

A Matter of Perception

Why lifeguards sometimes fail to see victims on the bottom of the pool | by Tom Griffiths and Cathleen Moore, Penn State

It's a question that has haunted the industry for years: How can diligent, vigilant and well-trained lifeguards miss so many unconscious bodies on the bottoms of clear-water swimming pools and waterparks?

Actually, the answer may be quite simple: It's called, "perceptual blindness," and to save more lives, it's imperative that the industry understand it.

Perceptual blindness — including related phenomena known as inattention blindness and change blindness — occurs commonly in humans. When people are engaged in an engrossing task, such as monitoring swimmers in a pool, they often fail to notice otherwise obvious events because they happen outside the immediate focus of attention. In this way, perceptual blindness can help explain why lifeguards fail to detect victims on the bottom of swimming facilities.

Real-life case studies of this blindness include drivers running over bicyclists, train engineers plowing into cars, submarine pilots surfacing under ships and airline pilots landing on other planes. In each case, the object or obstruction should have been easily noticed but was not.

That's because even though the observers were "looking" right at the missed events, their attention was focused on other visual stimuli, or they were otherwise cognitively engaged (e.g., talking on a cell phone). Strikingly, those

involved in these crashes usually have no idea there was an object there, and cannot explain their failure to have seen it.

A demonstration of inattention blindness goes something like this. Viewers are asked to monitor three basketball players in white T-shirts and count the number of times they pass the ball during a video clip. Thirty-four seconds into this experiment, a person wearing a gorilla suit walks through the game and even pauses to pound his chest before

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moving on. Despite their vigilance, approximately half the viewers never see the gorilla. Even after they are told about the gorilla and shown the video, they refuse to believe it. "Foul!" they cry, "that must be a different tape!"

Demonstrations of change blindness, which is the failure to notice large changes across different views of a scene, produce similar results. Research on these forms of blindness is being conducted at Harvard, Yale, Cornell, Illinois, Penn State,

University of Paris and other institutions around the world.

Ironically, the Ellis and Associates mannequin tests, which have been criticized for being unscientific, are surprisingly similar to the carefully controlled studies conducted by cognitive psychologists. The results of the Ellis/Poseidon studies mimic what is being found in vision laboratories around the world, and help illustrate the same important phenomena.

Although a lack of vigilance often produces poor surveillance on the part of lifeguards, it appears that even the most vigilant observers suffer from perceptual blindness. In fact, the more vigilant one becomes in preventing accidents, the more prone one may be to missing a body on the bottom of the pool.

This is because the more focused guards become with their visual task of monitoring parts of the pool, the more susceptible they are to failing to notice events that are outside of this intense focus of attention.

Consider a guard who is carefully monitoring the behavior of a number of swimmers on the surface. This is a ripe situation for failing to notice a body at the bottom of the pool, even (or perhaps especially) if that body is directly below the surface swimmers. This is analogous to the conditions in which inattention blindness is observed in the laboratory. Thus, it appears that even intelligent, diligent



MISSING IN ACTION A child is missing from one of these pictures. Can your scan find it?

and well-trained individuals will continue to miss the obvious.

To date, there is no "cure" for perceptual blindness, but knowing that it exists may help lifeguards be more attentive to the bottom. So how are lifeguards and their supervisors supposed to deal with this dilemma? And what is the significance of these phenomena to water safety?

The first step in dealing with perceptual blindness is to understand it more and acknowledge that it does exist.

With so much emphasis on recognizing the subtle distress displayed by victims for 20 to 60 seconds on the surface, it is time to include a careful examination of the bottom of the pool or waterpark. In reality, the more lifeguards concentrate on recognizing victims on the surface, the more they may be blinding themselves to bodies on the bottom.



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Carefully and regularly scanning the bottom is an important part of surveillance.

A few additional points:

➤ This information will definitely help to defend lifeguards and aquatic facilities in lawsuits resulting from missed bodies on the bottom. The research clearly states that human beings are not very good at spotting the obvious, even when they are very well trained.

➤ New technologies specializing in drowning detection will be able to identify bodies on the bottom quicker than humans. Now, more than ever, we need to seriously consider this technology.

➤ Finally, we cannot afford to ignore the latest research on perceptual blindness simply because it has yet to be tested with lifeguards in the field. We hope to closely examine perceptual blindness in a research setting with lifeguards on duty here at Penn State University in the near future.



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