The Shield

March 1, 2019

Arming the transportation industry with safety solutions

SOUTH CAROLINA TRUCKING ASSOCIATION

Inattentional Blindness III

Research suggests that inattentional blindness is affected by four factors, conspicuity, mental workload, expectation and capacity.

Mental Workload and Task Interference

Since attention is roughly fixed, the more attention we focus on one task, the less there is for others. Inattentional blindness often occurs because part of our attention is devoted to some secondary task.

In theory, for example, speaking on a cell phone, adjusting a radio, or carrying on a conversation with someone in the back seat can absorb some attentional capacity and lead to inattentional blindness. Any mental workload, such as just thinking about what to make for dinner, can also reduce available attention.

In some situations, such as driving along an open road on a bright day with no traffic, for example, there may be enough attention available to engage in all behaviors. But if the situation becomes more complicated (dense traffic, poor weather, etc) there may not be enough attention for all tasks such as cell phone use.

> The more attention we focus on one task, the less there is for others.

However, it is not always so simple. The notion that attentional capacity is constant is only approximately true because attention is cross-modal, meaning we can pay attention to sensory inputs from different sensory modes (visual information and auditory information for example). There is ample evidence that visual and auditory senses employ partially independent attentional pools. That means that an auditory task (listening to the radio) will interfere less with a visual task (seeing a pedestrian) than would a second visual task (focusing narrowly on the car up head).

Low Work Load and the Effects of Automation

Ironically, inattentional blindness can be caused by too little mental load. When confronted with a monitoring task where the chance of an important event is low, people become bored, and they cease paying close attention. Arousal level drops and attention wanders. People may also go on "auto-pilot" when performing highly practiced tasks, such as driving.

The advent of sophisticated computer technology has increased the problem. Drivers, pilots, machine operators and others who "control" powerful equipment spend more and more time as spectators, merely watching as computers do the actual work. They become increasingly reliant on the technology and are less likely to notice an abnormal event.

A truck driver barely avoided disaster when narrowly stopped in time to avoid rear-ending a line of stopped traffic. The driver stated that prior to making the panic stop, he was thinking about a ballgame he had attended the day before. With his cruise control set and traveling close to 70 MPH, he failed to notice the traffic stopping in front of him. It's for these type reasons some companies now employ collision avoidance systems on their vehicles that will electronically downshift and apply brakes if the driver's front space cushion is compromised. The down side to such technology has already been observed in numerous documented airline situations where pilots have came to depend so greatly on technology, that they quit using their own senses. As one aviation authority said, "The burning question of the near future will not be how much work a man can do safely, but how little"

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Quiz

Driver Name: _____ Date: _____
Please Print

Driver Signature: _____

Please circle one correct answer for each question.

1. Since attention is roughly fixed,
   a. We can pay attention to as many tasks as we want at once
   b. We must always concentrate on the task at hand
   c. The more attention we focus on one task, the less there is for others
   d. None of the above
2. Mental workload, such as just thinking about what to make for dinner,
   a. Can also reduce available attention.
   b. Does not influence our ability to pay attention.
   c. Both A and B
   d. None of the above
3. Attention being cross-modal means:
   a. We can pay attention to various sensory inputs from one sensory mode more easily than paying attention to various sensory inputs from different sensory modes
   b. We can pay attention to various sensory inputs from different sensory modes more easily than paying attention to various sensory inputs from one sensory mode
   c. There is no difference in the ease with which we pay attention to various sensory inputs, regardless of whether we receive them through one sensory mode or different sensory modes.
   d. None of the above
4. Inattentional blindness
   a. Can be caused by too little mental workload
   b. Can not be caused by too little mental workload
   c. Is only caused by too much mental workload
   d. Is never caused by too much mental workload
5. When arousal level drops and attention wanders.
   a. True
   b. False

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Quiz Answer Key

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