



## **Class 8**

The Effects of Distractions on Driving

**Definition and Effects of Distracted Driving**

**Distracted driving** occurs any time a driver takes the eyes off the road, the hands off the wheel, and the mind off the primary task of driving.

**Inattention** occurs when a driver’s attention drifts away from driving without having been influenced by an activity (i.e., mental and emotional).

Novice drivers should recognize that all drivers can become distracted while driving. Evidence shows that drivers whose attention is diverted away from the driving task are at increased risk of being in a crash.

Distractions are important to consider when driving.

- Drivers need to focus their attention on the driving task. To perform the complex task of driving successfully, drivers must pay full attention.
- Drivers whose attention becomes diverted from the driving task are more likely to experience a crash.
- There are many ways in today’s driving environment for drivers to become distracted.
- Glancing away from the road for more than one second – for any reason – can be extremely dangerous. At 55 mph, a three second glance at a cell phone, messaging device or instrument panel will result in a vehicle moving nearly 250 feet – almost the length of a football field.
- Short glances at vehicle instrumentation or mirrors can be done safely if these scans are limited to less than one second and are related only to the driving task.
- In the rush to be on time or get ahead of traffic congestion, don’t make the sometimes-fatal mistake of attempting to multi-task behind the wheel. Remember that far too many of the drivers sharing the road with you might also be driving distracted.

**Effects of distracted driving**

- **Slowed perception** – may cause drivers to be delayed in perceiving or completely fail to perceive an important traffic event.
- **Delayed decision making** – can cause a driver’s decision making process to be delayed, or cause a driver to choose an action inappropriate for the situation.
- **Improper action** – can cause drivers to be delayed in taking the intended action or to make incorrect inputs to the steering, accelerator or brakes.

**Nature of the Distracted Driving Crash Problem**

- Approximately 5,500 people are killed each year on U.S. roadways and an estimated 448,000 are injured in motor vehicle crashes involving distracted driving (*NHTSA Traffic Safety Facts: Distracted Driving*)
- Teen drivers (drivers under 20) are more likely than other age groups to be involved in a fatal crash where distraction is reported (*NHTSA Traffic Safety Facts: Distracted Driving*)
- Almost every state has legislation under which drivers can be charged for careless driving (*NHTSA distracted driving website, [www.distraction.gov](http://www.distraction.gov)*)
- Research indicates that the burden of talking on a cell phone - even if it's hands-free - saps the brain of 39% of the energy it would ordinarily devote to safe driving. Drivers who use a hand-held device are more likely to get into a crash serious enough to cause injury. (*NHTSA distracted driving website, [www.distraction.gov](http://www.distraction.gov)*)
- Possible reasons for the over-involvement of drivers under age 20 in distracted driving, include:
  - Lack of driving experience
  - Lack of experience performing tasks which could cause distraction
  - Increased risk taking
  - Lack of familiarity with particular vehicles
  - Others
- While any driving distraction has the potential to cause a young driver to experience a crash, several specific distractions have been identified as particularly hazardous to young drivers (under age 20), including:
  - Talking on a cell phone
  - Texting
  - Adjusting radio or CD
  - Talking to other occupants
  - Diverting attention to person, object or event outside the vehicle

Types of Distractions

There are many causes of distraction, all with the potential to increase risk.

- **Physical distraction** – one that causes a driver to take his or her hands off the wheel or eyes off the road, such as reaching for an object.
- **Mental distraction** – activities that take the driver’s mind away from the road, such as engaging in conversation with a passenger or thinking about something that happened during the day.
- **Both physical and mental distraction** – even greater chance a crash could happen, such as talking on a cell phone.

**Potential In-Vehicle Distractions**

Today's vehicles and driving environment offer numerous ways for drivers' attention to become diverted from the driving task.

