Discussion C
セッションII

Road Users and Traffic Safety Education
交通参加者と交通安全教育

Profile of Moderator and Panelists

Moderator: Dr. Satoru Nishiyama

Panelist: Dr. Hans E Pettersson

Panelist: Mr. David Lynam

Panelist: Dr. Ichiro Uchiyama

Panelist: Dr. Kazuhisa Ogawa

Abstract of Lectures and Powerpoint Slides

Lecturer: Dr. Hans E Pettersson

Lecturer: Mr. David Lynam

Satoru Nishiyama

Professor Emeritus at Hiroshima University

1930: Year of birth
1953: Graduated from Department of Psychology, Faculty of Education at Hiroshima University
1955: Finished his master's degree at Graduate School of Education, Hiroshima University
1957: Assistant for Faculty of Education at Hiroshima University
1971: Assistant Professor for Faculty of Education at Hiroshima University
1977: Professor for Faculty of Education at Hiroshima University
1987: Awarded doctorate in Letters from Hiroshima University
1992: Head of Faculty of School Education at Hiroshima University
1994: Professor Emeritus at Hiroshima University

Specialty: Traffic Psychology

Publications: *Jidosha Kyoshu no Sinri-gaku* <Education Psychology on Driving Instruction> (Keiseisha)

西山　啓

広島大学名誉教授

1930年　生まれ
1953年　広島大学教育学部心理学科卒業
1955年　広島大学大学院教育学研究科修士課程修了
1957年　広島大学教育学部助手
1971年　広島大学教育学部助教授
1977年　広島大学教育学部教授
1987年　広島大学文学博士学位取得
1992年　広島大学学校教育学部長
1994年　広島大学名誉教授

専門は交通心理学

著書は「自動車教習の教育心理学」（啓正社）等

Hans Erik Pettersson

Born	1942 August 23
Education	PhD 1993 (Psychology)
Professional experience	University teacher at the University of Stockholm 1971 -1972
	Researcher at Swedish National Road and Transport Research Institute 1973 – 1982
	Researcher at National Swedish Defense Research Establishment 1983 – 1988.
	Researcher at Swedish National Road and Transport Research Institute 1989 – 1994.
	Research Director at Swedish National Road and Transport Research Institute 1995 – 2002
	Research leader at Swedish National Road and Transport Research Institute 2003 –

ハンス・エリック・ペタソン

生年月日	1942 年 8 月 23 日
学位	1993 年博士号取得（心理学）
職歴	1971～1972 年　ストックホルム大学教員
	1973～1982 年　スウェーデン国立道路交通研究所研究員
	1983～1988 年　スウェーデン国立防衛研究所研究員
	1989～1994 年　スウェーデン国立道路交通研究所研究員
	1995～2002 年　スウェーデン国立道路交通研究所研究ディレクター
	2003 年～　スウェーデン国立道路交通研究所研究リーダー

David Lynam

Short biography

David Lynam is currently a Chief Research Scientist in the Safety Group at TRL. He has worked at TRL and the Department of Transport for 35 years, initially in transportation modelling and assessment of novel transport systems for both passengers and freight. He spent four years at the Department of Transport as a research manager, before returning to work on TRL's road safety programme in 1983. He was a member of the team developing the 1987 UK safety plan and the casualty reduction target for the year 2000, and also advised on the development of the casualty reduction target for 2010. During the 1990s, he managed the TRL Road Safety Division, and subsequently the TRL road and vehicle safety programme. He has detailed knowledge over a broad field of road safety research, and a wide experience of European safety issues. Particular interests: safety of road design, urban safety management, accident reduction measures, driver training, child safety, national road safety targets, and speed management.

デイビッド・ライナム

略歴

現在、イギリス交通研究所（TRL）安全グループの主任研究員。TRL と交通省で 35 年間勤務。最初は旅客と貨物のための新しい交通システムのモデル作成と評価を担当。交通省で 4 年間、研究マネージャーを務めた後、1983 年に TRL に戻って道路交通安全計画に携わる。1987 年イギリス安全計画作成および 2000 年の事故減少目標設定チームのメンバー。また 2010 年事故減少目標作成の顧問でもある。1990 年代には TRL 道路交通安全部長を務めた後、TRL 道路・車両安全計画を担当。道路安全研究の幅広い分野に精通し、ヨーロッパの安全性の問題について豊富な経験を持つ。中でも専門分野は道路設計の安全性、都市安全管理、事故減少の方法、運転教育、子供の安全確保、国家道路安全目標、スピード制御。

Ichiro Uchiyama

Assistant Professor of Faculty of Letters at Doshisha University

1956: Year of Birth
1980: Graduated from Department of Psychology, Faculty of Letters, at Doshisha University
1987: Awarded his doctorate from Graduate School of Education and Human Development (the latter term of doctorate) at Nagoya University
1988: Full-time lecturer of Junior College of University of Shizuoka
1994: Full-time lecturer for Faculty of Letters at Doshisha University
1995: Assistant Professor for Faculty of Letters at Doshisha University

Specialty: Traffic Psychology, Developmental and Educational Psychology

Publications: *Shakai Shinri-gaku* <Social Psychology> (Kenpakusha), etc

内山　伊知郎

同志社大学文学部助教授

1956年　生まれ
1980年　同志社大学文学部心理学専攻卒業
1987年　名古屋大学大学院教育学研究科博士課程後期課程単位等認定
1988年　静岡県立大学短期大学部専任講師
1994年　同志社大学文学部専任講師
1995年　同志社大学文学部助教授

