


The Task of the Driver within the Highway Transportation System

Southern Illinois University Carbondale 

HED 302s – Driver Task Analysis

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Driver Task Within HTS

- **Introduction To The Problem**
 - **Social and Moral**
 - **Financial**
 - **Traumatic**
 - **Driver Needs**
- 

The **main goal** of the HTS is to facilitate the safe and efficient movement of all road users from place to place. Sharing the road requires every participant to abide by her/his responsibilities. The driver of a motorized vehicle must be aware of all the characteristics of the different individuals who may share the HTS in order to minimize the risks that they may present.

Defining the HTS



➤ 180,660,000 Drivers

- All Ages and Levels of Performance Ability
- Various Experience Levels

➤ 204,146,000 Motor Vehicles

- Various Levels of Maintenance & Performance
- Cars, Trucks, Buses, RVs, Motorcycles

Defining the HTS

- **3,899,350 Miles of Highway**
 - **Various Traffic Conditions & Maintenance**
 - **Rural Highways**
 - 3,089,241 miles (fatality rate is 3.0)
 - **Urban Streets**
 - 757,363 miles (fatality rate is 1.8)
 - **Limited Access**
 - 52,744 miles (fatality rate is 1.3)

CONSEQUENCES OF HTS FAILURES

➤ CONGESTION

- Millions of hours (work-leisure) lost annually

➤ FINANCIAL LOSS

- About \$200,000,000,000 annually

➤ INJURIES

- Over 3,000,000 annually

➤ FATALITIES

- Approximately 44,000 annually

A CONCEPT OF THE DRIVING TASK

**DRIVING IS NOT JUST A PHYSICAL TASK;
RATHER IT IS PRIMARILY A MENTAL AND
SOCIAL TASK**

**Driving An Automobile Consists Of Making Skilled
And Properly Timed Actions, Under Varying Road
And Traffic Conditions, Based on Sound
Judgments And Decisions: These Decisions Are,
In Turn, Dependent Upon Previously Acquired
Knowledge And The Gathering Of Accurate
Information Pertinent To The Immediate Traffic
Situation.**

A CONCEPT OF THE DRIVING TASK

Supporting sub-concepts - the driver must:

- Accurately Perceive The Key Segments In The Applicable Traffic Environment.**
- Make Adequate Judgments, Both Of A Time - Space And Value Type, And Correct Decisions.**
- Translate These Decisions Into Properly Timed And Skilled Physical Responses.**
- Perform These Actions Under A Variety Of Road And Traffic Conditions, Some Of Which Will Tax The Driver's Capabilities To The Limit.**