Some distractions could include:

- Interactive communication devices - cell phones, smart phones
- Texting
- Grooming (applying makeup, combing hair, shaving, etc.)
- Adjusting the audio system-changing the channel, changing CDs, satellite radio
- Passengers - infants, children, adults
- Eating or drinking
- Adjusting vehicle controls - air conditioning system, tilt of steering wheel, mirrors, seat position, dash light brightness
- Using navigation systems, DVD players, dashboard control panel
- Reading (maps, books, newspapers, etc.)
- Foreign objects in car - insect, trash
- High radio volume
- Smoking
- Pets
- Reaching for objects or picking up something that fell
- Sneezing

Potential Distractions Inside the Vehicle

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Content Information

Cell Phones

Cell phone use in the U.S. has grown quickly during the past decade. Today almost everyone has a cell phone. Over 236 million people subscribe to wireless communication devices (*Insurance Information Institute*). 974,000 vehicles on the road at any given daylight moment are being driven by someone using a hand-held phone (*NHTSA*).

The primary responsibility of the driver is to operate a motor vehicle safely. To do this, a driver must focus his/her full attention on the driving task. Cell phones may distract drivers from this task. The safest option for a driver would be to refrain from cell phone use while driving.

- Risk of collision increases by up to 400% when talking on a cell phone while driving (*Insurance Institute for Highway Safety*)
- A study done with driving simulators, found that when talking on a cell phone (*Virginia Tech Transportation Institute*):
  - Young drivers' response times to brake lights ahead were as slow as those by elderly drivers.
  - Drivers of all ages were 9% slower in hitting their brakes when needed.

Young drivers are especially vulnerable to becoming distracted while using a cell phone. Additionally, modern cell phones are capable of more than spoken communication/ many can perform navigational functions, access the Internet, share photos and send and receive text messages. Today's cell phones hold even more potential for increased risk while driving.

Cell Phones

**Potential dangers of using a cell phone while driving**

- Diverting attention away from the driving task
- Looking away from the road and using one hand to drive in order to dial
- Effect on maintaining proper lane position
- Impact on ability to perceive potential problems
- Ability to make quick decisions
- Reduced situational awareness
- Ability to execute emergency maneuvers

The issue of distracted driving has been researched. Some studies indicate that using cell phones while driving may negatively affect drivers' performance because the device may cause cognitive distractions that are significant enough to degrade a driver's performance.

Note that hands-free devices are no less likely than hand-held cell phones to cause a driver to become distracted. Attention is diverted from the driving task while using either device.

**Potential benefits of cell phones in vehicles**

- Ability to summon roadside assistance quickly in the event of a mechanical problem
- Ability to contact law enforcement rapidly in the event of a personal or national security concern
- Ability to contact emergency services quickly in response to a crash or emergency or medical situations

Note that in all of the above situations, the driver would be the person initiating a phone call. None of the above situations would require that a cell phone be turned on until the situation warranted action. Thus, a driver could take full advantage of all safety benefits related to having a cell phone, without having the cell phone turned on while driving. Drivers should make efforts to move to a safe place, off the road, to make such calls. Depending on the urgency of the situation, drivers must use their best judgment.

**Text Messaging**

**Text messaging** – the common term for sending short text messages from cell phones.

**How is texting different from talking on a cell phone?**

- Texting requires you to spend more time looking at the small screen on the cell phone than talking on the phone
- Text messages are typically shorter than conversations
- Texting may involve having two hands on the cell phone

**How texting can impact driving**

Evidence suggests that text messaging is even riskier than talking on a cell phone because it often requires the driver to look at the phone and manipulate the keypad with one's hands. Texting is the most alarming distraction because it involves manual, visual and cognitive distraction simultaneously.

Sending or receiving text takes a driver's eyes from the road for an average of 4.6 seconds, the equivalent at 55 mph of driving the length of an entire football field, blind.

**Effects of texting on driving**

To understand the effects of texting on driving, you can look at the three tasks of driving:

1. **Search** – the driver must search for what's going on in the driving environment
2. **Evaluate** – the driver must use the information gained through perception to evaluate what to do about a particular situation
3. **Execute** – the driver must execute or perform his/her decision



**Text Messaging**

**Effects of texting on driving**

**1. Search**

- If your attention is focused on texting, you could easily miss seeing an important change in your driving environment
  - A car pulling out in front of you
  - A signal light changing from yellow to red
  - A stop sign

**2. Evaluate**

- When your attention is divided, all decision making slows down
- As you add more tasks, your performance on each one becomes slower
- The more tasks you try to do at once, the less effective you are at any single task
- Your ability to make decisions is reduced because of the multiple tasks attempted

