abstract

We start by investigating what the concept of situational awareness entails. We do this using the Endsley model. This model divides situational awareness (SA) into three progressively more complex levels.

Through interviews with seafarers, we determine how they experience the effect of fatigue on their daily functioning and what they believe to be the causes of a loss of situational awareness. We will further examine these causes to determine how certain mechanisms effectively contribute to a reduction in SA and an increase in fatigue.

In order to present viable results through our tests, we will investigate methods to measure fatigue and situational awareness. We will use an ESS questionnaire to measure fatigue. This questionnaire allows us to assess the degree of fatigue of a test subject in a short time. We use our own questionnaire to gather additional information on certain factors which might influence the fatigue of our test subject.
To determine the SA of the test subjects we will use a SAGAT questionnaire. This questionnaire allows us to objectively determine the SA level of a person.
To introduce the effect of fatigue into the exercises, test subjects will perform two tests in one day. The tests are performed on the bridge simulators of the Antwerp Maritime Academy.

Due to the “Corona crisis” we were only able to perform tests with three test subjects.

Based on our tests, we found that, regardless of a person's fatigue, SAGAT scoring generally decreases in conjunction with the complexity of the concepts surveyed.

When taking fatigue into account, we find that at each level of SA, lower scores are achieved once fatigue is involved. We observed a decrease in situational awareness at SA levels 1 and 2. At SA level 3, we were unable to observe a decrease in SA. Although these results are in line with our expectations, more testing is needed to establish with certainty that the lower SAGAT scores are due to increased fatigue in the test subjects.