

Written evidence submitted by the Warsash Maritime School (MAR0029)

Executive Summary

This paper contains the viewpoints of an educator as input to the visit of the Transport Select Committee. The author argues that the current UK cadetship provision requires fundamental changes in a number of areas. The content must be modernised to ensure cadet education is preparing cadets for a professional role which has become increasingly complex and more demanding and takes into account future skills required by developments such as Industry 4.0 and the need for Decarbonisation of the sector. The methods of delivery must also be reviewed to warrant new learning technologies are embedded in a way that achieves the best learning outcomes and meets the needs of new generations of learners.

Despite an increase in funding, cadet recruitment has declined. To reverse this trend and to benefit from the demographic rise of 18 years old, cadetships must become less of an outlier in the UK educational landscape and follow standard pathways to become a more viable career choice for young people. This must include raising entry standards; if the aim of cadetships is to educate the future leaders of the UK maritime industry, then the industry should want to attract the brightest and the best.

Crucially, cadet education must be seen as an important first step of life-long maritime career, the majority of which will be spent shore-side. The focus of cadetships must, therefore, change from “training for a job” to “education for a career”.

In the current system, there are too many blockages that stifle innovation which must be removed to bring about the above-mentioned changes. That includes a review of the interaction between educational institutions and maritime Professional, Statutory and Regulatory Bodies.

Introduction

This paper has been written for the Transport Select Committee - Maritime 2050 Review. It has been written by the director of the Warsash Maritime School, part of Solent University Southampton, which is one of the leading UK providers of cadetships as well as education for seafarers in senior ranks and shore-based personnel.

The role of an officer

At the beginning of this discussion, it is useful to reflect on the purpose of a merchant navy cadetship. The aim of a cadet is to qualify as an Officer of the Watch, short for an officer in charge of a watch. After graduation, a cadet will, therefore, in most cases work straight in a role which requires a high level of responsibility and independence and, as this paper will outline below, the complexities and responsibilities are set to increase further. Yet, much of the current cadet education focuses on relatively narrow technical skills.

While technical skills remain essential, it is critical that cadetships prepare cadets for their future workplace and careers. Nautical studies are often compared to aeronautical studies and it is interesting to explore what the aeronautical industry considers to be key skills for professional pilots (FlyGa 2017):

- Clear Communication
- Situational Awareness
- Team-Working Skills
- Decisiveness & Quick Thinking Skills
- The Ability to Remain Calm
- Mentality — Confidence, Attitude & Self-Discipline.
- Leadership
- The Ability to Understand Technical Information.
- Mathematics & Creative Skills Combined
- Knowing When to Break The Rules

The author would argue that much of the above also applies to cadets.

The need for change

UK Maritime Training and Education, as approved and certified by the MCA, enjoys an enviable global reputation and is a crucial contributor to the success of the UK flag as well as the wider UK maritime industry. Evidently, the UK has led the way when STCW was introduced and refined in the 1980s and 90s, but there is a risk of becoming complacent on the back of its own success.

Real innovation is needed to retain that leading-edge before it is too late. What was right thirty or forty years ago is by definition no longer fit for purpose today; learners have changed, the new generations have undergone a different educational journey at school, they developed different skills and

behaviours and a different affinity to the use of technology (Seibert 2020). Learning technologies have also advanced significantly over the past thirty years and allow for student experiences which were utterly unthinkable when the current cadet training system was conceived many years ago.

The working environment has also changed dramatically. Ships are now in constant communication with the head-office ashore, adding additional burden to a ship's officer's role. Turnaround time in ports has decreased dramatically and efficiency is vital (Tongzon 2009). A multi-cultural work environment on board requires enhanced leadership and communication skills. Threats to vessels have increased and demand new precautions. Vessels have become more and more technically complex.

The rate of technological change has never been more rapid and is set to increase further (Bhardwaj et al 2019). There are two dominant topics which will drive innovation in the shipping sector: Industry 4.0 (autonomy, remote operations, AI, robotics) and Decarbonisation (see Larkin et al 2017). Technological developments have outstripped the pace of change of the relevant international regulatory framework as administered by the IMO. Yet, for the success of both the individual cadet and the wider UK maritime industry it is critical that these new skills are taught when the foundation of their maritime careers are laid. These skills must include topics such as data analysis, systems engineering and problem solving. In order to make space for some of these new subjects, some of the more outdated topics will have to be removed or slimmed down.

