Learning Objectives

1. Categorize a type of transportation risk as **objective** or **subjective** and describe the relationship between the two.

2. Describe theories of, **optimism bias, sensation seeking, risk homeostasis, and planned behavior**.

3. Apply the theories of optimism bias, sensation seeking, risk homeostasis, and planned behavior to explain transportation user behaviors.
Risk Taking (Dewar & Olsen 2007)

- **Objective Risk:**
  A real danger exists at certain locations or under some conditions

- **Subjective Risk:**
  The assessment or perception of the danger by the road user

Turned-down end treatment
(http://www.crashforensics.com/papers.cfm?PaperID=53)

Diverging Diamond Interchange
(ODOT 2013)

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Turn Down Treatment

[1] [2] [3]

**Activity 1:**
Relation of Objective and Subjective Risk

- Objective Risk < Subjective Risk
- Objective Risk = Subjective Risk
- Objective Risk > Subjective Risk
Activity 1: Relation of Objective and Subjective Risk

Objective Risk < Subjective Risk

Objective Risk = Subjective Risk

Objective Risk > Subjective Risk
Optimism Bias

• “The demonstrated, systematic tendency for people to be overly optimistic about the outcome of planned actions.” (Eccleston, 2011)

• Characterized by:
  – Over-estimating the likelihood of positive events
  – Under-estimating the likelihood of negative events
  – Illusion of control
  – Illusion of superiority

Activity 2: Optimism Bias (Sharot, 2012)
**Risk Homeostasis Theory** *(Wilde 1976, 1988)*

- Drivers have a “subjective risk monitor”
  - The acceptable degree of subjective risk (fear) is variable

- Higher risk tolerance is context dependent
  - Teen drivers showing off for others
  - Drivers hurry to get to work on time
  - Driver waiting for an acceptable LT/RT gap

- High-risk situations are very rare
  - Most drivers have little experience with them

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**Sensation Seeking** *(Jonah, 1997)*

“The need for varied, novel, and complex experiences and sensations, and the willingness to take risks to achieve these experiences.” *(Dewar & Olsen 2007)*

- Positive relationships between sensation seeking and risky driving
- Drivers will:
  - Drive at higher speeds
  - Overtake more
  - Change lanes more
  - Have more driving violations
  - Report less seatbelt usage
**Theory of Planned Behavior** (Ajzen 1985, 1987)

- Intention captures motivational factors towards a behavior
- The stronger the intention, the more likely the behavior

Activity 3: Planned Behavior
Speeding Explanation
Activity 3: Planned Behavior

Speeding Explanation

We enjoy speed

All our friends do it

We intend to speed

No enforcement in sight

We speed

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