

RESEARCH CONNECTION

Attention—huh? What is it good for? NOT absolutely everything

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Why this research is important

Lapses in attention are extremely common—everyone experiences moments of the day when they struggle to stay focused, or simply let their minds wander. In fact, humans may spend up to 50% of their waking hours in a less focused state of mind. Despite the incredible frequency of occurrence, we know that diverting attention away from a task is likely to impair performance on that task—so why does it occur so regularly? One possibility explored here is that lapses in attention reflect a period during which the mind is “taking a break” and not processing environmental information. Conversely, lapses in attention may reflect a

What you need to know

Paying attention is known to help in nearly every situation studied—so why does our attention fluctuate between good and bad states? Our study suggests that lapses in attention may be like the lens on a camera: by letting our attention “zoom out” we may attend (and learn about) the wider world around us. Thus, attentional lapses can help expose us to information that we would otherwise miss if we focused more narrowly on only the here and now.

redirection of cognitive resources toward other sources of information (outside the scope of the primary task).

How the research was conducted

Adult participants completed a computerized task where they had to judge stimuli in the centre of the screen (letters or numbers) while ignoring peripherally displayed symbols. Unknown to participants, some targets were very commonly seen with certain symbols (“valid” trials), while others were uncommonly seen (“invalid” trials). We thus defined learning as responding more quickly on valid trials, and more slowly on invalid trials.

Participants' reaction times were used to determine whether they were paying attention or not, with faster responses indicating they were not "fully present." Prior research suggests that extremely rapid responding can correspond to relatively automatic behaviours, which require less attention. For instance, when swiping through many cell-phone photos (one-at-a-time), you likely do not have to focus hard to accomplish this task. We set a unique threshold for each participant: any trials faster than average, and more extreme than a group average, was treated as "out of the zone"—i.e., a suboptimal attentional state.

What the researchers found

First, we looked at how many trials each participant spent out of the zone. We found that participants with poorer attention paradoxically showed the most learning: those who spent more trials out of the zone showed the largest change in reaction time for invalid trials. In other words, participants with worse attention learned more about the peripheral symbols, despite their apparent irrelevance to the participants' task.

We then look at how much learning was seen *during* lapses in attention. Specifically, we compared learning on trials that were in versus out of the zone. We found that during the moments when attention was suboptimal, participants exhibited the greatest evidence of learning! Together, this suggests that an inattentive mind can actually be better at learning under some conditions.

How this research can be used

This study offers an alternative perspective on attention—namely that lapses in attention should not necessarily be considered as "failures," but rather as opportunities to learn what otherwise might be missed. Perhaps we should all give ourselves a break when we find ourselves zoning out and recognize that attentional lapses can be ripe with learning potential.

About the researchers

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