The Four Chances for Error
The Looked But Failed to See MC/car Collision

Dan Petterson, Ed. D.

CEO/President of SMARTER – the Skilled Motorcyclist Association
Responsible, Trained and Educated Riders, Inc.

SMARTER at www.smarter-usa.org

502c3 educational association

Mission - focus on research - gather, review, sort, post & advocate

The Four Chances for Error*
The Looked But Failed to See MC/Car Crash

Understanding the four chances for error and the associated visual phenomena

Help to further our understanding of the Looked But Failed to See (LBFTS) Right-of-way Violation (ROWV) motorcyclist/car collision scenario

Help to formulate recommended actions for both riders and drivers that will lessen the chance of these types of collision occurring

A brief look at the SMARTER website

* Kevin Williams, UK M/C safety professional & researcher

Two scenarios

1. OVD at intersection pulling out in front of an oncoming MC

2. OVD at intersection turning left across the path on an oncoming MC

This material underlies:

1. **The reasons traditional motorist awareness programs do not work**

2. **The development of SARx2 (SSAARR) a research based search system for drivers which focuses on identifying vulnerable road users**

Key points

1. OVD caused crashes are often incorrectly reported as 75% (old data inappropriately interpreted)

2. Myth - some crashes are due to intentional hostile action by OVD

3. If only cagers would put down their phones

4. The human eyes and brain are not the equivalent of the lens of a camera

5. The commonsense argument that "if it is visible, we will see it if we look hard enough" simply isn't true.

6. Failure to see is not the same as failure to look

   - Failure to see does not mean failure to look or failure to look twice or failure to look properly

The Four Chances for Error

1. **Didn't look**

2. **Looked but couldn't see**

3. **Looked, motorcyclist visible but didn't see**
   - ***inattentional blindness***
   - ***saccadic masking or saccadic suppression***
   - ***motion camouflage***

4. **Looked, saw but miscalculated**
   - ***size-arrival effect***

What do you know about?

inattentional blindness

saccadic masking or saccadic suppression

motion camouflage

size-arrival effect

We will briefly review these perceptual phenomena today however, if your knowledge is limited, please consider further study.

First Error Chance

Didn't look. Did the driver fail to look?

Riders

- need to be aware of situations that might be complicated for drivers, reduce speed and be prepared to take evasive action.

Drivers

- need to eliminate distraction while driving and take extra time to focus at unfamiliar road layouts. At intersections drivers must *Stop* fully and *Search* with specificity

SS

Second Error Chance

Looked but couldn't see

Riders

- have the responsibility to ride in a position to be seen

Drivers

- should *Rock* their upper body while looking and take more time searching - allowing the motorcyclist to "appear" if driver's vision is blocked. Drivers must understand the need to look around pillars and roadside obstacles

SS R

Third Chance for Error

Looked, motorcyclist visible, but didn't see

The driver looks, the motorcyclist is visible, but the driver never becomes aware of the motorcyclist.

- ***Inattentional Blindness***
- ***Saccadic masking or saccadic suppression.***
- ***Motion camouflage***

Third Chance for Error

Riders

- should strongly consider wear Hi-Viz gear and adding auxiliary lights. Research does indicate that riders can benefit from making themselves more conspicuous (visible) HOWEVER the bottom line is it depends so don't count on it.

Drivers

- should look near, middle-distance and far while Asking themselves if there a is pedestrian, bicyclist or motorcyclist approaching? Next, Answering that question to focus their attention. Drivers should take more time moving their head and should keep their eyes moving in lock-step with their head. This will lessen the chance a motorcyclist will be lost in a saccade and provide time for the motorcyclist to appear if blocked from the driver's vision.

SSAAR

Fourth Chance for Error

Looked, saw but miscalculated

The driver looks, the motorcyclist is visible, the driver sees the motorcyclist but fails to correctly judge the speed and distance of the motorcyclist.