It could be argued that whilst much of the technology for further automation and digitalisation of shipping is already in place and is hence largely an evolutionary process, the journey to decarbonisation requires a much more radical and revolutionary process. For 'short-sea transport' the solution is relatively obvious and is likely to result in the electrification of the fleet as already seen by the introduction of hybrid or fully electric vessels. The ambition has already been stated by most cross-channel ferry operators.

For 'deep-sea transport' the solution is much less obvious; however, at least in the interim, technical solutions are likely to include using liquified gases as fuels, such as LNG, Hydrogen, Ammonia or Methane. This will require a fundamental shift in the safety culture on board. Marine Heavy Fuel Oil (HFO), the current fuel for most ships, whilst catastrophic when it enters the marine environment, is relatively forgiving in its handling. Therefore, there are

relatively few fuel-related incidents even on ships with a poor safety culture. With the use of low-flashpoint gases as a fuel the risk profile will shift dramatically and will require a safety culture that is more akin with a chemical factory. As a consequence the vast majority of the separating will require upskilling to operate these low-emissions vessels safely.

One thing that is quite particular to maritime education and training is that seafarers will spend a lot of time studying during their career but are given relatively little academic credit for it as much of it is done as professional, non-credit bearing short courses (Tang and Sampson 2017).

Lastly, the longevity of seafaring careers has decreased significantly. Most UK cadets now spend on average eight years at sea before coming ashore to work in shore-based roles in the maritime industry. In other words, the vast majority of the career is spent ashore.

The differentiation between education and training

Richard Clayton (2015), chief analyst at the IHS Maritime & Trade, defines maritime training as the act of teaching a person a particular skill or a type of behaviour. He argues that while training costs money, it avoids the much higher cost of an accident and because training results in benefits it should be seen as an investment rather than an expense.

On the other hand, Clayton proposes education is much more than training; training provides skills for a job, whereas education provides the building blocks for a career. A solid maritime career is built on foundations that incorporate a whole range of capabilities, many of which are then strengthened by training. Training and education need to work in conjunction with each other and are both critical to the sector's success.

Clayton concludes that the difference between training and education lies at the very heart of the key issue facing the shipping industry today – how to attract young people to seafaring and crucially how to retain them. It seems that shipping 'sells' seafaring as if it is a job rather than a first step in maritime career, we are therefore failing to grasp the longer-term vision that many young people are striving for.

The author of this paper agrees with Clayton's sentiment. We must see seafaring as the initial step in a lifetime of maritime education and if we do

that we will build a more attractive, safer and more profitable shipping industry. In order to achieve this goal, the focus needs to be redirected from jobs to careers and from training to education.

Merchant Navy cadetships play a critical role as the educational foundation and the initial steppingstone in life-long maritime careers. The content of cadetships must therefore be realigned to prepare new entrants for the best career chances.

The need to attract talent

When the Maritime Minister announced a £15 million funding boost which eventually would double the support for young people through Support for Maritime Training (SMarT) to £30 million a year, it came with the ambition to raise the annual intake of cadets to rise from 750 to 1,200 (Department of Transport 2018). The additional funding was in recognition of the need to “building the maritime workforce of tomorrow’s UK in order to maintain and strengthen the maritime sector’s position as a world leader and ensure people have the skills they need to help the industry flourish after we leave the EU.”

Sadly, since the announcement of the additional SMarT funding the UK has seen a decline cadet numbers rather than an increase, even before the Covid-19 pandemic further impacted cadet recruitment.

It might be tempting to see this as purely a “supply” issue and to argue that there are not enough young people eligible to apply and therefore to lower the entry requirements and the age of entry. The author of this paper argues that this is a very short-sighted view and will eventually be contra-productive to achieving the aim.

The answer is to raise the entry standards, not to lower them. The answer is to make education and the associated career more attractive. Maritime careers pay high wages well above the national average (Cebr 2017) and after years of the decline, the demographic dip of 18 years old has finally reversed and is forecast to rise by more than 20% by 2027 (ONS 2018).

