

Inattentional Blindness

The failure to cognitively process a stimulus that is presented in clear view, leaving the observer without any awareness or memory of the stimulus.¹

When focused on performing a task, observers are often blind to stimuli that are literally presented right before their eyes. For example, in 1972, an Eastern Airlines cockpit crew noticed that a landing gear indicator failed to light. They became so fixated on the cause that they failed to notice their loss in altitude or respond to ground alarms. The resulting crash killed more than 100 people. In 2001, a submarine commander looked through the periscope and saw no nearby ships. He ordered the submarine to rapidly surface and unwittingly crashed into another ship directly overhead. The ship overturned, killing nine people. These types of occurrences are common, and are not restricted to catastrophic incidents. It is inattentional blindness that enables many of the tricks and misdirections employed by magicians and illusionists. Inattentional blindness is one reason talking on a cell phone while driving is unsafe—the eyes may be on the road, but the mind is often elsewhere. In any situation where people fix their attention on a task, they will be blind to stimuli that are unexpected and unrelated to the task.²

How does one capture the attention of a person once he or she is focused on a task? It isn't easy. Typically, being very different is a great way to capture attention. However, when people focus their attention on a certain kind of stimulus, being very different actually makes it less likely that a second stimulus will be noticed. For example, in 1996, Pennsylvania highway workers actually paved over a dead deer—they didn't see it. It seems reasonable to think that a surprise such as seeing a deer in the road would have captured the workers' attention, but again, counterintuitively, when people are task-focused, unexpected stimuli are actually worse at getting noticed than anticipated stimuli. When people are in this focused state, roughly 50 percent will be functionally blind to stimuli not related to the task. So, what does get noticed? Stimuli that are relevant to the goal (e.g., a shopper seeking a certain brand of soda will likely notice other soda bottles, but not dishwasher soap bottles), stimuli expressed through different modalities (e.g., auditory versus visual stimuli), faces—whether familiar or anonymous—seem effective at capturing attention, personally relevant stimuli (e.g., a person's name), and threat stimuli (e.g., snakes).³

Consider inattentional blindness in all contexts where attention is key, including security, safety, product design, retail, and advertising. Given the robustness of the effect, the best strategy is to create or alter tasks to focus attention on desired stimuli (e.g., receiving a coupon book prior to visiting a store can predefine the shopping targets ahead of time). When trying to draw attention away from one stimulus to another, consider semantically similar stimuli, alternative modalities, faces, personal names, and threat stimuli.

See also Immersion, Interference Effects, and Threat Detection.

¹ Also known as perceptual blindness.

² The seminal work on inattentional blindness is *Inattentional Blindness* by Arien Mack and Irvin Rock, The MIT Press, 1998. See also “Gorillas in Our Midst: Sustained Inattentional Blindness for Dynamic Events” by Daniel Simons and Christopher Chabris, *Perception*, 1999, vol. 28(9), p. 1059–1074; and “Selective Looking: Attending to Visually Specified Events” by Ulric Neisser and Robert Becklen, *Cognitive Psychology*, 1975, vol. 7, p. 480–494.

³ See, for example, “What You See Is What You Set: Sustained Inattentional Blindness and the Capture of Awareness” by Steven Most, Brian Scholl, Erin Clifford, et al., *Psychological Review*, 2005, vol. 112(1), p. 217–242.



In a now classic experiment on inattention blindness, Daniel Simons and Christopher Chabris showed subjects a short video of two teams of students tossing a basketball and moving about quickly. Subjects were instructed to count the number of times the team in the white shirts passed the basketball, a challenging task given all of the movement. In the middle of the video, a student in a gorilla costume strolls to the center of the screen, beats her chest, and then strolls off the screen. Roughly half of the subjects in the experiment did not notice the gorilla.