

Can Aggressive Driving Be Controlled?

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redefine THE POSSIBLE.

Canadian Association of Road Safety Professionals Conference,
Ottawa, Ontario, May 29, 2015.



Dealing with Aggressive Driving

- Structural modifications of roadways
- Vehicle design
- Enforcement & education
- Psychological approaches

Traffic Engineering/Traffic Calming



Pinch points



Pedestrian islands



Traffic circles/roundabouts/circuses



Rumble strips either perpendicular or at right angles to vehicle's direction of travel.

Speed Bumps



Chicanes



An Unusual Traffic Calming Advertisement in Whittier, California



Police Radar Speed Enforcement



Highway Speed Camera



Red light camera at signalized intersections



Old Style McDonald's Signs Displaying the Total Number of Hamburgers Sold



Suggestion: Combine red-light camera with signage declaring the number of tickets issued at that location.

Radar Controlled Speed Feedback Signs

50 km/hr = 30 miles/hr



25 miles/hr = 40 km/hr



This sign wouldn't be used to judge car races

Vehicle Characteristics

- Limiting speed with governors
- Restricting engine size through taxation and registration fees
- GPS speed recorders/in vehicle computers/"black boxes"
- Air conditioning may lower probability of aggression by increasing driver comfort
- Blind spot notification, lane departure warnings, and adaptive speed control may prevent side-swiping and tailgating, thus reducing the likelihood that these behaviours will occur and provoke retaliation by other road users

Volkswagen's Contest

Safety promotion and pro-environmental attitudes reinforced by "fun".
Contest awarded € 2500

Swedish speed lottery
Stockholm

<http://www.thefuntheory.com/>



The Swedish Speed Lottery

- Fun = positive reinforcement
- Over a 3 day period 24, 857 cars were measured
- Start: 32 km/hr
- Finish: 25 km/hr
- Speed reduction 22%

Question: How sustainable would the results be?

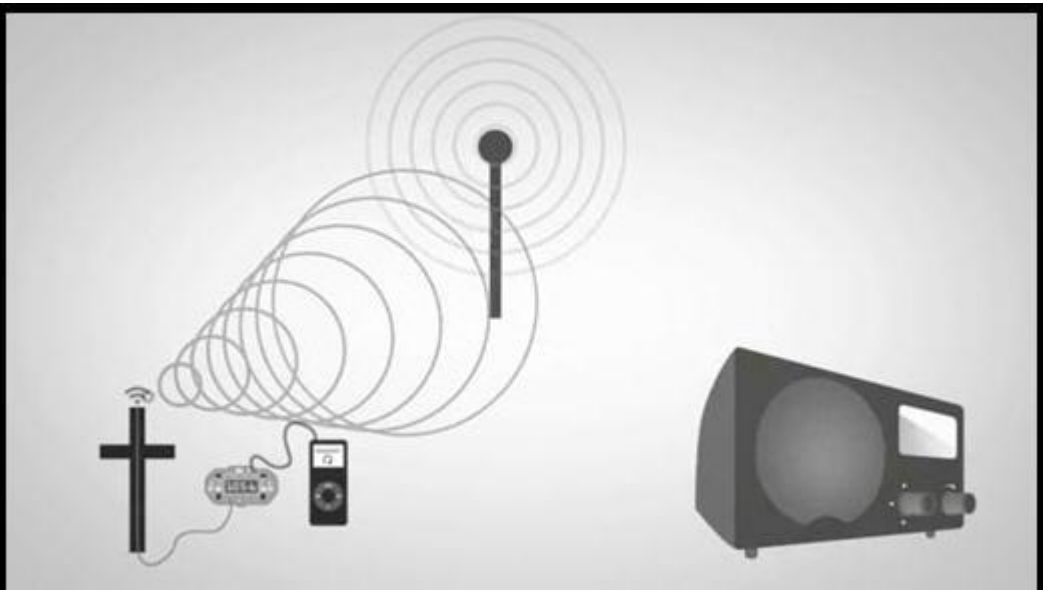
“No one thinks big of you.” Australian advertising campaign shaming aggressive drivers