**3. Execute**

- You could fail to execute the driving maneuver you selected in the evaluate step
  - Fail to turn the steering wheel far enough or fast enough
- When texting, at least one hand is off the steering wheel and on the phone instead
  - Steering control is greatly reduced when you steer with just one hand
  - You need to have both hands on the steering wheel to effectively steer, especially in emergency situations
- You could fail to brake or accelerate at the right time or with the proper amount of pressure on the pedal

Perhaps the largest concern is texting's ability to impair the first step, searching:

- If your attention is devoted to texting and you fail to perceive the car stopping or turning in front of you, you will never even get to the second step (evaluate).
- Even if you typically make great decisions and have excellent vehicle control skills, if you don't perceive the need to activate these skills because you failed in searching, you are far more likely to experience a collision.

Texting may be even more dangerous than talking on a cell phone since the driver must often take his/her eyes off the roadway to look at the small screen on the phone.

**Audio and Navigation Systems**

Almost every vehicle sold in the US today contains an audio system and many vehicles today also have navigation systems or drivers who have smart phones with GPS systems.

Components of such systems could include:

- AM/FM receivers
- Satellite receivers
- CD players
- Supplementary speakers

**Benefits of audio or navigation systems**

There can be several benefits to having an audio system or navigation system in a vehicle. Some of these could include:

- Having access to music and other programming to help pass the miles
- Gaining the latest information on local, national and international events
- Obtaining road travel reports on weather, construction, road closures and crashes
- Used wisely, audio systems can help keep drivers' minds engaged
- Help with finding an unfamiliar route or location

**Potential distractions regarding audio and navigation systems**

- Adjusting the vehicle's audio controls or navigation tools
  - Research shows that young drivers are especially susceptible to becoming distracted while attempting to adjust their vehicle's audio controls.
  - Adjusting any vehicle's audio controls almost always involves the driver reaching for a knob or button. Often, this action requires that the driver's eyes be diverted from the driving scene for some period of time.
  - Moving one's eyes and having to refocus on the shorter distance between the eyes and the dash or steering wheel, even for a short time, can result in a complete discontinuation of visual feedback from the driving scene.
- Setting the audio system volume too loud
- A driver could miss out on important information that is obtained through the ears, including: emergency vehicle's sirens, horns or screeching tires.

Vehicle Passengers

Having other occupants in the vehicle could become distraction as well.

Occupants could distract the driver by:

- Talking to or yelling at the driver
- Throwing objects inside or outside the vehicle
- Partially hanging out of the vehicle
- Yelling at persons outside the vehicle
- Unexpectedly adjusting audio system controls
- Unexpectedly adjusting vehicle controls
- Much more...

Research indicates that, for young drivers, the greater number of similarly-aged occupants aboard, the more likely a crash is to occur. This is a major reason why many states' graduated driver licensing systems restrict the number of similarly-aged passengers that can be in a vehicle with a novice driver.

**Potential Distractions Outside the Vehicle** **Fact Sheet 9.3**  
Content Information

**Potential Distractions Outside the Vehicle**

Not all potentially distracting events occur within the vehicle. Many possible events and situations could occur outside a vehicle that could capture a driver’s attention.

- Outside traffic – vehicle swerved, turned in front of, changed lanes, slowed or stopped, encroached on lane
- Crash scenes / rubbernecking
- Animal in or near roadway – deer, dog, other animal
- Road construction
- People / objects in roadway – child in road, people walking, basketball game, crowd, broken glass, garbage can, etc.
- Other vehicles
- Police – someone pulled over, someone being chased by police, officer directing traffic, someone thought they saw police
- Reading billboards or other road advertisements
- Sunlight / sunset
- Other – waved ahead by driver, another person or driver, parachutes in sky, bicycle, toll booth, brush obstructing vision, tire blowout, etc.

**Crash scenes (Rubbernecking)**

Certainly a crash scene would have the ability to grab a driver’s attention. However, it has been found that crash scenes also tend to hold a driver’s attention, keeping him or her from focusing on the driving task. Thus, some drivers tend to maintain eye contact with a crash scene, even beyond the point that they pass the scene. This phenomenon, sometimes referred to as “rubbernecking,” can be quite dangerous, increasing the chance of experiencing a collision.

