Training for a seafaring career used to be relatively simple. You learned everything on-the-job and there were three easy-to-learn principles essential for navigating ships through any sea: log, lead and lookout.

The logbook was for recording, the headline measured depth under the keel and the lookout... did exactly that.

According to Captain Rodney Short, head of the Australian Maritime College, it was commonly held until well into this century that these "three Ls would continue to hold their own as long as fog and cloud and precipitation continue to obscure."

Technology has changed all that. The concepts may remain, but 'Star Wars' guidance systems and modern engineering need equally hitech training methods and flexible delivery is an important issue.

The college is assessing a pilot project on distance education, using satellite communications for onboard training for sea-going cadets. The aim is to give cadets a rapid response to their assignments in their Task and Guided Study programs at the same time as allowing college staff to monitor progress more closely.

In the project, which ended in January this year, some 200 transmissions and the equivalent of 330 A4 pages were sent to cadets on ten selected Australian ships. It is a forerunner to the planned use of satellite communications systems for computer-to-computer data transmission, which is the only way data can be crunched to a form allowing for rapid transmission—and thus at a viable cost, given satellite charges of $9-$12 per minute.

When the results of the project's assessment are known, they could lead to wide-ranging changes for the maritime industry's training system.

In the old days—of wooden ships and iron men, as the saying goes—transfer of knowledge and skills was largely done on board ship, through understudying a competent practitioner. A good First Mate with an interest in developing the juniors played a key role in developing their competence as basic principles were drummed into them.

As governments began to regulate through requiring certificates of competency for seafarers in positions of responsibility, examinations had to be setup to test that competence. National systems of certification were established, linking industrial experience, by stipulating minimum periods of sea-service in specified positions of responsibility, with assessment of knowledge and understanding shown in written examination for theoretical knowledge and oral examination for practical knowledge.

The examinations were to assess the individual's readiness to take responsibility. The industrial experience was expected to provide the on-the-job training.

Schools were set up to prepare cadets for success in the examinations, earn a 'ticket' and go to sea, duly qualified for a more senior position and only waiting on their employers for promotion. Such training was largely shore-based, though a number of schools did have training vessels.

Instructing and examining seafarers in buildings on land, however, had obvious difficulties.
Situations at sea could only be described or simulated with models or equipment from ships.

This system of training and certification has long worked well, at a time of generally smaller and slower ships, larger crews and less congested shipping lanes. Now, however, changes are needed, not only in Australia, but worldwide, according to Captain Short, who, though a New Zealander, is of the opinion that since “a golden opportunity exists” it is entirely appropriate for the world’s largest island to lead such changes.

Amongst the changes he has begun at the Australian Maritime College is the introduction of more flexible delivery of training. From the tradition of being totally on-the-job to being mainly onshore, the move is now to a better balance between the two.

Captain Short voiced concern back in 1992 that much of the teaching of knowledge and skills is carried out in shore-based establishments, whose links with those at sea are often inadequate and available study time at sea was often seriously under-used.

“With few exceptions,” he said then, “examinations are conducted away from the shipboard environment, with a consequent lack of authenticity and there is a tendency to assess knowledge rather than the candidate’s ability to perform to established performance standards.”

More flexible delivery of training would also help those already well into their careers at sea, who need to update knowledge and skills or study other disciplines of interest, to make their career more interesting and avoid wastage, particularly if the individual can then readily move into other shipping industry work.

Competency-based training is being introduced to the maritime industry. Here again it is better to train and test onboard.

“Whereas much of the training can be effectively done in shore-based training institutions,” Captain Short says “competency should be either assessed in the workplace—on board the ship at sea—or in a realistic simulation of the workplace.”

Distance learning

How does the chief executive of the top maritime training college plan to move back to more onboard training?

Education and training resources principally located ashore will be made available to seafarers both when ashore and at sea. Modern, efficient and low cost, interactive telecommunication technology provides the means and latest distance learning techniques provide the method.