<https://www.youtube.com/watch?v=c2nvAFOk7x0>



<http://theinspirationroom.com/daily/2012/radio-ghosts/>

Hamburg, Germany ghost radio intervention for drink driving



Hidden radio transmitter
on roadside memorial

Prompts

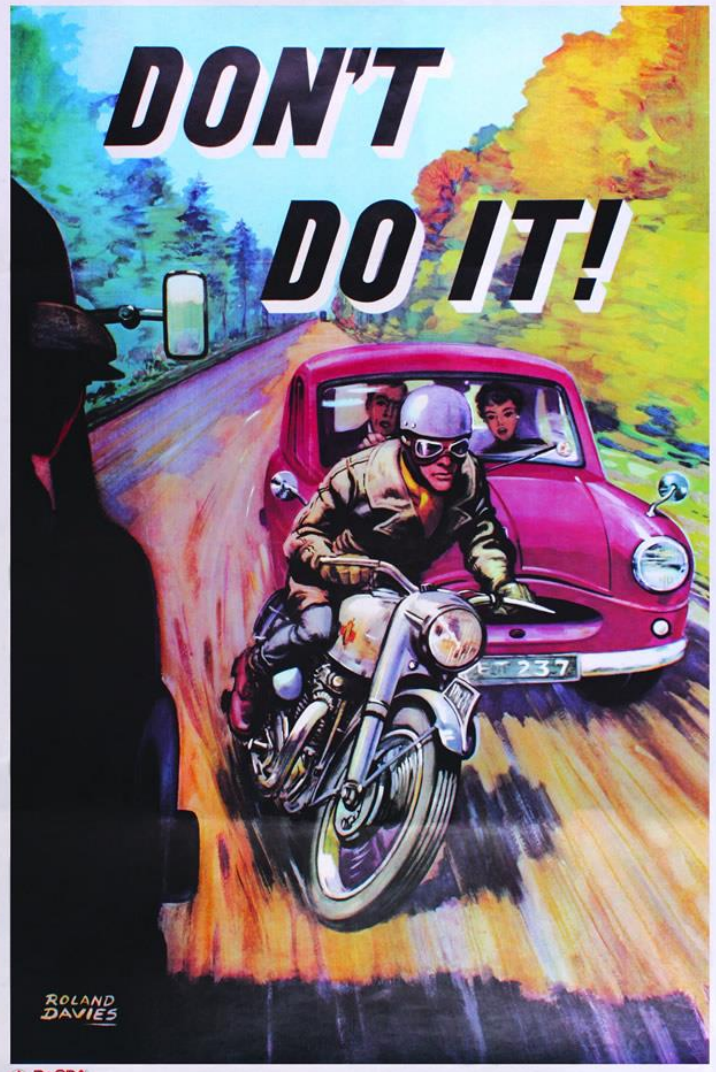
Prompts are events that help to initiate, facilitate, or encourage or discourage a desired response. Prompts can be instructions, gestures, signs, or other cues that generate a specific behavior.

Effectiveness of Prompts Depends Upon:

- Clear specification of desired behaviors
- Proximity of the prompt to where the behavior will be performed
- Convenience of the requested behavior
- Message's polite phrasing
- Noticeability.

**“It’s yellow, it’s ugly, it doesn’t go with anything, but it could save your life”
(Karl Lagerfeld).**







BELT UP IN THE BACK



A well placed prompt





CARSP Conference 2015

ROAD SAFETY - THE ROAD AHEAD

Sustainability needs to be viewed in terms of how durable or sustainable behavior change is over time. As applied psychologists, we need to be confident that our behavioral suggestions to policy makers will endure over time.

Demonstration of Effects vs. Sustainability

- Previous work in applied behaviour analysis has provided a **demonstration** that a behaviour is under the control of a stimulus or reinforcement schedule. The typical experimental design is an ABAB design where A represents the operant (baseline) level and B represents the treatment condition (often involving the presentation of a reinforcement). If each A and B phase lasts more than a few days, then the implementation of the treatment will appear novel and demonstrate a behavioural change
- What is missing is demonstrating that the behavioural change is **sustainable**.
- Sustainability is crucial if policy recommendations are to be made.

It May Prove Difficult Secure Funding for Conducting Research Over a Longer Time Period



Psychological Approaches

- Stress reduction through music listening & deep breathing exercises
- Applied behavior analysis: Prompting strategies
- Applied behavior analysis: Incentive programmes
- Changing attributional processes
- Promotion of car/van pooling
- Promotion of public (mass) transportation
- Promotion of mass media displays of nonaggressive driving to encourage modeling of desirable behaviours

The 1968 film *Bullitt* featured an 11 minute long car chase by Steve McQueen over San Francisco streets and highways with speeds of up to 110 mph (178 km/hr). This film set the standard for the inclusion of car chases in subsequent cinema and television.



Note that the Jaguar hood ornament is in retreat from the BMW



Conclusion

- Use psychological strategies *along* with engineering approaches to roadway and vehicle design as well as in enforcement and educational initiatives.



For any questions, comments, or literature requests, contact davidw@yorku.ca

Road Safety Statistics

World Health
Organization (2005)



The United Nations has declared 2011-2020 as the *Decade of Action for Road Safety*

- 1.2 million die in road traffic crashes each year
- Approximately 50 million are injured or disabled by collisions each year
- Every day 3,500 die in a road crash
- Speed contributes to at least 30% of crashes and deaths
- For every 1 km/hr reduction in average speed, there's a 2% reduction in crashes

Road Safety Statistics



- 90% of road casualties are from developing countries
- 1.9 million road deaths forecast for 2020
- Traffic injuries are the #1 cause of death for young people worldwide
- Economic cost to developing countries approx. \$100 billion/yr.
- By 2015, traffic injuries will be the leading health burden for children over 5 yrs.