専門は交通心理学、発達・教育心理学

著書は「社会心理学」（建帛社）等

Kazuhisa Ogawa

DOB: April 23,1963
Age: 40 years
Job: Associate Professor
Department of Language and Communication
Faculty of Human and Social Environment
HIROSHIMA INTERNATIONAL UNIVERSITY

Major Field of Research: Traffic Psychology, Industrial Psychology

Education and Career:
1986-1988 Master course, Graduate school of Human Sciences. Osaka University
1988-1990 Doctor course, Graduate school of Human Sciences, Osaka University
1990-2001 Research Associate, Faculty of Human Sciences, Osaka University
2001- Associate Professor, Faculty of Human and Social Environment, Hiroshima International University

Membership :
International Association of Applied Psychology(IAAP)
The Japan Association of Applied Psychology
The Japanese Association of Traffic Psychology
The Japanese Psychological Association
The Traffic Science Society of Osaka
etc.

小川　和久

広島国際大学人間環境学部言語・コミュニケーション学科助教授

1963年　生まれ
1988年　大阪大学大学院人間科学研究科博士前期課程修了
1990年　大阪大学大学院人間科学研究科博士後期課程修了
1990年　大阪大学人間科学部助手

専門は交通心理学、産業心理学

著書は「交通安全学」（企業開発センター）等

Human errors and traffic safety

Hans E Pettersson

Abstract

Human errors can be regarded as a part of human nature. The errors are the price man has to pay for his great flexibility and adaptive skill. Of course it creates great problems in systems where errors can have such disastrous consequences as in the road traffic system. In vision zero this has been taken care of by emphasizing the distribution of responsibility between the road users and the designers of the road traffic system. As long as the road users obey the regulation of the traffic system it's up to the system designers to design the system in such a way that human errors doesn't result in serious injuries.

It is however important to point out that although errors are a part of human nature and hardly are possible to eliminate, it is indeed possible to decrease the probability of errors to occur.

The most obvious means to influence road user behaviour are probably information and education. Pedagogical measures certainly are important and it seems as they have developed to bee more efficient in the last years. But the perhaps most important way to influence road user behaviour are by the preconditions for the behaviour the design of the technical components constitutes. It is therefore of outmost importance that the design of roads and vehicles are well adapted to the characteristics of man.

The conclusion that ought to be drawn is that a successful traffic safety work demands a very broad repertoire of measures. The road users must be given good education and training and the technical parts of the system must be adapted to the characteristics of man in order to minimize the probability of human errors as well as the risk of serious injuries when accidents after all happened.

Human errors and traffic safety

Hans Erik Pettersson

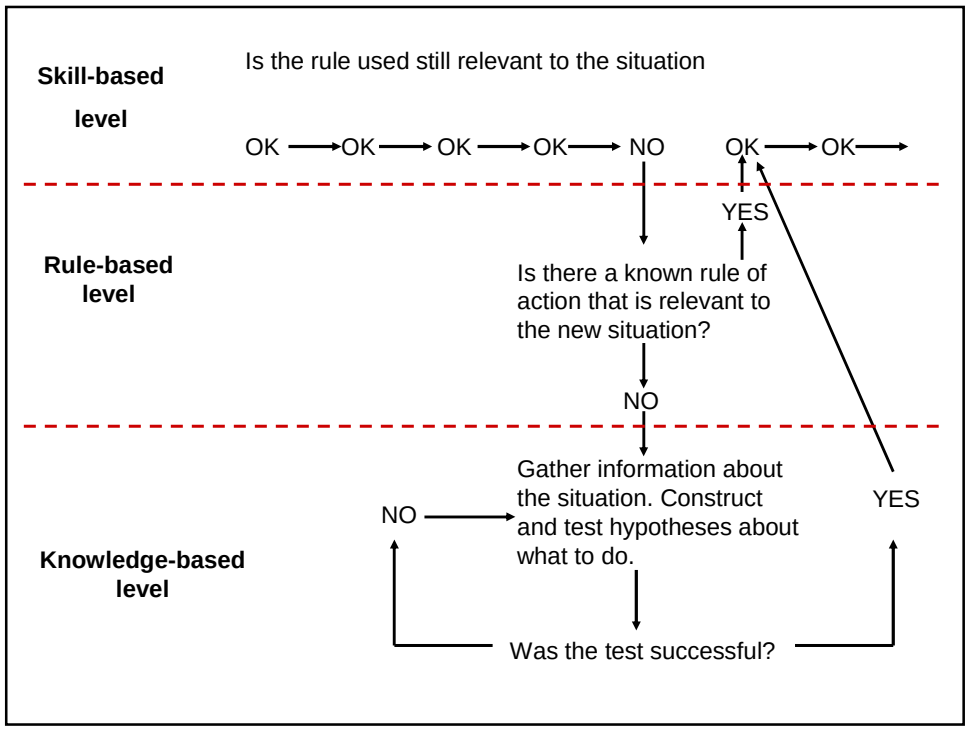
Swedish National Road and Transport Research Institute

