

# TerranearPMC Safety Share

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Any person who has studied accidents – workplace or otherwise – investigating the basic cause of an unwanted event would inevitably find at the foundation, was a lack of understanding or cognizant awareness of the surroundings involving the incident. Take, for example, the recent rescue of the boys’ “Wild Boars” soccer team in Thailand: an event that everyone was happy to see a successful outcome. While the coach had explored the caves in this area previously, this time their cave exploration began as monsoon season was approaching. And when the rains came, the tunnel was flooded. While the entire team was rescued, there was one fatality – a would-be rescuer died – and there was a bit of luck when two British divers found evidence of the location of the boys. Yet this entire episode could have been avoided if only a certain level of awareness and judgement was applied. In present terms, this awareness that a person uses to observe and assess potential outcomes of their specific circumstance is often referred to as “Situation Awareness.”

Situation awareness involves being cognizant of what is happening in one’s immediate vicinity. Lacking or having an inadequate situation awareness has been identified as one of the primary factors in accidents attributed to human error. Thus, situation awareness is especially important in work environments where the information flow can be overwhelming. Therefore, poor decisions may lead to serious consequences. Such can be the scenario as piloting an airplane, functioning as a soldier, or treating critically ill or injured patients. An incorrect assessment of the influencing elements can result in unfortunate consequences.

Although the term itself is fairly recent, the concept of situation awareness has roots in the history of military theory, initially expounded in Sun Tzu’s *The Art of War*. This treatise was written circa 500 B.C. and even today, is used in military schools around the world to help students understand thought processes and tactics to defeat an enemy. Such quotes as: “Know the enemy and know yourself”; “He will win who knows when to fight and when not to fight;” and “He who only sees the obvious, wins his battles with difficulty; he who looks below the surface of things, wins with ease” are quotes from Sun Tzu’s timeless writings (Sun Tzu’s book was even referenced in the classic Hollywood movie, “Wall Street” and in the TV series, “The Sopranos.” Both of which caused a dramatic increase in popularity and book sales of the masterpiece).

Recent devotees of Sun Tzu’s work include American Gulf War generals Norman Schwarzkopf and Colin Powell. At the same time, executives and lawyers use the teachings of The Art of War to get the upper hand in negotiations and to win trials. Business-school professors assign the book to their students and sports coaches use it to win games.

It is believed that the term *situation awareness* was first employed at the Douglas Aircraft Company during human factors engineering research. Research programs for flight-crew computer interaction and mental workload were built on the concept of situation awareness where models were developed for which situation awareness could actually be quantified and measured.

The formal definition of Situation Awareness - or SA - is broken down into three segments: perception of the elements in the environment, comprehension of the situation, and projection of future status. Thus SA is a concept where persons acknowledge influencing factors within their



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surroundings, followed by understanding how they may directly affect them or their work and then by recognizing possible consequences of their actions. SA can be measured by gathering information as observing the quantity of output or productivity level, assessing the time to perform the task or respond to an event, and the accuracy of the response or, conversely, the number of errors committed. Such observations can be collected objectively without disrupting task performance.

OK, nice historical references and facts to be used on Jeopardy. But how does Situation Awareness apply to work tasks both in the field or while working in the office? And even to our everyday lives?

SA can be applied when simply walking down a street, say in New York City or other metropolitan area. It is in such environments where tourists can fall prey due to their unsuspecting naiveté and by not noticing people and situations within their immediate location. Our Department of Homeland Security is constantly providing the public with messages of taking notice of unusual circumstances and persons. Indeed, by not identifying abnormal or strange conditions, we may be leaving ourselves and others open to danger. Thus, SA involves being aware of what is happening in our immediate vicinity while understanding how information, events, and one's own actions will impact goals and objectives. SA can apply to such an ordinary event as crossing the street. Even though pedestrians have the right -of-way and may be crossing in a walk way while the light is green, by not noticing whether a vehicle is not slowing down, a serious situation can occur. Meanwhile, a person with an adept sense of SA would have an acute sense of awareness with respect to the many influencing factors. By having this innate "feel" for situations, people, and events, a person can effectively control potential hazardous situations to a greater degree than one that does not notice his/her surroundings.

In the workplace, there are times when we may find ourselves concentrating on a specific task and therefore, not notice nearby hazards. Examples are being too focused on documentation while not noticing that we may be very close to the edge of an excavation or situated too close to a piece of heavy equipment that is operating. Of course, we may rely on the operator to see us and then take the proper precaution to stop and try to get our attention. But making such an assumption can result in serious consequences. Therefore, it is our responsibility and commitment to work safely – through such tools as SA – that we can ensure safety on the job as well in our personal lives.

As it is often said, if something does not look safe, don't do it. Thus SA is a very important component of safety performance as this allows workers the opportunity to use their ability of observation to assess an activity – on the spot – to determine whether an activity - unique to their specific location, equipment, materials and personnel - has the potential for an unwanted event (injury, illness or damage to equipment or materials). In general, procedures cannot describe every scenario or work step to the minutest detail, so it is through SA that we can make a difference and determine to call a work pause so that a workplace incident can be prevented.

**The supreme art of war is to subdue the enemy without fighting**

Sun Tzu