- ***size-arrival effect***
- ***motorcyclist speeding***

Riders

- **have the responsibility to slow down and approach intersections with caution and readiness to brake.**

Drivers

- **should assume the motorcyclist they see will arrive at the collision point sooner than they think - and choose to wait.**

Lastly

Extra time for the driver to search and for the motorcyclists to act is provided if the driver **Rolls** slowly into the intersection as opposed to concluding all is clear and just accelerating quickly

SSAARR or SARx2

Stop
Search with specificity & intention
Ask
Answer while
Rock(ing)
Roll (don’t just gas it)

Summary

Four chances for error

1. **Didn't look**

2. **Looked but couldn't see**

3. **Looked, motorcyclist visible but didn't see**
   - ***inattentional blindness***
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SAR x 2 or SSAARR

- **S**top
- **S**earch
- **A**sk
- **A**nswer
- **R**ock
- **R**oll

Share your thoughts – ask a question

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SMARTER is an acronym for **S**killed **M**otorcyclist **A**ssociation–**R**esponsible, **T**rained and **E**ducated **R**ide

Somewhere in the world a motorcycle rider dies every 1:23 minute. We're on a mission to improve mot ts stay safer when they take responsibility for their own safety by riding smart with all the gear every time the clist Association–Responsible, Trained and Educated Riders (SMARTER) is a 501(c)3 nonprofit motorcyclist e ders and

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Perception

When you read the motorcyclist safety research posted in this PERCEPTION section you will encounter many different related words. To aid your understanding of what you read we have developed a **definitions** of terms document that we recommend reviewing prior to reading the posted research.

The usual dictionary definitions of perception include: *The ability to see, hear, or become aware of something through the senses* such as "The normal limits to human perception" and *the state of being or process of becoming aware of something through the senses* such as "The perception of pain."

A few similar words include: discernment, appreciation, recognition, realization, cognizance, awareness, consciousness, knowledge, acknowledgment, grasp, and understanding.

An additional part of the definition of perception includes: *A way of regarding, understanding, or interpreting something; a mental impression* such as "Hollywood's perception of the tastes of the American public" and *intuitive understanding and insight* such as "He wouldn't have accepted," said my mother with unusual perception"

A few similar words include: insight, perceptiveness, keenness, sharpness, sharp-wittedness, intelligence, intuition, cleverness, astuteness, shrewdness and thoughtfulness

It is clear the definition of perception includes both ability or process and a state of being. In more simple terms ***perception is the process of getting, interpreting, selecting, and organizing sensory information***. It includes the collection of data from sense organs through to the

Perception Studies

2021 – "The Science of Being Seen"

This is a SMARTER edited version of an 85 page review of the literature written by Kevin Williams on the subject of the motorcyclist/car crash scenario where the car driver violates the right-of-way of the motorcyclist. In the U. S. this crash scenario is often called a Looked But Failed to See (LBFTS) crash. In the U.K, Australia, and New Zealand this scenario is called the SMIDSY crash for Sorry Mate, I Didn't See You. The research reviewed dispels the common assumption that car drivers simply don't look or don't look hard enough for motorcyclists and helps us understand why common countermeasures such as efforts to increase motorcyclist/motorcycle conspicuity and motorist awareness campaigns have not demonstrated effectiveness. The Science of Being Seen Key Points without references and explanation.

2021 – "Understanding the SMIDSY (LBFTS) – Articles by Kevin Williams"

This document provides multiple links to the work of Kevin Williams (author of the Science of Being Seen) on subject of the motorcyclist/car crash scenario where the car driver violates the right-of-way of the motorcyclist . In the U. S. this crash scenario is often called a Looked But Failed to See (LBFTS) crash. In the U.K, Australia, and New Zealand this scenario is called the SMIDSY crash for Sorry Mate, I Didn't See You. The research reviewed dispels the common assumption that car drivers simply don't look or don't look hard enough for motorcyclists and helps us understand why common countermeasures such as efforts to increase motorcyclist/motorcycle conspicuity and motorist awareness campaigns have not demonstrated effectiveness.

2020 – "Recording and Evaluating Motorcyclists' Gaze Behaviour in Rural Roads"

The present study deals with motorcycle riders' gaze behaviour due to out of the vehicle sources of distraction. The most generic conclusion of the analysis is that both at urban and suburban environment exist too many elements that attract the attention of the

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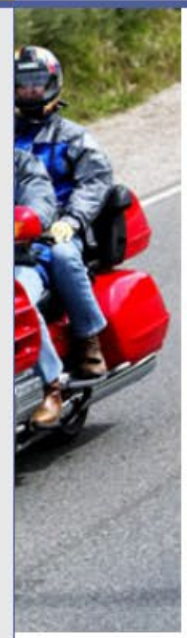

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Conspicuity Research Studies

2022 – "Effect of Motorcycle Lighting Configurations on Drivers' Perceptions of Closing"

The aims of this research were to better understand how drivers perceive an approaching set of motorcycle headlights during nighttime driving. The authors conclude an alternative motorcycle headlight configuration that accentuated the full extent of a motorcycle's size resulted in drivers perceiving closing sooner than other motorcycle headlight configurations but not sooner compared to a car.