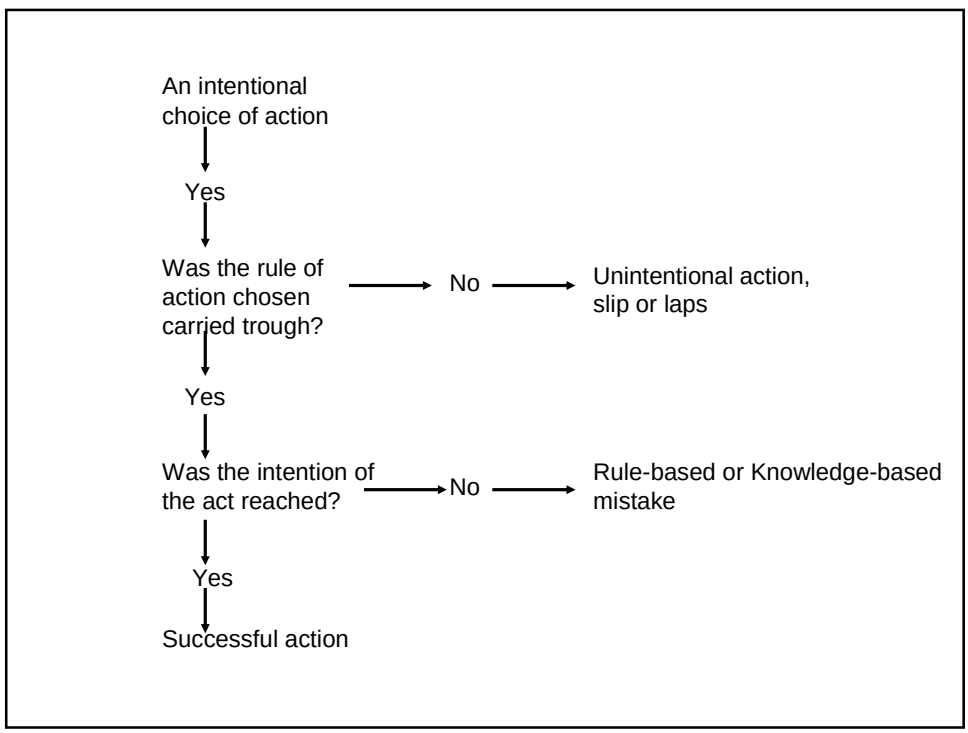
Controlling road user behavior

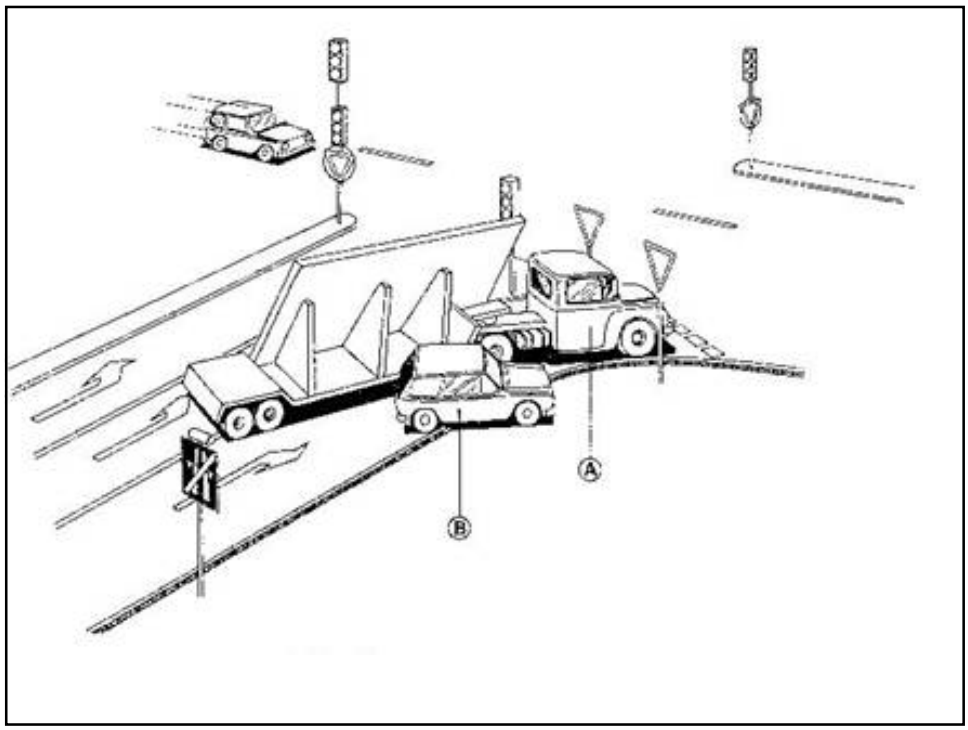
- Selection
- Education
- Adjust the system to mans capacity