Attention-grabbing events occurring outside the vehicle will likely be surprising and/or rare, such as a crash or sighting a hot air balloon. While these may be interesting events, drivers must remember that safe driving remains the priority.

**Preventing Distractions Before Driving**

A driver's goal should be to eliminate all in-vehicle distractions before driving begins. Accomplishing this goal can be done by:

- Assessing all potential in-vehicle distractions before driving
- Developing a preventative plan to reduce/eliminate possible distractions
- Expecting distractions to occur
- Discussing possible scenarios before getting behind the wheel

Develop a preventive plan to reduce/eliminate possible distractions. Based on the assessment of potential distractions, drivers can formulate a plan to prevent these sources from resulting in distraction.

This could include:

- Turning off all communication devices
- Securing commitment from other occupants to behave responsibly and to support the driver in reducing distractions
- Securing all loose items in the vehicle-pets, handbags, containers, safety kits, umbrellas, flashlights, other personal items
- Familiarizing yourself with your vehicle's features and equipment, before you get behind the wheel
- Adjusting all vehicle controls to the driver's preferences
- Determining exact travel routes or programming the GPS before you drive
- Adjusting to any personal conditions that could become distracting
- Eating before driving or leave early to allow yourself time to stop to eat
- Doing your personal grooming at home, before you drive
- Properly buckling children and giving them books, toys or games to occupy them
- Securing pets in a pet carrier or portable kennel before moving your vehicle

Just a little preparation in advance by drivers could go a long way toward preventing distractions from occurring. Efforts to prevent distractions before driving pay off. It is much better to not deal with distractions at all than to have to address distractions in a moving vehicle.

Addressing Distractions While Driving

By giving advanced thought toward addressing in-vehicle distractions, new drivers can be better prepared to actually deal with these distractions.

**Cell phones**

The best practice would be to refrain from talking on a cell phone while driving. Utilize voice mail or other passengers for help with taking cell phone calls or text messages. Pick up your messages later, once you have completed driving. In emergency situations, it is the responsibility of the driver to use his/her best discretion. If you have to call or text, pull off the road safely or and stop or stop in a safe parking area (depending on the urgency of the situation, drivers must use their best judgment)

Do not use a hands-free device. It is not any safer than holding a cell phone in your hand; research indicates no differences in risk between the two modes. Both are capable of diverting a driver's attention.

**Audio and navigation systems**

- Adjust vehicle controls before you begin your trip, take advantage of normal stops to adjust controls.
- Minimize any adjustment to the audio or navigation system while driving.
- Ask passengers to adjust controls or input navigation information.
- The audio system's volume should be put at a level that always permits the driver to be fully aware of any warning sounds in the traffic environment.

**Vehicle occupants**

In the unlikely event of an extreme situation, the driver, who is responsible for and in control of his or her vehicle, must decide whether an occupant or occupants should be removed from the vehicle.

Avoid arguments and stressful or emotional conversations with passengers that may distract your attention from the road.

Pull safely off the road and out of traffic to deal with children.

Addressing Distractions While Driving

**In Summary:**

- Distractions can occur while driving.
- Young drivers are especially susceptible to distraction while driving.
- Distracted driving can cause collisions, resulting in injuries, deaths and property damage. Costs associated with such crashes, including those resulting from criminal and civil proceedings can be extremely high.
- With some forethought and pre-drive planning, drivers can prevent many potential distractions from taking place while driving.
- By developing a plan to deal with distractions that might occur while driving, drivers can become that much better prepared and equipped to deal with those that do occur.
- The potential for drivers to become distracted is expected only to increase over time.

**Drivers' responsibility while driving**

- Many drivers currently engage in many distraction-causing activities, without giving any consideration to how their driving might be negatively affected. The responsible driver will be aware of potential distractions and minimize both the chance of these occurring and the negative impact should they occur.
- Of most importance, a driver must maintain his or her attention to the driving task. While a distracting event could be considered a negative event, the results of a crash caused by the event could be far worse.
- The driver is completely and solely responsible for operating his or her vehicle in a safe manner. This includes the responsibility for controlling everything that occurs within the vehicle as well. If a distracted driver experiences a crash, the responsibility falls upon the driver, not the distraction.