

The Relationship between Psychology and Roadway Safety

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For the:
National Capital Region
Transportation Safety Board
Transportation Safety Subcommittee

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Brief Agenda

- FIRST order of business – a bit about psychology
- SECOND - examples of psychological applications to the roadway safety environment
- FINALLY, I will challenge (*encourage*) you to include psychological concepts in your own work

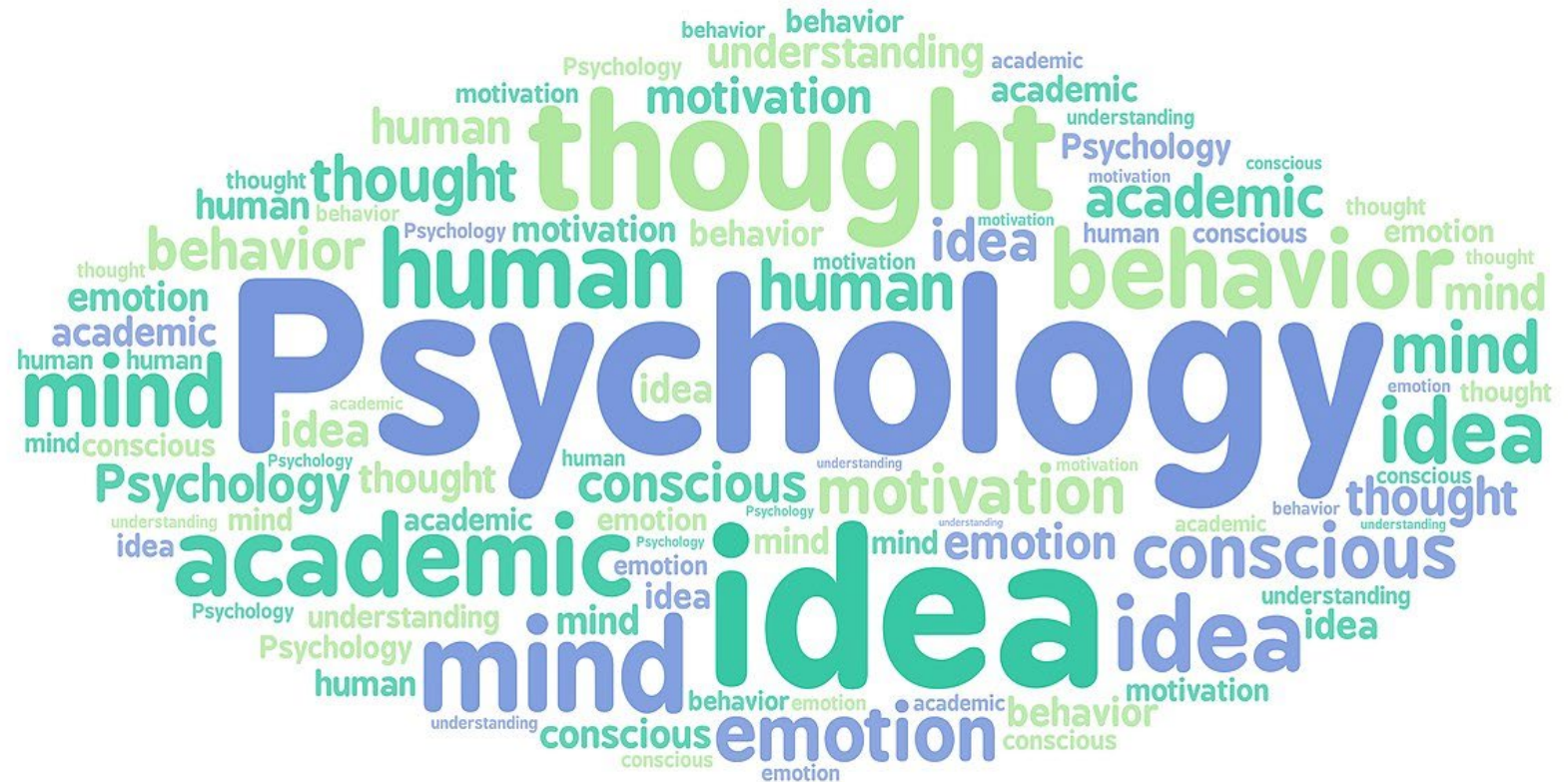


1. Psyc 101

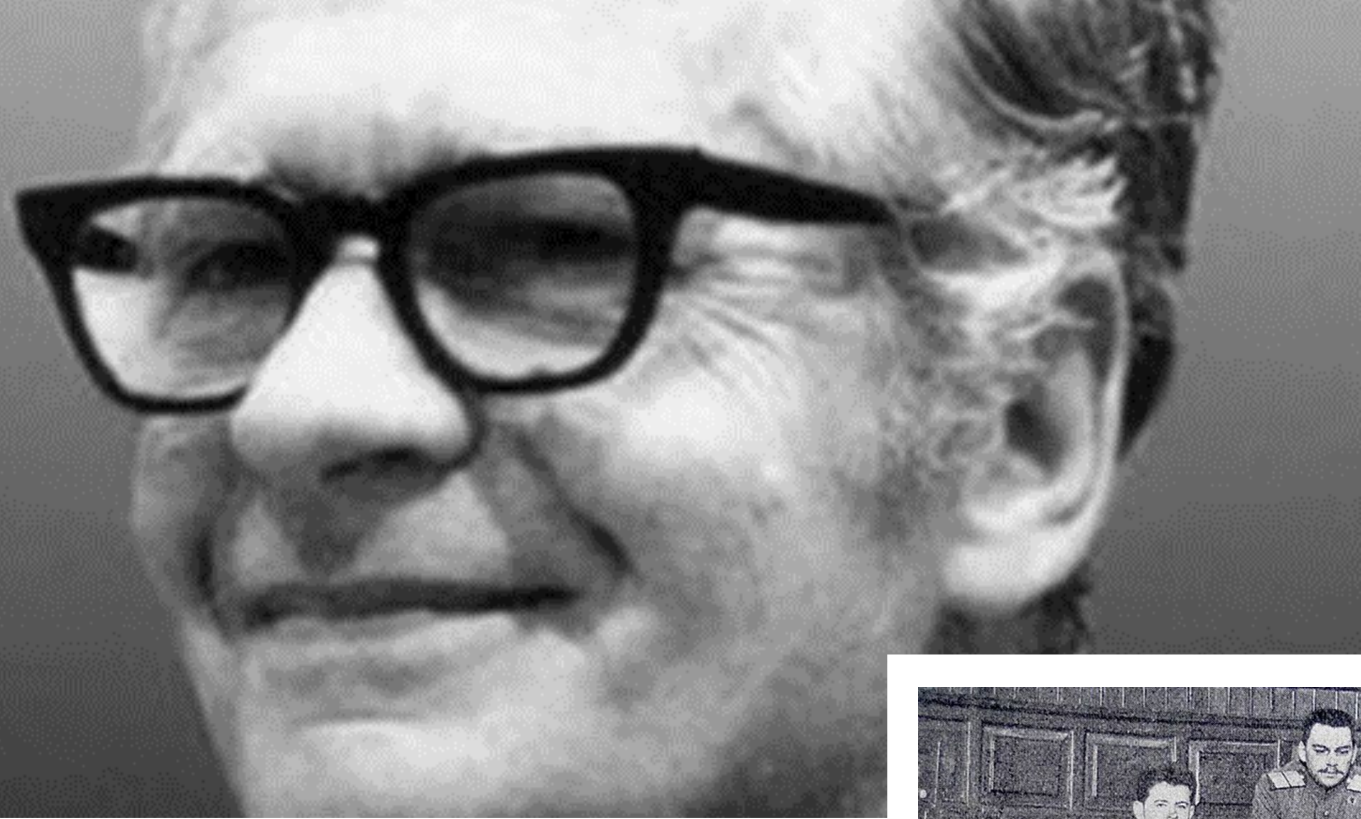


Topics in Psychology with Links to Roadway Safety

- Neuropsychology
- Perception
- Motivation
- Attitudes
- Personality
- Social Influence
- Demographic Influences
- Socio-cultural influences
- Learning
- Cognition
- Mental Health/Illness
- Human-Computer Interaction
- Health