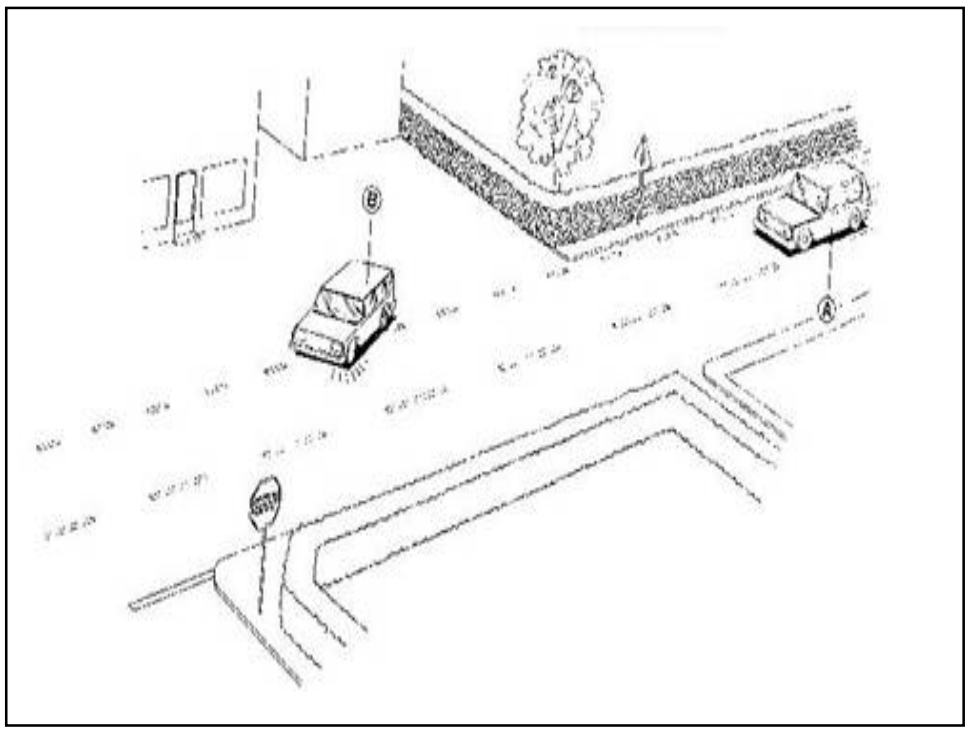
- Introduction of a second phase including training and minimal restrictions
- Increased training under protected conditions
- Shift of contents in training: from mastery of vehicle and traffic situations towards driving motives, risky behaviour, hazard perception, large safety margins and self-assessment
- Increased experience through layman-accompanied driving
- Integration of improved measures

- Extending the accompanied pre-test driving period
- Multiphase systems are introduced or planned in about 8 countries
- Shift of contents in training: from mastery of vehicle and traffic situations towards driving motives, risky behaviour, hazard perception, large safety margins and self-assessment
- Compact professional training to prepare candidates to accompanied training
- Integration of demerit point systems and driver improvement programs into driver licensing systems
- Awareness of lack in development of driving test according to new contents in training


Skill-based level
Is the rule used still relevant to the situation
OK
OK
OK
OK
NO
OK
OK
YES
Rule-based level
Is there a known rule of action that is relevant to the new situation?
NO
Gather information about the situation. Construct and test hypotheses about what to do.
YES
NO
Knowledge-based level
Was the test successful?


An intentional choice of action
Yes
Was the rule of action chosen carried trough?
No
Unintentional action, slip or laps
Yes
Was the intention of the act reached?
No
Rule-based or Knowledge-based mistake
Yes
Successful action


A
B


B
A

Education, Enforcement and Control – Managing behaviour on the road

David Lynam

Abstract

Behaviour within the private transport system has traditionally only been controlled where it clearly falls outside socially acceptable norms. These norms are defined by public perception and expectations in relation to safety. In order to achieve lower levels of risk there is now increasing scope to supplement the traditional approaches of education and enforcement with more direct control of road user behaviour through technology. What effect are these approaches likely to have on risk and how acceptable will they be?

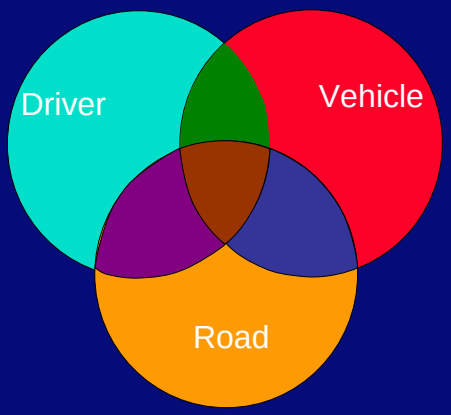
Improvements in road user behaviour generally only occur with changes in public perception and expectation. Public belief in the value of safety improvements has to be fostered alongside public demands for increased mobility and better environments. This requires good public knowledge of risk of road travel in a form that can be compared with other activities. Where greater control is proposed, the public need to accept that any restriction in freedom is outweighed by the resulting safety benefits.

These issues will be reviewed in relation to a range of key road safety policy areas such as speed management, restriction of use of alcohol and drugs, and seat belt use. The scope for linking these to a more systematic approach to controlling the road environment in countries such as Britain will also be discussed.

