Assessment by Simulation

The summer technical meeting of the London Branch was held on board HQS Wellington in early June. Simulators have long played a role in maritime training and the latest generation replicate real-world situations extremely accurately. They are put forward as part of the solution for the STCW Management & Leadership requirements and some also see a role in assessment of competence. The panel of speakers, chaired by Cdre David Squire, Chairman of MNTB, covered various aspects of assessing competence through the use of simulation including: how can simulator use be developed; should emergency reactions be 'tested' as part of assessment; should simulation be part of re-validation; and, is simulation part of the solution to STCW requirements in the pipeline?

Training Cadets
Opening the presentations, Billy Bean, principal lecturer at Warsash College, explained why we need to assess students and highlighted the effectiveness of this training tool for diagnosing needs or difficulties; providing feedback which helps lecturers and manufacturers; designing scenarios that fit the purpose and which can be integrated into the training cycle. If the intended outcomes are reflected in the assessment then teaching and learning are directed to the same goal. Students need more time in simulators as they cannot be expected to get it right first time, and at some stage in the future there will be some form of compulsory simulation in the industry.

The Navy View
David Goddard, Bridge Simulator Manager at the Royal Navy training centre HMS Collingwood, described the situation in the RN which makes extensive use of practical assessment of its officers. Simulation is initially used in tactical training and assessment and the candidate for a navigation watch certificate (STCW II/1 RN) is assessed in the simulator to show they are competent in the role. The command qualification (STCW II/2 RN) is not possible without the use of a simulator. For the RN, simulators can introduce emergencies which cannot be suitably arranged at sea, however, simulators are not the real thing and distances are difficult to judge on a simulator.

Simulators in the air
Carl Phelan, Chief Pilot, BA CityFlyer, gave an account of how simulation is used to assess competence in the airline industry and expressed astonishment that mariners are not routinely assessed! The airline industry is highly regulated and pilots are assessed every six months on competence and ability. Simulators are used for training, specific qualifications, safety assessments and annual checks. They are completely integrated into the aircraft industry, enhance safety and crew training and are used to ensure quality and compliance. You can only assess pilots' competence by creating scenarios through simulation. Assessment on a routine flight to Frankfurt and back will not adequately test the pilots' competence.
The final panel member, Roger Towner, Chief Examiner at the MCA, picked up on the different scenarios required by the air and maritime environments. Airline pilots are trained on specific aircraft and usually fly between few airports. Mariners have a

vast number of different types of vessel, with many different ports and waterways to negotiate, so it is difficult to replicate the airline experience. The logistics of reassessment even on a five year cycle would be prohibitive. Roger opined that assessing the competence of a mariner to understand the Collision Regulations, for example, can be done in a fairly short time frame using a desktop exercise with models and "smarty-boards". However, for management and leadership aspect of STCW, simulators are an appropriate means of assessment and the Manila amendments reflect this.

Moving Forward
Opinions and questions from the audience came thick and fast, with many taking the view that assessment by simulation was the only way to go. Simulation of cargo operations, particularly for tanker and gas operations are essential and officers need to spend time on simulators before going on board, not just be assessed on "the Rule of the Road". There is a need to build pressure on an OOW and only a simulator can do this, and, with high value vessels and cargoes, they cannot afford to have an accident. A marine pilot in the audience argued that the lack of spatial awareness on mission simulators caused him to lose faith in them for ship handling purposes.

Others in the audience noted that simulation is becoming cheaper and the business case for their use is much stronger, with simulator time being used more effectively.

However, some were of the opinion we should not lose track of simple assessment so Roger Towner's 'smarty-board' concept is still valid, but there is a need to be able to demonstrate competence e.g. passage planning on ECDIS, where this can only be done using simulation. Again, opinion differed and the 'smarty-board' concept was derided as being only assessing surface level knowledge. A candidate can be trained by rote and this is not a true test of competence. As ECDIS becomes the primary means of navigation, then competence can only be assessed using simulation.

Cost of courses using simulators is a big issue as far as shipowners are concerned, and the cost benefit had to be appraised. How many accidents do we need before we have to be concerned?

This technical meeting had been controversial in parts and had generated an excellent amount of interaction and discussion in the audience and panel. While it was probably easier to assess the knowledge of mariners of the ColRegs in an oral examination, the overwhelming capacity of simulators to assess the overall competence of masters and OOWs would lead to their eventual mandatory use.

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