ROLE OF ECDIS TRAINING ON IMPROVING SITUATIONAL AWARENESS

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ECDIS TRAINING

August of 2018 marks the completion of the phasing in of ECDIS carriage requirements on SOLAS vessels engaged in international voyages. Additionally, more and more flag states are implementing similar ECDIS and/or ECS carriage requirements for vessels engaged in domestic trade within their territorial waters. Mariners are required to receive training in accordance with IMO Model Course 1.27 “Operational use of Electronic Chart Display and Information Systems” to serve as the Officer in Charge of Navigation Watch (OICNW) on ECDIS equipped SOLAS vessels and some countries look for this same level of training to serve on their domestic fleet’s vessels if they’re equipped with either ECDIS or ECS. This is understandable considering the complexity of these navigation systems, yet even with this training requirement marine incident investigation organizations are still identifying improper use of ECDIS as a causal factor in groundings, which implies that rather than improving situational awareness these systems, at least in some cases, enables complacency [1],[2],[3],[4],[5].

This paper describes the authors efforts to gauge the effectiveness of ECDIS training by through a statistical analysis of surveys completed by students before and after formal generic ECDIS training. The surveys are designed to measure the attitudes of the students towards value of ECDIS in maintaining situational awareness and improving safety of navigation.

ECDIS is not only an e-navigation tool which can be used to satisfy the nautical chart carriage requirement of SOLAS, but can also totally change the way/method of performing marine navigation[6]., ECDIS will be the focal point and main hub for Integrated Bridge Systems when configured as a Multifunction Display device where all the voyage related data and information from different sources such as propulsion, navigation control systems, steering systems, alarms etc. can be reached, seen and used as a “decision support system” for routine and emergency situations.[7]

Situational Awareness

According to Endsley [8], Situational Awareness (SA) is “the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future”. SA is comprised of three levels: perception - perceiving critical factors in the environment; comprehension - understanding what those factors signify; and projection - anticipating what will happen, or how the situation will evolve, in the near future. These levels are cumulative in nature as projection cannot occur without comprehension and comprehension cannot occur without perception.

Accident investigation results reveal that loss of SA has directly responsible for 27 percent of marine accidents [9]. ECDIS can play an important role for developing and maintaining a high level of situational awareness by supporting appraisal, planning, execution and monitoring phases of voyage planning.
The goal of the work upon which this paper is based is to determine the attitudes of ECDIS trainees towards the effectiveness of the system to increase situational awareness during voyage execution and monitoring and also in creating detailed and safe voyage plans. To gauge the soundness of the training a survey is given at the beginning of the training period and again at the end of the training period. A statistical comparison of the two surveys enables a subjective determination of whether the provided training is indeed having the desired effect, acceptance of tenants of ECDIS best practices as being an invaluable tool for increasing awareness of stationary and moving hazards to navigation that may threaten safe navigation.

REFERENCES