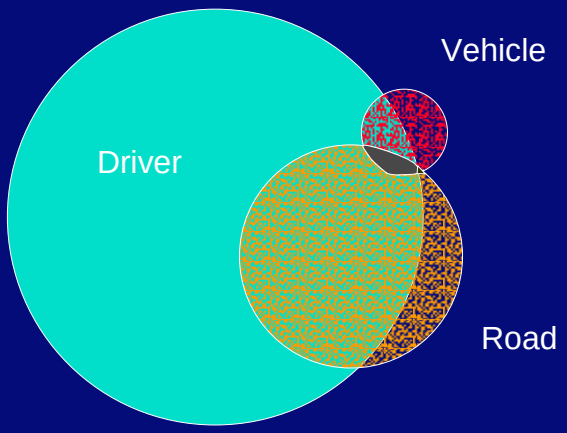
Education, Enforcement, and Control - Managing Behaviour on the road

David Lynam, TRL

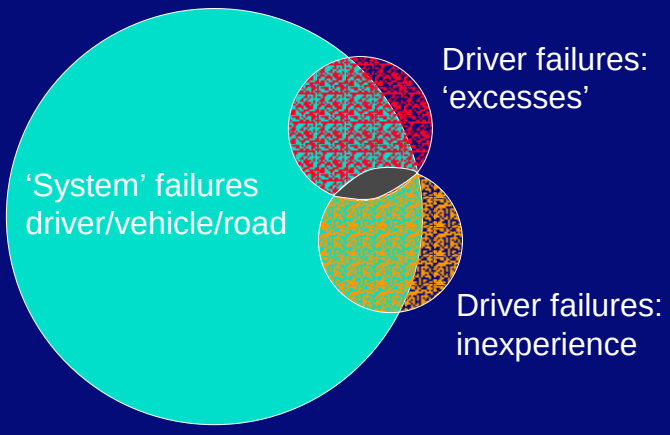
Traditional concept



Relative contribution



System model of behaviour

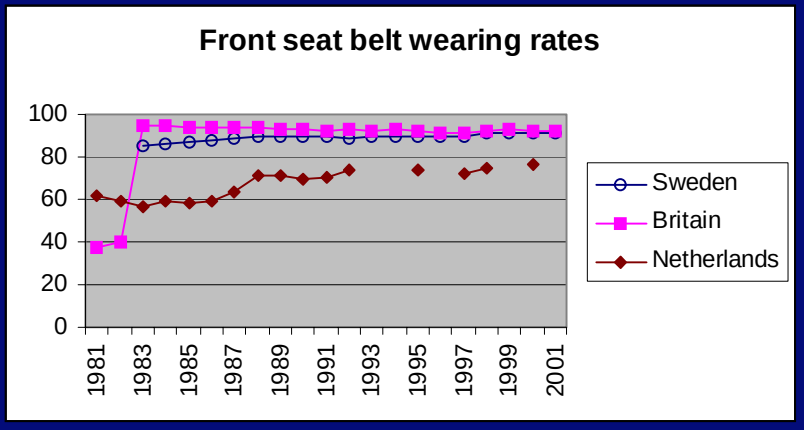


Rules for behaviour within a safe system

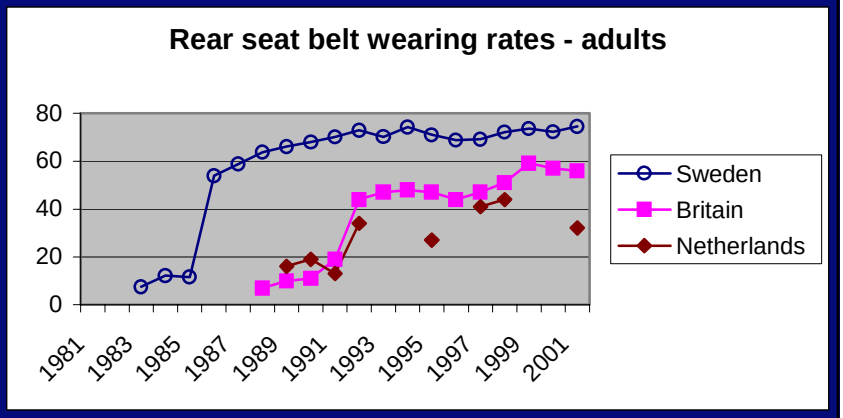
- Vehicle occupants should wear seat belts
- Drivers should not be impaired by alcohol or fatigue
- Driving speeds should be within those for which the system is designed

But do these rules fit with public attitudes and expectations?

Trends in front seat belt wearing



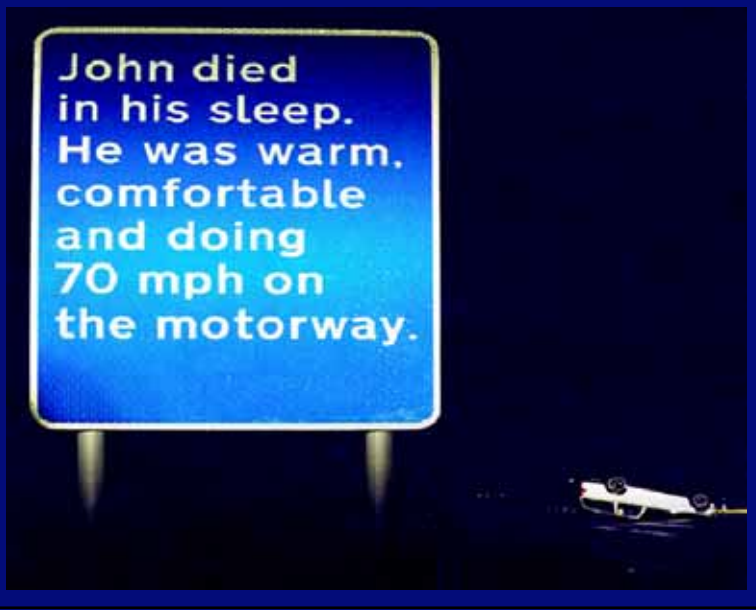
Trends in rear seat belt wearing



Development of drink drive messages

- Drinking and driving is risky
- My drinking and driving is risky
- I need to change my drinking and driving habits
- I am putting close friends and family at risk
- I may lose my licence and my job