<https://commons.wikimedia.org/wiki/File:Psychology.jpg>

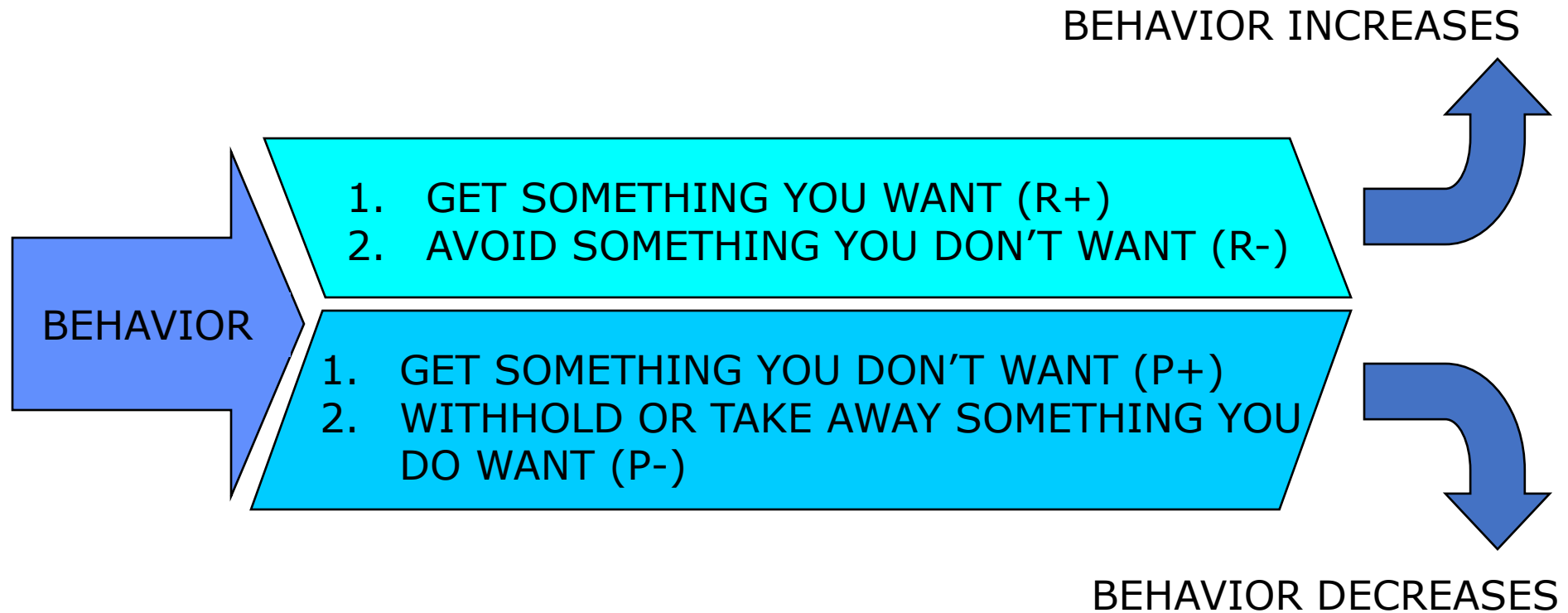


Conditioning



Consequences of Behavior

--From Daniels & Daniels (2004)





2. Psychology and Roadway Safety



Do you think these motivate?



