Preparing Riders to S.E.E. Better:
MSF Tools for Improving Hazard Perception

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Presentation Purpose

1. *Provide a rationale for hazard perception training.*

2. *Show how hazard perception training connects with executive functions.*

3. *Demonstrate how MSF incorporated hazard perception into its programs.*
Defining Key Terms

• Hazard Perception
• S.E.E.
• Executive Functions
• RETS
Defining *Hazard Perception*

The ability to identify potentially dangerous traffic situations. *(Crick and McKenna, 1992)*

The process whereby a road user notices the presence of a hazard. *(McDonald, 2002)*

Seeing and understanding accurately. *(MSF)*

Note MSF expands into *Rider Perception*. 
Defining S.E.E.

Rider Functions

Visual

Cognitive

Motor Skill

Search

Evaluate

Execute

SEE
Defining *Executive Functions*

Higher-order brain/mind processes:

- Goal Setting
- Planning
- Organizing
- Prioritizing
- Initiating
- Shifting
- Monitoring
Defining RETS

Rider Education and Training System of the Motorcycle Safety Foundation (MSF)

A System of Safety Programs to Develop Safe and Responsible Riders
Rationale for Hazard Perception Training

The Human Factors Central Thread of RETS: 5 Core Questions

1. What is the primary cause of rider crashes?
   • Interaction of factors.

2. What is a good rider?
   • One who reduces contributing factors.

3. How does a good rider reduce factors?
   • Applies a strategy—S.E.E. (Search-Evaluate-Execute)

4. How long does it take to reduce risk?
   • It’s a decision away!

5. What is the primary challenge to be safe?
   • Choosing to ride within personal and situational limits.
Rationale for Hazard Perception Training

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Rationale for Hazard Perception Training

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   • Applies a strategy — Search-Evaluate-Execute

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   • It’s a decision away!

5. What is the primary challenge to be safe?
   • Choose to ride within personal and situational limits.

Executive Functions

The Human Factors Central Thread of RETS: 5 Core Questions
Rider Perception in MSF Programs

Introduced and developed in basic programs.

Expanded in advanced programs.

Enhanced at every opportunity.
Factors other than physical skill contribute to crashes.
Rider Perception in MSF Programs

Ladder Of Risk

More Factors = More Risk
Fewer Factors = Less Risk

Ladder of Risk. Each rung of the ladder represents a factor. More factors result in more risk; fewer factors result in less risk. Good riders keep the number and significance of factors in check.

Crash Chain

Crash Chain
Here's one time when breaking a chain is a good thing. In this diagram, factors from four categories (dark links) interact to form a chain of events that link you to a crash. Removing just one factor breaks the chain and may prevent the crash. To what degree do you control each of these factors?
Rider Perception in MSF Programs

RiderRadar
Rider Perception in MSF Programs

Safety Margins

Rider-Motorcycle

Time & Space

Tires-Pavement
Rider Perception in MSF Programs

Total Stopping Distance
SMART

PERCEPTION -> RESPOND -> MORE TIME & SPACE

RISKY

PERCEPTION -> REACT -> BRAKE OR SWERVE
Rider Perception in MSF Programs

Risk Offset

- High
- Low Skill Scale
- Low Risk Scale

Resulting Risk Scale

- Higher Risk
- No Risk Offset
- Riding the Edge
- Lower Risk

Risk Offset

- Bad Risk Offset
- Good Risk Offset
Street Smart – Rider Perception Kit
Street Smart – *Rider Perception* (SSRP)

Part 1: Introduction to Perception

Part 2: Improving Perception

Part 3: Analysis of Collision Traps

Part 4: Road Sign and Collision-Trap Practice
4 Parts to SSRP

Segments from Part 1: Introduction
See
the
Difference

AT THE GAS STATION — See the 12 differences.
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VRU Conference 2010 Jerusalem, Israel
Most riders do better in traffic if they:

1. Have a plan or a strategy.
2. Use aggressive vision.
3. Know where to look.
4. Know what to look for.
5. Pay attention to what is important.
What do you see here?
What do you see here?
What do you see when riding?