Publicity - tiredness

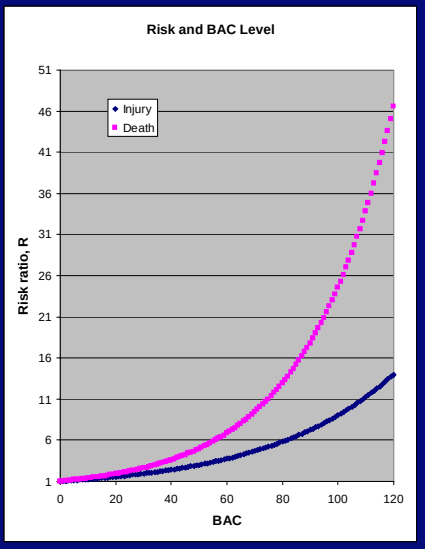


Publicity - speeding

At 8kph over
the 50kph limit,

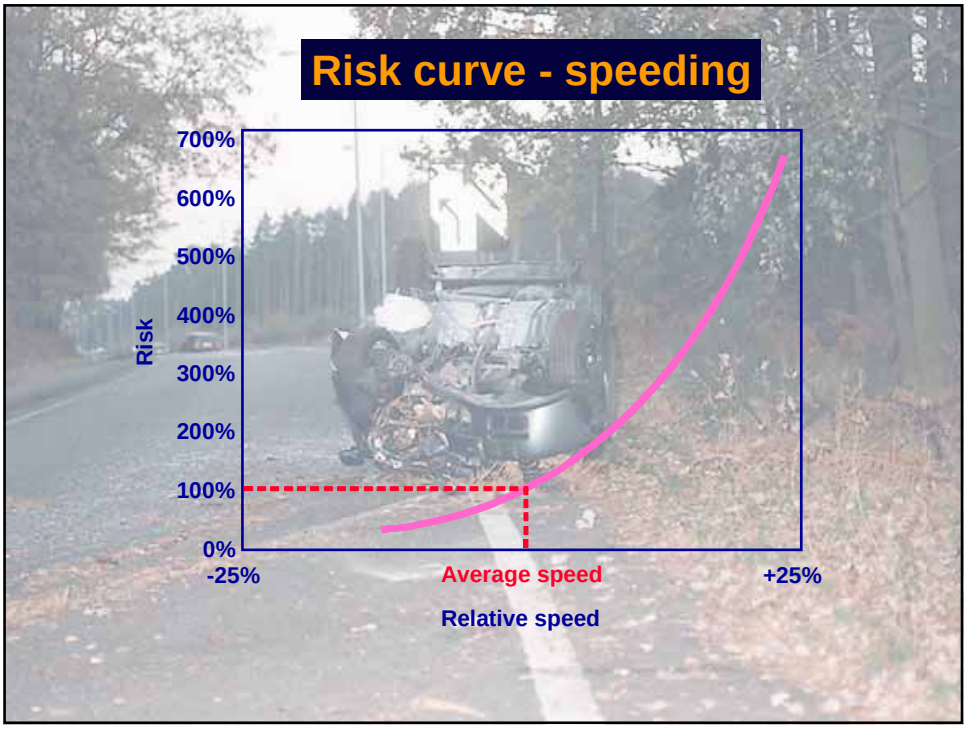
how much further does it take to stop ?