Road Safety Statistics

- Unless action is taken, by 2020, traffic injuries are predicted to be the 3rd leading health issues ahead of malaria, TB, and HIV/AIDS
- Economic costs:
High income countries US\$518 billion
- Low & middle income countries US\$65 billion



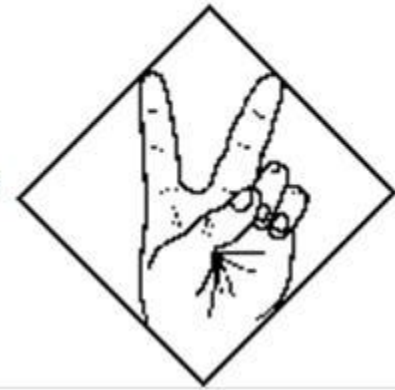
Source: Peden, M. & Sminkey, L. (2004). *World Health Organization dedicates World Health Day to road safety. Injury Prevention, 10, 67.*



Apology

In a brief lapse of attention or judgment, you unintentionally inconvenience, irritate, or endanger another motorist. You feel embarrassed and the other driver is angry. Neither state of mind produces safe, courteous driving.

The "Apology" signal can defuse the destructive anger and frustration that follow these unfortunate encounters. To signal an apology, hold two fingers in a "V" position, palm out.



Cautionary note: Palm held toward body is obscene gesture!

Psychological Strategies for Reducing Aggressive Driving

- Change attitudes towards unsafe and aggressive driving
- Encourage stress reduction techniques
- Create inhibitions towards unacceptable behaviour
- Consider the role of the media in the modelling of both positive and negative driving
- Broaden the notion of the “problem driver”

Intervention Strategies & Evaluation Research

- Analysis of the exact nature of the problem
- Publicizing the analysis of the problem
- Community involvement in the process
- Development of interventions/initiatives
- Defining the assessment measures
- Cost/benefit analysis of the intervention
- Documenting and publicizing the results of the intervention

Names of deceased drunk driving victims and fatality locations in Hamburg, Germany



<http://theinspirationroom.com/daily/2012/radio-ghosts>



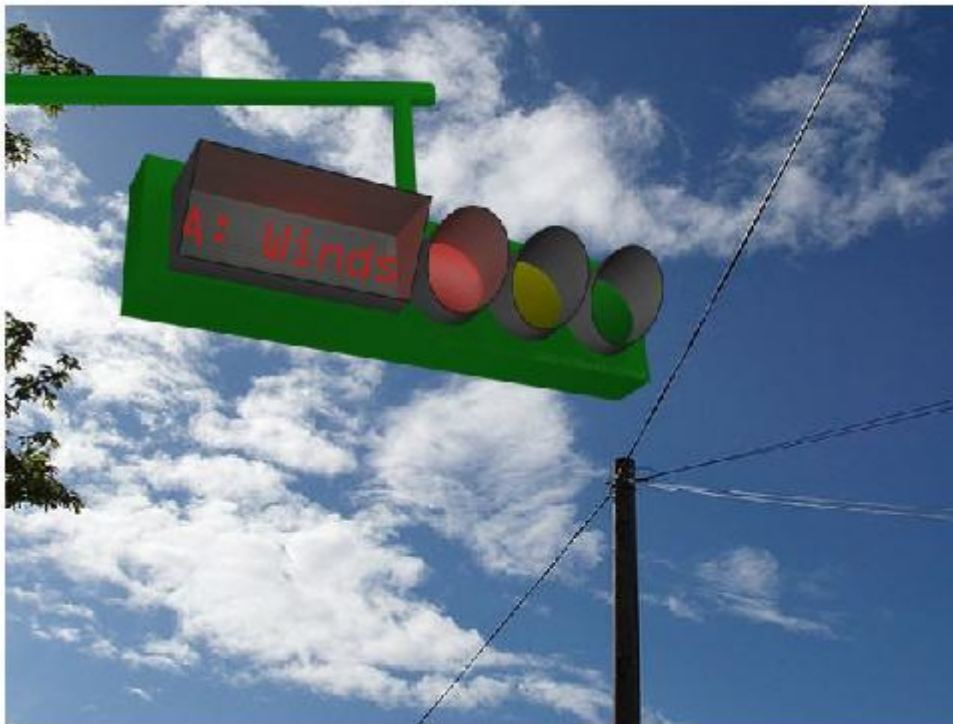
The Fun Theory Sponsored by Volkswagen



www.thefuntheory.com

Reducing Red-light Running/Promoting Societally Beneficial Behaviors

- <http://www.thefuntheory.com/finalists>
- <http://www.thefuntheory.com/award-entries>



The Wiki Traffic Light

2009-10-27 12:38 - 0 Comments

Can we get more drivers to respect a red light by making it fun to do? By fitting the traffic light system with a screen that displays interesting or fun facts when the light is on red. It's a simple way to give people something in return for doing the right thing.

Submitted by Osvaldo H. Bernal Sosa - Mexiko

Rating



Share

Highway Engineering Approaches Dealing with Aggressive Driving

- “Traffic Calming” Initiatives: Alterations to roads
 - Traffic circles
 - Rumble strips
 - Speed bumps
 - Pinch points
 - Pedestrian islands
 - Chicanes

See

<http://www.portlandoregon.gov/transportation/article/83939> for a complete listing of highway engineering techniques