important consideration when developing programs in this area, and especially so when dealing with younger people with fewer driving skills and less driving experience.

### ***Reviews of Research***

Findings in the seven reviews provided further evidence of the possible effects of programs designed to reduce recidivism among convicted driving offenders, although one review (Molloy & Develin, 2003) made the point that “driver education programs have been shown to change awareness and knowledge levels in young people. It is however the changing of behaviour where education programs have been questioned in their ability to improve the

safety of young drivers” (p. 7). After examining a number of relevant reviews, the present authors concluded that such programs, overall, have been shown to reduce a participant’s tendency to re-offend. We noted, however, that these programs are more likely to be effective with first-time offenders and with social rather than with problem drinkers, a conclusion similar to the findings in several of the studies reviewed earlier. Recommendations in these studies have included: (a) the need for more carefully designed studies and evaluation procedures as a means of distinguishing program factors most directly related to reducing recidivism rates and of identifying those persons most likely to profit from such programs and, (b) the need for programs to be based on clearly defined goals, with each part of the program being consistent with these goals.

## **Summary and Conclusions**

### *Summary*

The reports and studies included in this review of the literature pertaining to retraining and remediation programs for at-risk drivers were obtained from Internet and ERIC searches and from the reference bibliographies listed in research studies, educational publications, and professional journals. For the most part, the Internet searches yielded reports of educational programs in numerous U.S. states and in several Canadian provinces as well as in other countries world-wide. Research studies were most frequently located through the use of ERIC searches and reference lists. As has been noted a number of times earlier, most of the material obtained for this review of the literature pertained to driver retraining and remediation engaged

in due to alcohol-related driver offenses, whereas in only in a few cases was remediation reported as having been engaged in because of purely non-alcohol related offenses.

The wide range of articles, studies, reviews and reports that we were able to obtain we have regrouped and then described with regard to: (a) the characteristics of at-risk drivers and driving offenders; (b) the various driver education programs developed for driving offenders and high-risk drivers — various in terms of their length, content, claims, and conclusions; (c) the research studies that assessed driver training and remediation measures such as knowledge, attitude, and behaviour — and, as well, summarizing these studies in terms of their design, assessment protocol, length of assessment, and results; (d) the seven reviews of driver remediation research (one an extensive meta-analysis of over 200 studies), with participants who tended to be alcohol-involved, but the foci of the reviews ranging from descriptions of programs offered to driving offenders to examinations of specific strategies and treatment approaches employed in these programs.

Finally, in the “Discussion” section of this literature review, we re-examined the Educational Programs, the Research Studies and the Reviews of Research, looking more exactly at their objectives, their teaching strategies, their program, course or study lengths, their findings, and their conclusions.

### *Conclusions*

After obtaining and examining over 70 studies, reports, papers, articles and reviews of projects undertaken world-wide to remediate high-risk drivers and driving offenders, what is first evident is that nearly all such educational initiatives have experienced “evaluated” effects

that can only be classified as from “moderate” to “limited”. Programs have ranged from half a day to five or more days, but a great many are one day to two days in length. A careful scrutiny indicates that the likelihood of efficacy diminishes when treatment times are shorter, especially in terms of changing attitude, but more certainly in terms of changing behaviour, although knowledge can be enhanced in only a matter of hours. In this regard it should be noted that studies of medium-term treatments have disclosed, after assessment, that knowledge scores are inclined to improve significantly, attitude scores less so but more than slightly, with even the behaviour measure, as in Strachan’s earlier Alberta study (1973, p. 42), experiencing a slight reduction of impaired driver repeat arrests — and the DDC (2003) study claiming that violation reductions, one year later, were in the 70 percent area! Relative to this, however, the ranging Australian Molloy & Develin (2003) young-drivers literature review observed that “information is more effective if backed up with additional community programs and support. There is no evidence that available programs of a short duration have any impact beyond changes in knowledge” (p. 7).

At least two common elements can be discerned in those programs that experienced moderate results. The more successful programs tended to be highly interactive regarding the degree of student participation. As well, such programs tended to employ a wider range of teaching strategies including role playing, driving practice, field trips, interviews, discussion sessions, group therapy, modeling, role-rehearsal, behaviour modification techniques, films, and slide or video presentations — although no single strategy was found to be effective across diverse groups of offenders. Consequently, it would seem to follow that specific interventions,

to be efficacious, must be tailored to specific offender characteristics, demographics, socio-cultural backgrounds, offenses, environments, and types of offense.

Driver remediation and retraining programs and courses tend to be more effective with first-time offenders than with recidivists and, not surprisingly, more so in terms of knowledge gains and attitude amelioration than with behaviour change. Typical personality characteristics that were found to motivate high-risk drivers, whether teenagers or adults, were such traits as rebelliousness, independence, defiance of authority, alienation, assertiveness and aggression, need for control and status and power, need for dominance, non-conforming behaviours (frequently anti-social), thrill-seeking, egoism, impulsivity, low levels of moral reasoning, and deviant driving practices that lead to a variety of traffic violations including accidents.

Finally, below are some additional findings worth noting in this review of the literature.

- High-risk driver remediation and retraining tended to be court-ordered, some programs or courses being judicially mandated short-term treatments that frequently required participants to pay costs ranging from a low of \$30 to a high of \$395 US.
- Driving offender remediation programs, reviews and studies are often poorly documented in terms of course content, objectives, or assessment design, thus making cogent interpretation of results a constant challenge, and often undeterminable in terms of actual effects achieved.
- In several studies, less well-educated young driving offenders were found to be more susceptible to remediation training and driving probation options than were either better educated youth or older offenders.
- A number of alcohol-involved driving offender treatment groups experienced somewhat

lower criminal behaviour, re-arrest and recidivism rates — especially when social drinkers rather than problem drinkers were included in the high-risk driver participants.