You are on your motorcycle traveling down a U.S. roadway and observe this…
The trap here is:

a. A pedestrian in the crosswalk.

b. The van is blocking your view.

c. Oncoming car is poised to turn left in front of you.
Negotiating this curve has increased risk because:

a. There is a downhill grade.
b. The guardrail blocks escape to the right.
c. Debris on the road surface.
4 Parts to SSRP

Segments from Part 2: Improving Perception
Our central vision is a 3-degree cone.
Our peripheral vision
(with vision in both eyes)
is above 180 degrees.
Using Peripheral Vision.

Mat actual size 35 x 25”
5 sets of 4 numbers
5 sets of 5 numbers
5 sets of 6 numbers
Sign Perception

Single Sign
2 Signs
4 Parts to SSRP

Segment from Part 3:
Analysis of Collision Traps

(To Search & Evaluate)
You are on your motorcycle and traveling down a U.S. roadway and observe this...
4 Parts to SSRP

Segments from Part 4: Practice
RIDER PERCEPTION

Improve your visual perception to be safer on the road. Choose either Road Sign Tests or Collision Traps Tests. The Road Sign Tests help you identify common road signs. The Collision Traps Tests help you evaluate riding situations. Both types of tests demonstrate how quickly your eyes and mind work together if you are attentive.

Each test has 10 questions and each test will be different. Keep trying until you consistently earn a perfect score of 20 out of 20 points. For more information, view Perception Facts and Sign Glossary.

Road Sign Tests ➔
Collision Traps Tests ➔

3 Sets of 10
7 sets of 10
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- **3 Sets of 10**
- **7 sets of 10**

Flash speed of road signs: 0.1, 0.3, 0.5 seconds

Flash speed of collision traps: 3.0, 4.0, 5.0 seconds
MSF Website: www.msf-usa.org
Hazard Perception and Executive Functions

Physical

Mental

Social

Emotional

- Goal Setting
- Planning
- Organizing
- Prioritizing
- Initiating
- Shifting
- Monitoring

Developing value for hazard perception.
Executive functions regulate a person’s goal oriented behavior. It contextualizes intended actions in light of past knowledge and experience, current situation cues, expectations of the future, and personally relevant values and purposes.
Executive Functions

Motorcycle Safety Foundation

Skills
- Clutch/Throttle Control
- Straight-line Riding
- Braking
- Turning
- Shifting

Attitude
- Strategy
- Judgment

Knowledge
- Self Assessment
- Safety Renewal

Habits
- Self Control

Values

RETS Safety Pyramid

CourtesY
- Cooperation

Executive Functions

Motorcycle Safety Foundation

Skills
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Habits
- Self Control

Values

Executive Functions
Motorcycle Safety Foundation

RETS Safety Pyramid

Self Control

Self Assessment
Safety Renewal

Attention Initiate Prioritize Strategize

Clutch/Throttle Control
Straight-line Riding
Braking
Turning
Shifting

Knowledge
Skills
Attitude
Habits
Values

Courtesv Cooperation
Attention Initiate Prioritize Strategize

Strategy
Judgment
Motorcycle Safety Foundation

RETS Safety Pyramid

Consciously Supervise the Mind

Self Control

Self Assessment

Safety Renewal

Knowledge

Skills

Attitude

Habits

Values

Clutch/Throttle Control

Straight-line Riding

Braking

Turning

Shifting

Strategy

Judgment

Consciously Supervise the Mind

Courtesy

Cooperation

Consciously Supervise

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...becoming aware of the illusion of attention can help us to take steps to avoid missing what we need to see.

Understanding everyday illusions will lead you to recalibrate the way you approach your life to account for the limitations—and the true strengths—of your mind.
Thank You

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Director of Training Systems

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