 **VDOT**  @VaDOT

January 23, 2020

<https://twitter.com/i/events/1220416792016932866>



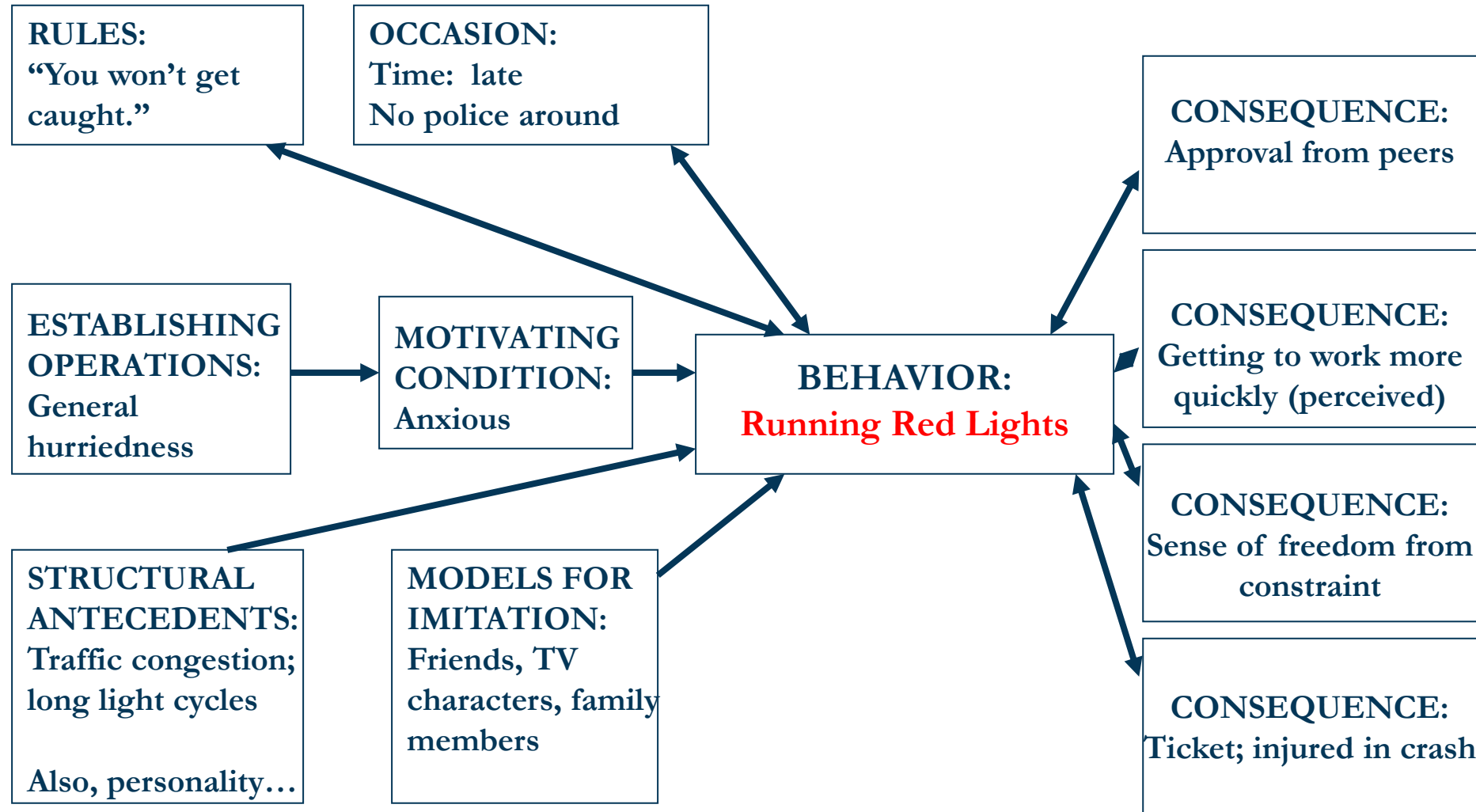


RED means **STOP**

<https://www.redmeansstop.org/contact-us/>



Interlocking Contingencies for Red Light Running (adapted from Mattaini's model, 1996)





Randy Greenwell, Va Pilot

Photo Enforcement



More examples



Sample titles in the latest issue of *Transportation Research Part F: Traffic Psychology and Behaviour* (August 2022)

- Social identity and cycling among women...
- Drinking, drug use and road rage in Turkish drivers...
- Exploring behavioral validity of driving simulator under time pressure driving conditions of professional drivers...
- The nudging effect of social norms on drivers' yielding behaviour when turning corners
- Use of Level 1 and 2 driving automation on horizontal curves on interstates and freeways
- Car following with an inertia-oriented driving technique...
- Risky and anxious-aggressive drivers...
- Social exclusion affects aggressive driving behaviour...
- Comparing eye-tracking metrics of mental workload caused by NDRT's in semi-autonomous driving
- Eyes on the road, hand upon the wheel? Reciprocal dynamics between smartphone use while driving and job crafting
- Why would people want to travel more with automated cars?

Traffic Safety Culture (Ozkan & Lajunen, 2011)