- Several DWI and DUI research studies found that assessment after two or more years revealed little evidence of reductions in recidivism rates, although in the shorter term some were determined to be “modestly” effective.
- One study, focussed on attitude change, explored typical explanations used by driving offenders to account for their arrest and discovered “bad luck” to be the most frequent, the program hoping, possibly, to inculcate the notion that “good luck” is therefore more a matter of ‘preparation meeting with opportunity’.
- Taking “personal responsibility” was a frequently cited feature in many remediation treatments, such programs expectantly surmising that participants would recognize themselves as the principle cause of their own misfortunes.
- The extensive Wells-Parker et. al. (1995) meta-analysis of 215 independent evaluations of drinking/driving interventions did, in fact, identify an average effect size of remediation, over no remediation, of 8-9% (p. 907) which, in a population of 10,000 retraining participants, could translate into 800 to 900 persons.

From all of the foregoing, then, it can perhaps be reasonably concluded that educational programs have a wide acceptance as useful vehicles for remediating high-risk and offending driver behaviours among all ages, and that they can be effective instruments for ameliorating problems associated with repeat driving offenses (including the abundance of alcohol-related ones), most programs experiencing success to some degree while, overall, helping to reduce

participants' tendency to re-offend — a consequence that one study aptly summed up as probably being “better than doing nothing at all” (Hagen, 1988).

### **Recommendations**

A number of recommendations for developers of programs aimed at high-risk drivers and driving offenders seem clearly to ensue from this literature review, whether the offenses be alcohol-related or not.

- The personality traits that motivate high-risk drivers need to be identified and taken into account so that programs can provide appropriate and adequate content. Characteristics that are common to high-risk drivers, as well as their likely motivations and attitudes, need to be distinctly denominated and carefully considered in all phases of program development.
- The high-risk driving behaviour violation charges, that programs are intended to address, need perhaps to be more precisely identified (as for example, driving without due care and attention, speeding, street racing, tailgating, exceeding school zone speed limits, passing on a double line, running red lights, red-light jumping, passing on the right side, turning left at “no left” turns, and the like). Such an identification might thus ensure the inclusion of appropriate course content designed to more precisely inform and moderate the impoverished understandings and attitudes that lead to aberrant driving-offender behaviours.
- Program or course objectives should be stated realistically, clearly, and behaviourally.
- Course content needs to be identified in terms of the desired knowledge, critical attitudes, and specific behavioural changes hoped for — or, at minimum, course objectives need to specify those measures that will assess these aims.

- Teaching strategies need to be as interactive as possible, given whatever time constraints exist, and need to incorporate as wide a range of educational options as possible.
- Curriculum developers need to:
  - \* design reliable and valid instruments to assess the effectiveness of their programs in achieving their stated objectives.
  - \* identify requisite driver skills and necessary traffic obedience measures.
  - \* incorporate appropriate learning experiences and activities.
  - \* acquire and examine successful driver remediative programs and courses, looking at those components that have contributed to their success.
  - \* ensure that participants are exposed to traumatic violation consequences so that they can vividly understand that traffic fatalities are not just distant rumours.
  - \* explore and reread this literature review's description of educational programs and consult it's over 70 References, all of them available and included in LCES's "The Dome Program Research" black, 3-inch binder, now filled by this review.
- For cogency and consistency, programs aimed at moderating attitudes must surely be founded on, and premised by, some appropriate attitude change theory.
- Given the paucity of research on the efficacy of remediation programs for young at-risk drivers charged with non-alcoholic-related offenses, a clear need exists for program developers to subject such programs to scientific examination, employing suitable research designs and utilizing appropriate assessment strategies. We recommend, therefore, that a pilot program of this nature be engaged in before full-scale implementation is undertaken and before such a

program is made more widely available.

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## APPENDIX A

### Specific “Discriptors”: for renewed ERIC, Google, and Yahoo Searches

#### ERIC

- At-risk drivers
- Driving education
- Driving remediation
- Risk-taking drivers
- Speeding remediation
- Teenage speeding drivers
- Deviant drivers
- Driving programs
- Reckless driving
- Speeding
- Teenage drivers
- Youth drivers

#### GOOGLE

- Anti-speeding courses
- Anti-speeding research
- Attitudinal dynamics of driving
- Defensive driving course
- Deviant driver courses
- Deviant driver programs
- Driving consequences
- Remediation driving programs
- Research programs reckless driving
- Risk-taking drivers
- Risk-taking drivers research
- Speeding
- Speeding violators
- Speeding violators’ programs
- Street racing
- Traffic offenders program
- Anti-speeding programs
- At-risk driving programs
- Brunel driver research
- Dept. of Transport (UK)
- Deviant driver courses assessment
- Deviant driver research
- Non-conforming drivers
- Remediation reckless driving
- Research programs street racing
- Risk-taking drivers’ programs
- Risk-taking remediation
- Speeding programs
- Speeding violators’ courses
- Speeding violators’ research
- Teens at risk program evaluation
- Youth speeding

#### YAHOO

- At-risk drivers
- Research program driving offenses
- Speeding
- Speeding violations remediation
- Speeding violators research
- Driving violators program
- Research speeding
- Speeding violations
- Speeding violators program
- Teenagers driving offenses