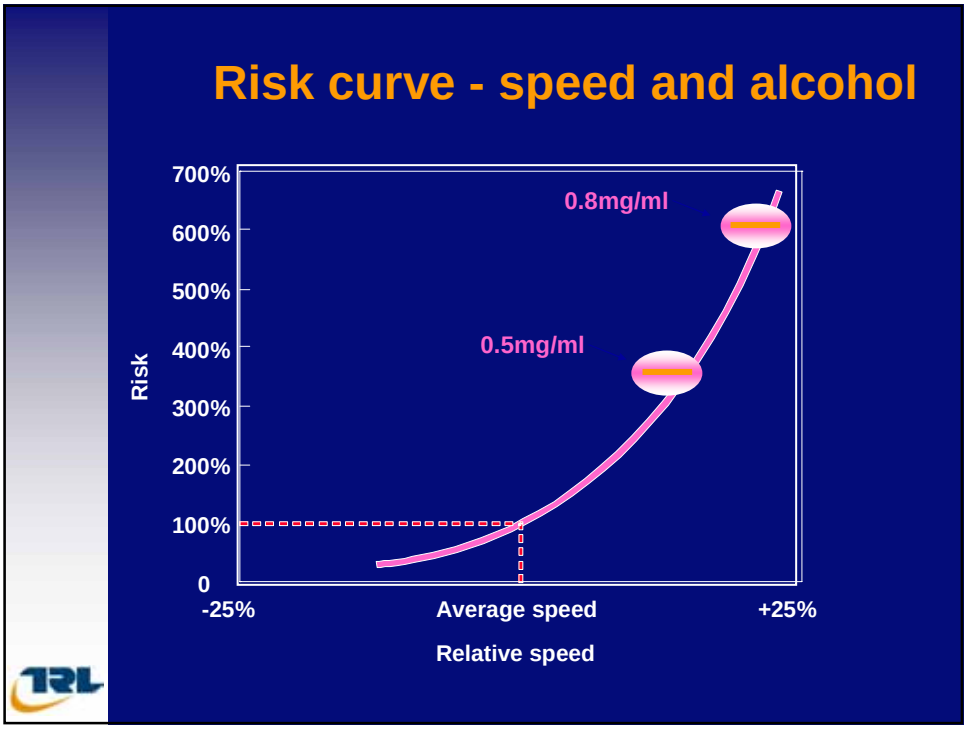
Risk curve - alcohol



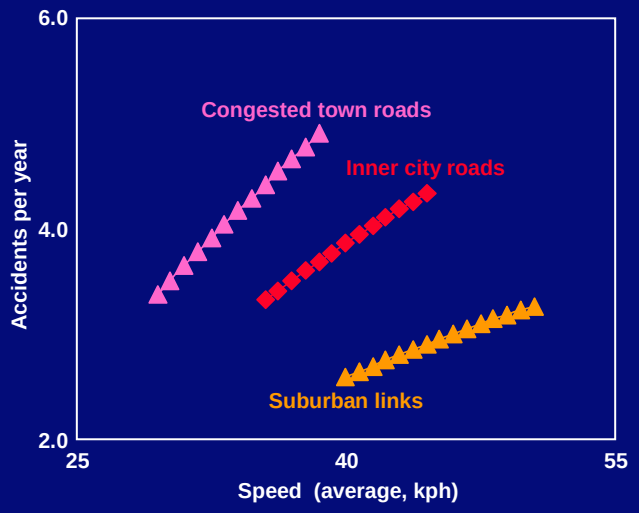
Measures to reduce Drink Driving
- different combinations between countries

	Sweden	Britain	Netherlands
BAC limit	Low	High	Medium
Enforcement Rate	High	Low/medium	Medium
Penalty in Court	Low	High	Low


Risk curve - speeding
700%
600%
500%
400%
300%
200%
100%
0%
Risk
-25%
Average speed
+25%
Relative speed


Risk curve - speed and alcohol
700%
600%
500%
400%
300%
200%
100%
0
Risk
0.8mg/ml
0.5mg/ml
-25%
Average speed
+25%
Relative speed

Risk curves – speeding by road type

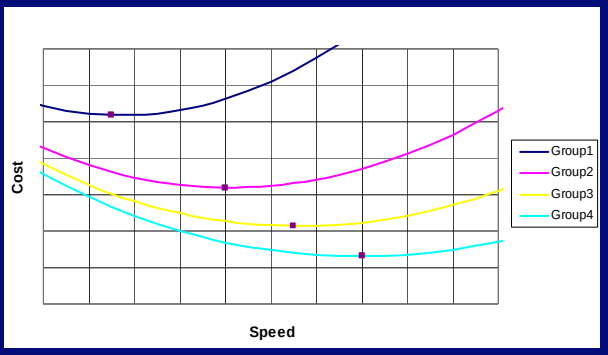


Speed camera enforcement

Reductions in average speed	9kph
Reduction in accidents	>33%
Deaths & serious injury reduction	~50%

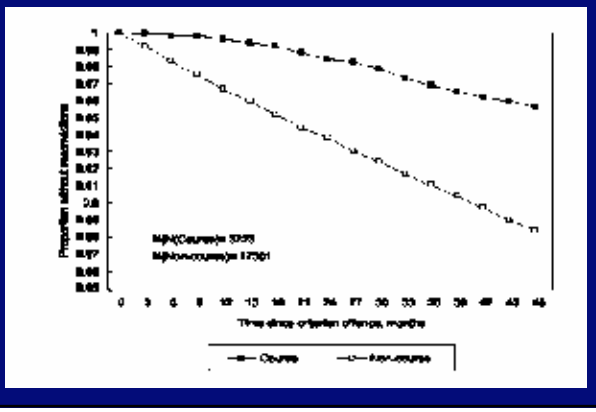
Speed management – by minimum costs

Speeds associated with minimum costs for different road groups



Driver improvement courses

Drivers attending drink drive courses have fewer reconvictions, especially within 12 months of their suspension. Other convicted drivers continue to drive unlicensed.

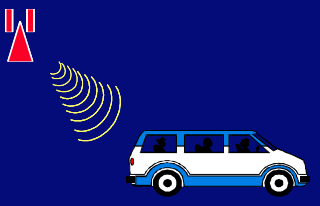


Control through intelligent systems

- How can these best add to education and enforcement?
- Systems can be based on
  - Better enforcement of existing policies
  - Simplifying the driving task
- Need to be integrated into wider systems (eg automated highways, satellite location systems)
- Timescale for acceptance ??

