

Conspicuity Research Summary

Compiled by SMARTER

(Latest revision - February, 2018)

Introduction

The word conspicuity is often just considered a fancy term for visibility or noticeability meaning the ability of an object to draw attention to itself, even if nobody's actively searching for it. However, as the abundance of research available here shows, the issue of motorcycle and motorcyclist conspicuity is a highly complex matter. Conspicuity can be examined from at least two different perspectives.

First is the perspective we usually associate with the term. This perspective refers to the extent that an object (in our case motorcycle and rider) can be distinguished from its environment because of its characteristics (size, brightness, color and so on). It is the object's ability to attract visual attention and to be precisely located because of its physical property. This is called *sensory conspicuity* and this perspective leads to measures like extra lighting and high-viz riding gear.

Second is *cognitive conspicuity*. This is from the perspective of the observer. Cognitive conspicuity depends on the distinction of an object based on the observer's experiences and interests. It is linked to the fact that an observer's focus of attention is strongly influenced by his/her expectation, objectives and knowledge. Visual/cognitive phenomena such as inattention blindness and change blindness are important factors that are associated with the observer.

Motorcycle and rider conspicuity are, therefore, not just connected to the rider and motorcycle but most importantly to the observer and both are connected to the ever changing environment for both the rider and observer. While the overall evidence certainly does indicate there is a benefit to riders who make themselves and their motorcycle more conspicuous (see <http://smarter-usa.org/gear/highviz/>), there remain many unanswered questions.

1. There exists evidence that Daytime Running Lights (DRLs) and daytime high-beam usage reduces accident rates, but some of this research is confounded by selection bias – i.e. riders who use DRL's and/or HighViz gear may be safer operators.
2. There also exists experimental and basic science evidence that shows that DRLs, high-beam usage, HighViz, and the chevron pattern are detected quicker and more reliably, especially in marginal conditions.
3. Old people have measurably slower reaction times. Headlight modulators do not "fix" this problem.

4. Headlight modulators do not show a benefit above DRLs alone but in more urban, congested or poor lighting scenarios they might have a benefit.
5. There are limitations as to how effective any individual interventions can be due to the number of different visual contexts in which motorcyclists find themselves when riding
6. Head-to-toe fluorescent yellow will not ensure you are visible.
7. Drivers tend to see moving motorcycles more quickly if there is a greater color contrast between the background and the rider's clothes.
8. The most conspicuous outfit will be dictated by the lighting conditions and local environment at the time, which may be extremely variable within the confines of even a fairly short ride.
9. Given that environments may differ over even fairly small changes in time or location, there is not likely to be a one-size-fits-all solution, meaning that motorcyclists need to be aware of the limitations of whichever interventions they use.
10. Rider behavior, actions and decisions can contribute to or detract from motorcycle and motorcyclist conspicuity. Strategic lane positioning, movement, hand signals are all actions that can contribute to conspicuity. Also avoiding riding at night, dusk, dawn, in poor weather or during low-sun angle conditions should be considered.