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International shipping satellite communications are rapidly improving maritime radio communication. There are now Satcom terminals onboard thousands of ships—a number growing rapidly as new systems are introduced, as miniaturisation progresses and prices reduce. Contact between ship and shore is becoming such that it is often said that ‘the ship remains in the manager’s office’.

Satcom’s equipment makes it possible for data to be transmitted and received at any time and in almost any part of the world.

There is a not-inconsiderable cost to the shipping industry and the seafarers themselves, of personnel spending long periods ashore to study. Time spent studying ashore can now be reduced as effective academic links between the seafarers and their maritime distance education centre are developed so that they can be tutored and their progress monitored while at sea, irrespective of where their ships are.

At present, when pre-sea cadets leave a training school to join their first ship, any further study while on board often depends upon their own motivation and ability to obtain knowledge from books, as well as the interest that their officers take in the cadets’ academic progress and the time available to study while at sea.

More fortunate ones such as those on Australian ships may have been given a correspondence course and a task book, but these can mean long delays between despatch of the written papers and the eventual receipt back aboard ship of the marked scripts. A cadet may also be faced with a difficulty in understanding, with which others on board are unable to help.

A direct link between the tutor ashore and the pupil aboard ship is the obvious best option. Satellite communications provide telephone, telex, facsimile or data transfer, with the latter likely to be...
used more frequently because of the lower cost.

Scripts could be received at the maritime distance education centre, marked and despatched with minimum delay. It would also improve monitoring of the progress being made through the course.

For competency-based training at sea, the tutor ashore will manage the student’s progress through close liaison with both student and onboard assessor. The assessor will have the support of the expertise available in the distance education centre, where the student’s progress is monitored and recorded, the standard of the onboard training and assessment and a profile of the student is compiled. The centre will also have a profile of the competency performance necessary to meet the standards for the particular type of vessel.

The seafarer will still need to attend shore-based courses for both induction and post-entry upgrading training.

With increasing use of technology and distance learning, maritime education and training is likely to develop the following structure:

- pre-sea induction training at a shore-based institution
- at-sea education and competency-based training utilising distance education
- advanced and specialist education and training, both onboard and in shore-based institutions using simulation.

The AMC offers training for all maritime occupations. These include navigating officers, engineers and fishermen. Specialised courses provide for those on chemical, oil and gas tankers, in shipping activities ashore and in maritime resource management.

Short’s vision for the college is worldwide. At present overseas clients from 30 odd countries include Russia, New Zealand, Nigeria, Indonesia, Papua New Guinea, Japan, Korea, Thailand and Western Samoa.

With the implementation of his plan for sea distance education, Short predicts a network of centres of maritime education and training will evolve. Regional networks will link smaller basic training institutions with one or two larger institutions providing distance education, advanced training using simulation and other state-of-the-art technology, as well as monitoring and recording. These high-budget key nodes will be linked with other key nodes in a global network.

In Captain Short’s opinion, “Development of Maritime Australia’ is a key to the future. In establishing the college, Australia took an initiative which is now providing a major national and international contribution to ‘matters maritime’. “

Simulation courses provide a realistic workplace environment. Maritime training in simulated situations, though still in its infancy, is developing rapidly and will play a much greater role in future.

The Australian Maritime College, in Launceston, our national centre for maritime education, training and research, can now boast high technology simulators of the wheelhouse or bridge of a modern ship, comprising several cabins, all set up with the latest equipment. The full mission ship simulator has a panoramic screen that gives 200° viewing. There is also engine room control simulation as well as towing and circulating water tanks for scale models.

The research arm of the college, AMC Search Ltd, has developed a special computer-based learning package for the Australian LNG Ship Operating Company (ALSOCC). The package simulates the cargo operating systems of large vessels carrying natural gas from Western Australia to Japan. It is compatible with onboard computers and combines simulation and learning techniques to allow personnel to become proficient system operators aboard ship without needing to be involved in real-time cargo handling operations.