

Scanning 101: Attention Capture

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WaterSafetyGuy

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To be successful, scanning must result in the timely recognition of distressed and drowning victims as well as hazardous conditions and practices that require lifeguard response. In other words, scanning must lead to prompt and consistent attention capture and correct analysis of each situation.

Bottom-Up Stimuli vs. Top-Down Controls

One of the most debated issues in the study of visual attention has to do with the role played by bottom-up stimuli and top-down controls in attention capture. In the context of lifeguard surveillance, top-down controls refer to the ability to select and focus on the criteria for attention capture during scanning. Bottom-up stimuli refer to the capacity of certain attributes or behaviors to capture attention, irrespective of what the scanning lifeguard is focusing on or trying to find.

For example:

- *Top-down controls:* When a lifeguard assumes a station, he or she should focus on the physical signs that indicate hazardous conditions, dangerous practices, and distressed and drowning victims. By keeping this focus, the lifeguard is in essence “programming” his or her senses to detect these signs.
- *Bottom-up stimuli:* While scanning an area of the pool, the lifeguard’s attention might be drawn away by a child running on the deck when he or she catches a flash of movement in the corner of his or her eye.

Let’s assume that both types of attention capture can and do occur during scanning. The most consistent and reliable scanning method involves developing top-down controls for capturing attention. In other words, the lifeguard must know the potential hazards in the area of responsibility, the activities that can lead to injury, and the behaviors of weak swimmers and distressed and drowning victims. With these things in mind, the lifeguard will be able to perform goal-directed scans. On the other hand, bottom-up stimuli, things the lifeguard is not actively searching for, may or may not be detected as the lifeguard scans.



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Developing Top-Down–Control Scanning

Lifeguards can develop top-down–control scanning by:

- Developing an understanding of what they are looking for as they scan. This includes:
 - Learning the safety rules for the swimming areas they supervise and why those rules are in place
 - Understanding how injuries occur and what constitutes a hazard
 - Visualizing the characteristics of distressed and drowning victims
- Discussing with other lifeguards on their team how to enforce safety rules and handle common problems in each area
- Focusing on these things as they scan

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The Problem with Lifeguard Vigilance Testing

A great example of the inconsistency of bottom-up–stimulus attention capture in scanning is so-called *lifeguard vigilance testing*. This testing uses a *trigger*, such as a red shirt or cap donned by a patron or staff member, a floating object (e.g., a small red ball) dropped in the water, or a manikin or victim silhouette placed at the bottom of the pool. In each case, the lifeguard closest to the trigger is timed from its appearance until the lifeguard recognizes it and responds. When the trigger is recognized, the lifeguard activates the emergency action plan and enters the water to make the “rescue.”

In 2001, Ellis and Associates conducted more than 500 of these tests at 90 pools and waterparks across the United States. As reported in the 2002 article “Lifeguards Watch, but They Don’t Always See” by Joshua Brener and Michael Oostman, on average, it took lifeguards *one minute and 14 seconds* to detect the manikin submerged in the pool. Brener and Oostman went on to use this average to draw the conclusion that lifeguards are not always vigilant on the job and that drowning would have occurred if the manikins had been real victims.

First of all, Brener’s and Oostman’s conclusions are far from scientific. It is altogether possible that the lifeguards being tested were doing an adequate job of scanning the pool using correct top-down controls for their area of responsibility. Even though manikins submerged in the pool are meant to simulate a drowning victim, they are not the same as actual victims, and, as bottom-up stimuli, they may not immediately capture a lifeguard’s attention.

Lifeguard vigilance testing is a bad idea for a number of reasons:

- Certain bottom-up stimuli (i.e., silhouettes, manikins, etc.) are not reliable attention capture triggers.
- If these triggers are added to the lifeguard’s top-down controls, they interfere with what the lifeguard should really be focused on while scanning. This makes these tests an intrusion of less important information, as defined by Frank Pia’s RID Factor. Lifeguards that do better with vigilance testing may actually not be as focused on the main goal of surveillance.
- These tests also put lifeguards and patrons at unnecessary risk from the staged rescue. ♦



Focusing on top-down controls ensure more goal-directed and reliable attention capture while scanning.

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