



## Distraction and pedestrian safety: How talking on the phone, texting, and listening to music impact crossing the street

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### ABSTRACT

As use of handheld multimedia devices has exploded globally, safety experts have begun to consider the impact of distraction while talking, text-messaging, or listening to music on traffic safety. This study was designed to test how talking on the phone, texting, and listening to music may influence pedestrian safety. 138 college students crossed an interactive, semi-immersive virtual pedestrian street. They were randomly assigned to one of four groups: crossing while talking on the phone, crossing while texting, crossing while listening to a personal music device, or crossing while undistracted. Participants distracted by music or texting were more likely to be hit by a vehicle in the virtual pedestrian environment than were undistracted participants. Participants in all three distracted groups were more likely to look away from the street environment (and look toward other places, such as their telephone or music device) than were undistracted participants. Findings were maintained after controlling for demographics, walking frequency, and media use frequency. Distraction from multimedia devices has a small but meaningful impact on college students' pedestrian safety. Future research should consider the cognitive demands of pedestrian safety, and how those processes may be impacted by distraction. Policymakers might consider ways to protect distracted pedestrians from harm and to reduce the number of individuals crossing streets while distracted.

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### 1. Introduction

Use of handheld multimedia devices is growing exponentially worldwide (Giridharadas, 2010; Wilson and Kimball, 2010). Recent data from the United States indicate over 80% of the adult population owns cell phones (Cellular Telecommunications & Internet Association, 2010; Wilson and Kimball, 2010) and nearly 50% owns portable mp3 devices to listen to music (Pew Research Center, 2010). Global data are similar. As examples, industry experts estimate 77% of the world's population owns a mobile phone, 6.1 trillion text messages were sent worldwide in 2010 (equivalent to 200,000 text messages every second; MobiThinking, 2011), and 84% of young adults (ages 18–24) in Britain own mp3 players (British Music Rights, 2008).

Although handheld multimedia devices offer substantial convenience, benefit, and entertainment to users, the injury prevention community has expressed concern about their potential to distract individuals from safe engagement in potentially hazardous environments. The automobile driving literature in particular has

examined the issue and discovered that both telephone conversations (Collet et al., 2010a,b; McEvoy et al., 2005) and texting (Drews et al., 2009; Hosking et al., 2009) reduce drivers' attention to the road environment and substantially increase risk of motor vehicle crashes, injuries, and fatalities. Results concerning the effect of distraction by listening to music are more mixed, with most studies suggesting listening to music has minimal effect on driving safety (although manipulation of music controls such as volume is distracting; see Bellinger et al., 2009; Dibben and Williamson, 2007).

Recently, scientists have shown increased interest in extending work on the role of distraction among drivers to the influences on pedestrian safety (Bungum et al., 2005; Hatfield and Murphy, 2007; Nasar et al., 2008; Neider et al., 2010; Stavrinos et al., 2009, 2011). Pedestrian injury represents a major public health issue, particularly among the population of interest for this study, college students. In 2009, almost 800 young Americans (ages 16–29) were killed as a result of pedestrian-related injuries, and roughly 16,000 required hospital visits (National Highway Traffic Safety Administration, 2009).

Recent findings from observational research suggest pedestrians who are distracted by phone conversations or other activities (e.g., eating, listening to music) take greater risks when crossing streets (Bungum et al., 2005; Hatfield and Murphy, 2007; Nasar

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