

Cell phone notifications may be driving you to distraction

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Courtney Yehnert (l) and Cary Stothart (r) have had their research published that studied the distracting effect cell phone notifications have on concentration.
Credit: Florida State University

Whether you are alerted to an incoming phone call or text by a trendy ringtone, an alarm bell or a quiet vibration, just receiving a notification

on your cell phone can cause enough of a distraction to impair your ability to focus on a given task, according to a new Florida State University study.

In fact, the distraction caused by a simple notification—whether it is a sound or a vibration—is comparable to the effects seen when users actively use their cell phones to make calls or send text messages, the researchers found.

"The level of how much it affected the task at hand was really shocking," said Courtney Yehnert, an FSU research coordinator who worked on the study as an undergraduate student before graduating in 2014.

The study, "The Attentional Cost of Receiving a Cell Notification," was published in the *Journal of Experimental Psychology: Human Perception and Performance*. Psychology doctoral student Cary Stothart is the lead author of the study, and his co-authors are former FSU postdoctoral researcher Ainsley Mitchum and Yehnert. This is the first study to examine the effect of cell phone notifications on performance.

"Although these notifications are generally short in duration, they can prompt task-irrelevant thoughts, or mind-wandering, which has been shown to damage task performance," the researchers wrote in the paper. "Cellular phone notifications alone significantly disrupt performance on an attention-demanding task, even when participants do not directly interact with a mobile device during the task."

It's well documented that using a mobile phone while performing another task is associated with poorer performance. That's because people have limited capacity for attention that must be split between tasks, the researchers explained. The Florida State study underscores that simply being aware of a missed call or text can have the same effect.

The researchers' findings are significant because many public information campaigns intended to deter problematic cell phone use—while driving, for example—often emphasize waiting to respond to messages and calls. However, even waiting may take a toll on attention, according to the researchers. Simply remembering to perform some action in the future is sufficient to disrupt performance on an unrelated concurrent task.

To conduct the study, the researchers compared the performance of participants on an attention-demanding computer task, which was divided into two parts. In the first part, participants were asked simply to complete the task. During the second part, although they were not aware of it, participants were randomly assigned to one of three groups: call, text or no notification. Automated calls and texts were then sent to the personal phones of participants in the first two groups without their knowledge that the notifications were coming from the researchers.

Overall, the researchers found that participants who received notifications made more mistakes on the computer task than those who didn't. In fact, the increase in the probability of making a mistake was more than three times greater for those who received notifications. Those who received phone call notifications fared worse on the task than those who received a text alert.

The researchers then compared their results to the findings of other studies that explored the impact that actually using a cell phone had on attention performance. They found their results were similar, suggesting that receiving a notification but not responding is as distracting as actually answering the phone or replying to a text.

Although the FSU study did not involve driving, the results are relevant to the problem of distracted driving, the researchers said.

"Even a slight distraction can have severe, potentially life-threatening effects if that distraction occurs at the wrong time," Stothart said. "When driving, it's impossible to know when 'the wrong time' will occur. Our results suggest that it is safest for people to mute or turn off their phones and put them out of sight while driving."

The researchers plan to follow this study with another that examines cell phone notification distraction while participants are given a driving test on a simulator.

Provided by Florida State University

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