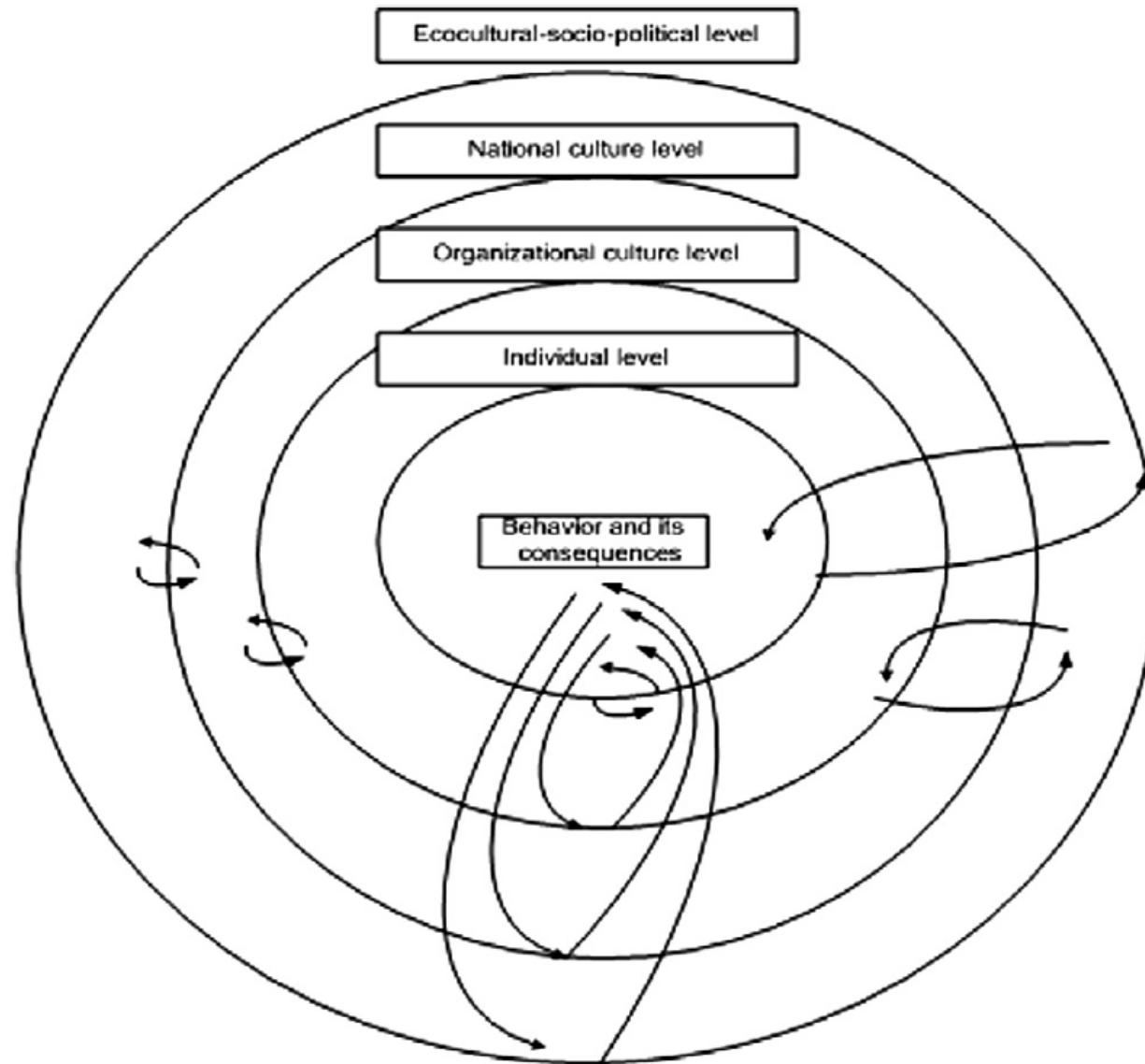


FIGURE 14.4 Multilevel model of “traffic safety culture and climate”



Molnar et al. (2012): A higher seat belt rate found among states with these conditions...

1. Being in an urban or suburban area as opposed to a rural area
2. Being in a state with higher fines for non-use
3. Stronger laws
4. Being female
5. Driving an automobile vs. a truck
6. Being in a state with more racial diversity (lower percentage of White residents)
7. Being in a state where fewer people felt religion was an important part of their life
8. Being in a state with a higher percentage of people voting "Democrat in 2008" (as opposed to another party)

And Ash et al. (2014) found higher seat belt rates with primary laws when states have the following characteristics...

- Higher achievement scores of its children.
- Higher government effectiveness scores.
- Higher health scores.
- Larger gross state product.
- Fewer rural roads.



3. Your CHALLENGE



We cannot continue
doing the same thing
over and over and
expect something new.



What can you do now to
take advantage of
psychology?

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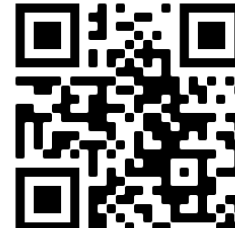


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The Graduate School



THANK YOU for your
attention!



ROAD WARRIOR

Old Dominion University psychology professor Bryan Porter is dedicated to making roads safer by getting into the mind of the driver. He studies the habits of motorists who take dangerous road risks and looks for ways to change their driving behaviors.

Because Hampton Roads is our pride.

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Behavioral Psychology
Research & Analysis Team

RICHARD PETTY DRIVING EXPERIENCE
2010
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