Speed and alcohol control systems

Intelligent speed adaptation

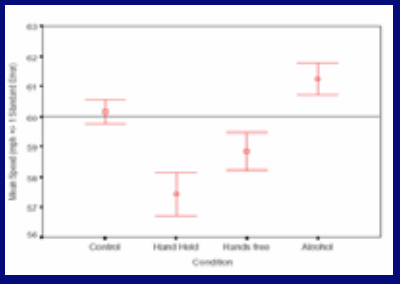


Alcohol interlocks

Issues with direct control systems

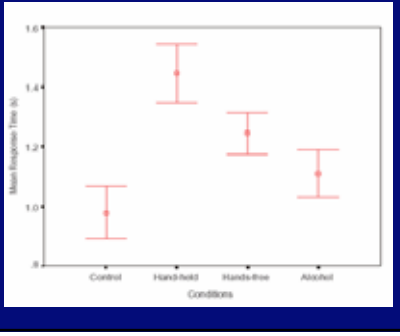
- **In what way do they modify driver attention - is the driver ready to react ?**
- **Do they give rise to conflicting information – compared with driver perception ?**

Managing the effects of new technology - assessing effect of mobile phones

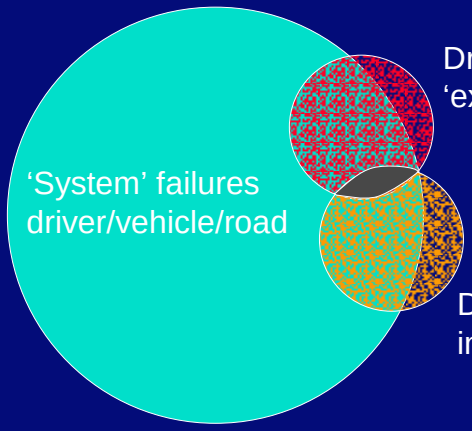


Drivers adopt lower speeds when using the phone …..

….but reaction times can be longer than when impaired by alcohol

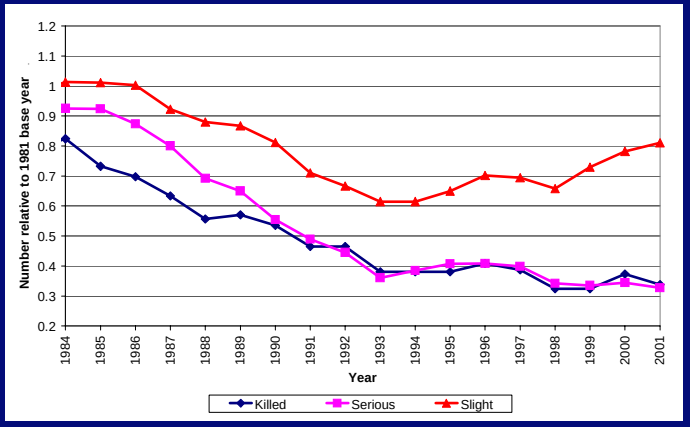


System model of behaviour



Maintaining low drink driving violations

Trend in numbers of casualties in drink drive accidents



Responsibilities and expectations when the system is controlled

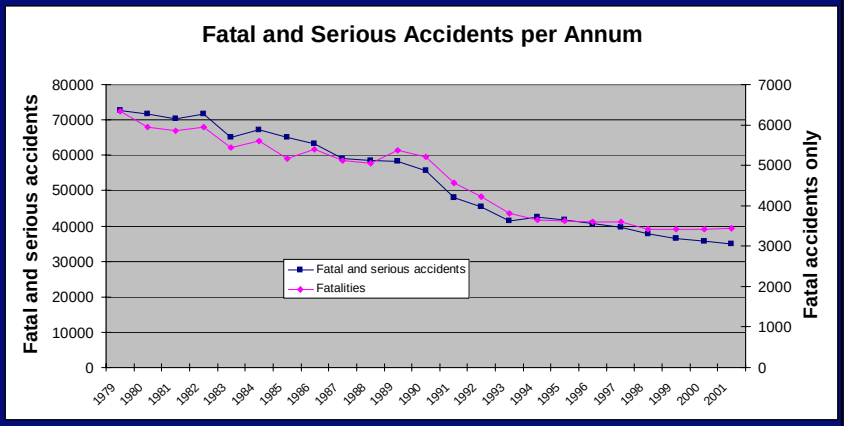
- Road users expectation of safety increases
- Road users do not see themselves responsible for maintaining safety
- System managers are expected to invest to deliver high level of safety
- Casualty saving in controlled systems is given a higher value than that in uncontrolled systems

Dialogue with road users

- Urban safety management (DUMAS) - process for involving public in decisions

- Inter-urban roads (EuroRAP) - representing individual and collective risks

Target monitoring in Britain - Fatalities and serious injuries



Factors limiting reduction in fatalities in Britain

- Less good driver behaviour
  - increased single vehicle run off road
  - more hit and run unreported accidents
- More work trips under stress on high speed roads
- More older motorcyclist accidents
- Increasing difference in vehicle size
  - more larger and more smaller vehicles

Scope for casualty savings - by policy type

	Percentage of total savings forecast in each country		
	Sweden	**Britain**	**Netherlands**
Vehicle improvements	**20** (including ITS contribution)	**35** (including improved motorcycle helmets)	**26** (including ITS contribution)
Road engineering, and speed management	**59** (including traffic control)	**44**	**50**
Behaviour excluding speed enforcement	**15** (novice drivers, enforcement)	**16** (novice drivers, drinking drivers, high mileage drivers	**24** (novice drivers, enforcement)
Other measures	**6** (emergency care)	**5** (child safety)	-