Preliminary Driver Audit Review

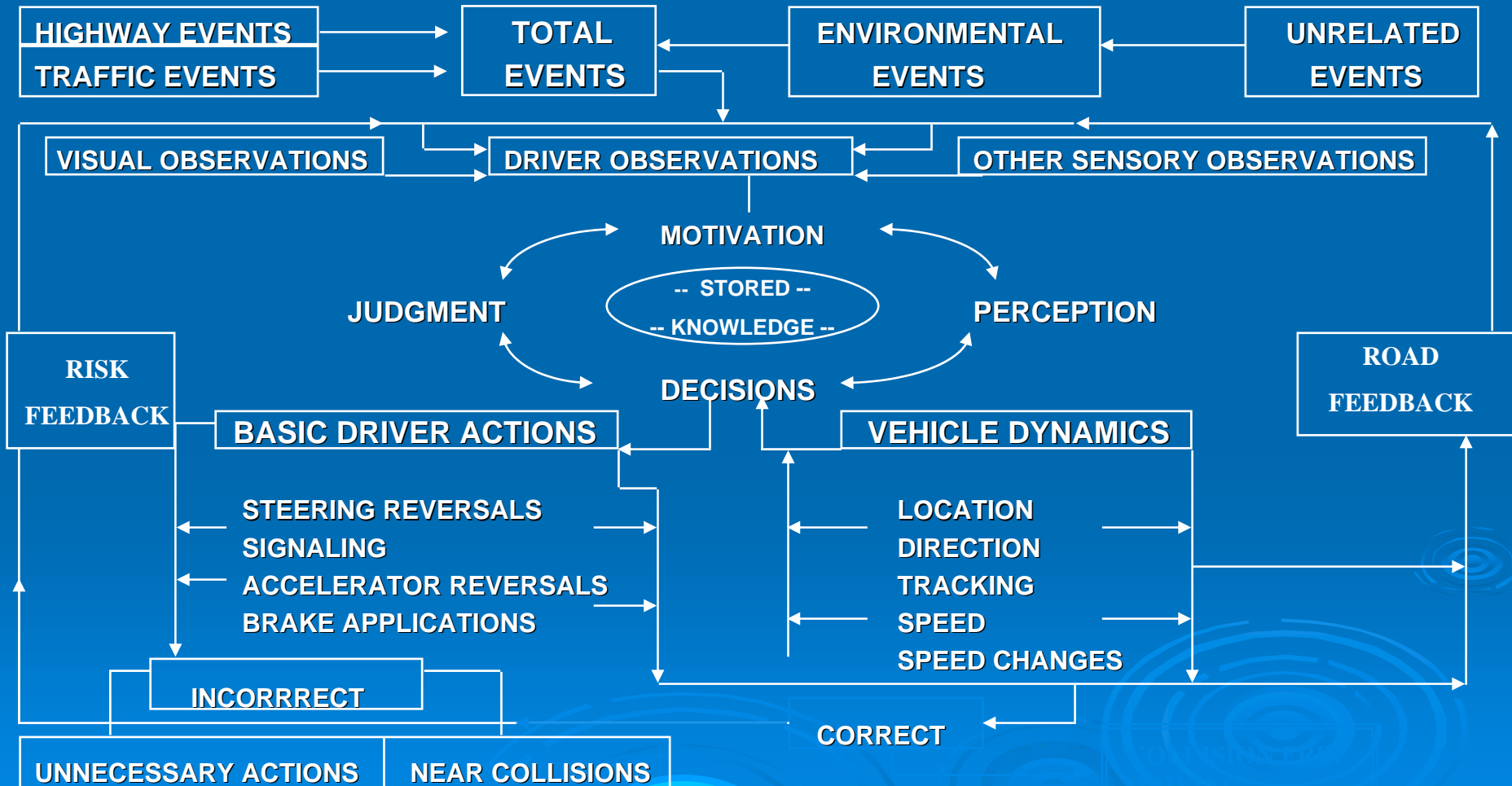
Preliminary Driver Audit Behaviors

- Review of Tasks
 - Performances
 - Problem Areas
- Completed by Student on Self. Develop own form to check pre-drive procedures, left & right turns, lane changing, stopping, up-hill & down-hill parking, reverse driving, etc. You have to develop your own list of items to check (you can develop a form if you desire), but they should include items most driver can do when they drive. Provide self assessment to instructor by the end of the 4th week of the semester enrolled. Write in narrative form what you do well and what you do not do well. One page or two is okay. Take a look at the course materials instructor gave to you.

DRIVING A MOTOR VEHICLE

- **A Problem Solving Activity Which:**
 - **Involves Risks And Social Responsibilities**
 - **Takes Place In A Complex System**
 - **Involves Use Of Complex Machinery**
 - **Involves Perceiving & Evaluating Dynamic Situations**
- **Control Visibility, Time, Speed, and Position Within The Lane**
- **Limits Of Adhesion**
 - **Requires Skilled And Timely Responses**

OPERATIONS ANALYSIS



Source: Greenshields and Platt

BASIC DRIVER COMPETENCIES

- **RECOGNIZE AND DESCRIBE** The Operation Of A Motor Vehicle In Traffic As Primarily A Mental And Social Task Involving The Interaction Of Users, Vehicles, And The Environment.
- **DEFINE** Traffic Regulations, Their Requirements And Situations Or Conditions Under Which They Apply.

BASIC DRIVER COMPETENCIES

- **DEFINE AND RECOGNIZE** In A Manner Sufficient For Safe And Efficient Operation, The Capabilities And Limitations Of One's Own Vehicle And Other Vehicles Found In The HTS.
- **PERCEIVE AND EVALUATE** The Level Of Risk Involved And Determine The Best Pathway To Follow In Response To System Events.

BASIC DRIVER COMPETENCIES

- **CONTRAST** The Performance Characteristics, Evaluate The Benefits Of Optional Equipment And Determine The Extent To Which Various Vehicle Systems Are Properly Functioning Or In Need Of Correction Among The Various Vehicles Operating Within The HTS.
- **DEFINE** The Legal And Moral Responsibilities Necessary For Making Fundamental Decisions Regarding One's Capabilities For The Safe And Efficient Operation Of A Motor Vehicle.

BASIC DRIVER COMPETENCIES

- **DETERMINE AND EXECUTE** An Appropriate Plan Of Action, Including Strategies And Tactics Required To Carry Out The Plan For Various Situations Encountered Under Varying Conditions And Contingencies.
- **DETERMINE** The Advantages And Disadvantages Of Various Driving Environments For The Selection Of The Most Appropriate Routes And Departure Times.

BASIC DRIVER COMPETENCIES

- **DETERMINE** Method(s) For Preventing Various Psycho- Physical, Social, And Other Factors From Having An Adverse Effect Upon One's Ability To Perform The Driving Task.
- **PERFORM** The Basic Skills, Maneuvers And Habits Essential For The Safe Operation Of A Motor Vehicle Under Both Normal Conditions And Under Conditions Of Limited Visibility, Time, Space And Traction.

Driver Error

Decision Errors

76.2%

- Excessive Speed 23.2%
- False Assumption 19.4%
- Improper Technique/Practice 14.0%
- Improper Defensive Technique 12.0%
- Improper Maneuver 11.3%
- Inadequate Signal 7.3%

Driver Error

Decision Errors

76.2%

- Tailgating
4.2%
- Misjudgment of Distance/Closure
3.3%
- Pedestrian Ran Into Traffic
2.0%
- Failure to Turn on Headlights
1.3%
- Excessive Acceleration
0.6%

Driver Error

Recognition Errors

64.2%

- Driver Failed to Stop for Sign
10.2%
- Delays in Problem Recognition
55.0%
 - Improper Lookout 26.0%
 - Internal Distraction 8.5%
 - Delays In Recognition 7.2%
 - Inattention 2.3%
 - External Distraction 1.0%

Driver Error

- **Performance Errors** **38.6%**
 - **Improper Evasive Action**
22.5%
 - **Inadequate Directional Control**
8.0%
 - **Overcompensation**
4.6%
 - **Panic or Freezing**
3.4%
- **Other Human Factors** **4.3%**

Assignment

Write a paragraph on the most important driving skills need by a competent driver in order to be successful in the highway transportation system. Send paper to your instructor at safety@siu.edu.