2021 – "Conspicuity – Articles by Kevin Williams"

This document provides multiple links to the work of Kevin Williams (author of the Science of being Seen) on subject of the motorcycle/motorcyclist conspicuity. While the overall evidence certainly indicates there is a benefit to riders who make themselves and their motorcycle more conspicuous (high-viz), there remain many unanswered questions. In this series of six articles, Kevin succinctly summaries the research.

2019 – "Motorcyclists' Attitudes on Using High-Visibility Gear to Improve Conspicuity: Findings From a Focus Group Study."

Prior research on multi-vehicle motorcycle crashes suggests that difficulty detecting motorcycles is a relevant factor. A potential countermeasure to this phenomenon is for a motorcycle rider to wear high-visibility gear, especially at night or in low-light conditions. Yet, many riders do not wear high-visibility gear. This report describes a study that explored why riders choose, or do not choose, to wear high-visibility gear.

Educational Materials

The material in this section is designed for easy access, downloading and use for distribution to others. There is a summary of countermeasure research, motorcycle helmet information including the common myths, information about the impact of helmet laws or the repeal of such laws and a section regarding full protective gear. In addition to this section there is also great material for distribution or use in presentations posted in the drop-down menu under GEAR, and IDEAS & OPINIONS and PLANS & PROPOSALS in the drop-down menu under INFORMATION. Contact us at smarterusa@gmail.com if you don't find what you are searching for.

Data, facts and statistics

National Center for Statistics and *Analysis* (*NCSA*) FARS and GES/CRSS query reporting *tools* and traffic safety publications Select from the nine choices in Tools, Publications and Data. We especially recommend the **Motorcycle Data Visualization Tool.**

Want data, facts and statistics? **Visit the National Motorcycle Institute Fatality Reporting System site**

Ten Year Post Motorcycle Helmet Law Repeal: Michigan Summary. 2012-2021

Michigan Motorcyclist Crash and Fatality Data and Charts – January, 2022

Motorcycle-Involved Crashes in Michigan – 2015-2019

Motorcycle Helmet Use in 2022. NHTSA Traffic Safety Facts – Research Note, DOT HS 813 505, August 2023.

Fatality Facts 2018 Motorcycles and ATVs. Insurance Institute for Highway Safety (IIHS)/The Highway Loss Data Institute (HLDI). The facts

for each of the three types of vulnerable road users.

Looking Twice is not Enough: "Watch for Motorcycles, Look Twice, Save a Life" is the traditional reminder provided to car drivers during the month of May. "Look twice, save a life" is an easy to remember rhyming phrase which it tells drivers the end goal – save a life. However, to make that a reality car drivers need to know more and do more. This brief article describes the "how" of a search system designed to address the problems the research indicates are components of Looked But Failed to See crashes.

The Four Chances for Error : The human eyes and brain are not the equivalent of the lens of a camera. The common sense argument that "if it is visible, we will see it if we look hard enough" simply isn't true. This article describes the four chances for error and the visual phenomena associated with the Looked But Failed to See (LBFTS) Right-of-way Violation (ROWV) motorcyclist/car collision scenario. Recommended actions for both riders and drivers that will lessen the chance of these types of collision occurring are included.

SAR x 2= SSAARR: An Effective Traffic Search Procedure: Looked but Failed to See (LBFTS) intersection right-of-way (ROW) violations are caused by a combination of factors. Understanding the Four Chances for Error and the physiological phenomena associated with how our eyes and mind work to perceive provide the underpinning of the SMARTER developed contemporary driver search procedure SAR x 2 (SSAARR) – Stop fully, Search with specificity, Ask, Answer, Rock, and Roll forward slowly.

Lesson Plan Ideas: *"Driving Safely with Vulnerable Road Users in Mind"* and "*Looking Twice is Not Enough"* have been written specifically for student use during driver education courses. This document contains a few ideas for how driver educators might use this material and a True and False quiz for students.

Killer Pillars: An article describing an investigative report into a car design has reduced driver vision in its quest for five-star occupant safety ratings – creating a lethal danger to motorcyclists.

Looking for Motorcyclists: Videos for Drivers and Driver Educators

2022 – Inattentional Blindness video. This video was developed by the Michigan Department of State for driver education instructors for viewing by driver education students. The content of the video is based on a traffic search procedure developed by SMARTER which in turn is based on the perception research. The search procedure provides a specific process for looking for and identifying vulnerable road users specifically motorcyclists.

www.smarter-usa.org

Dan Petterson, Ed.D.

petterson@pobox.com

smarterusa@gmail.com