

Just being around your cellphone affects your thinking, study finds

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As smart phones have become a pervasive part of daily life over the last decade or so, they've changed the way people socialize and communicate. They're always around and always within reach, or nearly

always.

So what happens to people's brains and bodies when their phones are out of reach, or within reach but not usable?

That's what Dave Markowitz, assistant professor in the School of Journalism and Communication, and colleagues sought to find out in a recent study published in *PLOS One*, a peer-reviewed, open-access scientific journal.

Markowitz is interested in understanding the psychology of communication behavior, including language patterns and how media affects social and physical processes. As part of his doctoral thesis at Stanford University, he devised a study examining how subjects responded when exercising self-control with their phones.

He recruited 125 participants for the study, who were assigned to one of three groups and then directed to sit alone in an empty room for six minutes, though they weren't told the duration. Here's how the groups were divided up:

- Members of one group were told to entertain themselves with their [mobile phone](#), except no [phone calls](#) and no texting.
- Members of the second group were told to leave their phones outside the room, sit alone without their device and entertain themselves with their thoughts.
- Members of the third group were allowed to keep their phones but told to turn them face down on the table in front of them and not use them. They were also told to entertain themselves with their thoughts.

A fingertip device was used to measure skin conductance, an indicator of arousal. Participants' level of enjoyment, concentration difficulty,

mind wandering and general mood were measured using post-study questionnaires.

Markowitz and colleagues found that participants without their phones had more difficulty concentrating and more mind wandering compared to those who used their [phone](#). And those who had to resist using their phone had greater perceived concentration abilities than those who sat without their phone.

"The surprising finding for me was the reduction in concentration difficulty when people had to resist" using the phone, Markowitz said.

One possible reason that resisting the phone led to perceived improvement concentration? Most people think phones are valuable and seeing it front of them, even though they could not use it, offered something to think about compared to sitting without their phone, he said

"At least having it front of you was psychologically better than not having it all," he said. "Having some form of external stimulation, even if it wasn't used, I think that can focus the mind a bit.

It suggests having the phone present is better than not, but what's not clear is whether the phone is special, or if the participants would have reacted the same way with a book in front of them that they weren't allowed to read or pick up, he said.

Markowitz's findings fit with research by Tim Wilson at the University of Virginia, who found that when people were given time for "just thinking," they experience psychological consequences—less enjoyment, more difficulty concentrating, more mind wandering—compared to if they had some form of external stimulation.

"The mind can wander and lose focus when you're not given a thinking aid," which can be less psychologically positive for people, he said.

Markowitz said his study also fits in a framework of trying to understand if technology, or media in general, are mirrors or modifiers of human behavior.

If technology is a mirror, then mediated experiences reflect how people also act offline. If technology is a modifier, then in some cases it's changing the way we behave, think and feel in the world, he said.

"That's still really an open question," he said. "There are some cases where mediated and nonmediated experiences show consistencies in behavior, but other cases where mediation plays a crucial, modifying role. I'm interested in exploring these boundaries."

More information: David M. Markowitz et al. Psychological and physiological effects of applying self-control to the mobile phone, *PLOS ONE* (2019). [DOI: 10.1371/journal.pone.0224464](https://doi.org/10.1371/journal.pone.0224464)

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