

Ventriloquism Effect Adaptation:
Braking reaction time during driving and concurrent cell phone use.

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Objective: Scientific studies have shown that using a cell phone while driving results in increased braking reaction time and the greater likelihood of accidents and injuries. This study examined the ventriloquism effect, where vision captures sound, on driver performance during concurrent cell phone use. **Background:** It has been hypothesized that cell phone conversations interfere with sound-source localization by creating a reverse-ventriloquism effect where sound captures vision. This may be mitigated by a visual anchor that instead triggers a “forward” ventriloquist effect. If so, distraction and inattention may be reduced and various objective measures of driver performance may improve. **Method:** A fully interactive, real-time driving simulator was used to compare the performance of 48 drivers (26 men, 22 women, aged 25-35 with $M=28.8$ and $SD = 4.9$). There were three within-subject driving conditions: (1) no cell phone, (2) while conversing on a cell phone, and (3) with a visual anchor while conversing on a cell phone. **Results:** As anticipated, braking reaction time significantly increased ($M = 2.08$ seconds, $SD = .36$) while conversing on a cell phone as compared to driving with no cell phone ($M = 1.94$ seconds, $SD = .30$). However, with the addition of a visual anchor, braking reaction time was significantly reduced ($M = 1.64$ seconds, $SD = .23$). Pairwise comparisons revealed a significant difference between the no-cell and cell condition ($p = .004$), between the no-cell and cell+anchor condition ($p < .001$), and between the cell and cell+anchor condition ($p < .001$). **Conclusion:** The cell phone conversation’s negative impact on braking reaction time was fully mitigated by the ventriloquism effect which was triggered by a visual anchor during driving and concurrent cell phone use. This research may lead to devices that improve driver performance and reduce distraction, inattention and cell phone–related automotive accidents.

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