The answer is to make cadetships a less peculiar choice of study and instead to focus on emphasising long-term career opportunities, both professionally and academically, and highlighting transferable skills. In a recent straw-poll amongst cadets at the Warsash Maritime School more than 75% of the cadets indicated a strong desire to achieve a full degree.

The peculiar set-up of cadetships, with its own application process and funding mechanism, also has an impact on the sector's diversity. At present, many of the applicants have a connection to the merchant navy already, most often through family members or an acquaintance. To young people with no relation to the sector, a career in the merchant navy may seem much more daunting and "obscure" than other career opportunities. To widen the appeal of seafaring careers is also critical to increase participation of parts of the society who are currently massively underrepresented and to address the gender imbalance (only 3% of UK merchant navy officers are female). Widening participation will also unlock the transformative power that maritime careers have in terms of social mobility.

Crucially, it should be in the interest of the maritime industry to unashamedly aim to attract the best talent. As highlighted above, the aim of the cadetships is to educate the future leaders of the UK maritime industry, so why would the industry not want to attract the brightest and the best?

Hurdles and tumbling blocks

Many of the insights listed above are not new; it could, therefore, justifiably be asked why not more progress has been made by cadet education institutions. To some degree, UK cadetships are the victim of their own success. UK cadets used to be and still are to some extent widely acclaimed globally, so why change?

On the other hand, the content of cadetships is highly prescriptive and heavily regulated. Any small change is subject to the MNTB's approval process, more specifically its cadet approval committee. The committee consists of representatives from the MNTB, the MCA, the unions, and the employers, and whilst it contains a lot of technical and commercial expertise, it crucially lacks educational expertise.

Typically, discussions often focus on numbers of contact hours, rather than learning outcomes. In the same vein, debate concentrates on attendance rather than engagement. Such measures are not meaningful in an educational context and are stifling innovation.

It is common in UK further and higher education to have courses accredited by a Professional, Statutory and Regulatory Body (PSRB). According to the Higher Education Better Regulation Group (HEBREG 2011) this activity can be summarised as follows:

One of the main roles of PSRBs is the monitoring and review of academic provision through accreditation, the approval or recognition of courses. There are many types of accreditation by PSRBs across the HE sector, and accreditation processes vary widely. Accreditation may be essential, a legal requirement, or it may simply be considered a worthwhile exercise. Accreditation may allow graduates to practise as professionals in their field, grant exemption from all or part of professional exams, or provide entry to membership of a professional association or learned society. [...]

Accreditation allows HEIs to benchmark their programmes against their peers and standards agreed by the professions. It may ensure that programme content is linked to the requirements of employers. The accreditation process may involve a series of formal, on-site visits to an institution or department, or it may operate more informally, by self-evaluation, submission of documentation, correspondence, or a combination of the above. Internal monitoring and review events may be combined with PSRB accreditation events in order to streamline internal processes for HEIs and reduce the burden on staff.

Whilst it is common for HEIs and to design programmes with accreditation by PSRBs, the education of seafarers is an outlier. The role of the PSRB should be to check the standards required for its accreditation are met, not the prescription of how these standards are achieved. Course design is the academic expertise of the educational institution; it follows standard academic quality processes and is guided and reviewed by the Quality Assurance Agency for Higher Education (QAA), the independent body that checks on standards and quality in UK higher education. The role of the PSRBs in maritime education should therefore be reviewed.

Another hurdle is the relatively inflexible SMarT funding which has a maritime limit of 150 weeks which leads to course design that crams all education along with work-based placement into time scales which fit the funding framework.

The above mentioned issues are now being addressed by the work of the Maritime Skills Commission and the MCA's Cadet Training & Modernisation project.

Conclusion

In order to maintain and strengthen the UK maritime sector's position as a world leader, there is an urgent need to fundamentally change merchant navy cadetship programmes (see for example Caesar et al, 2020). The focus needs to change from "training for a job" to "education for a career". In an industry which is changing at a more rapid pace than ever before, particular emphasis should be given to transferable skills required in an Industry 4.0 environment and a decarbonised industry.

The aim of cadetships is to educate the future leaders of the UK maritime industry by attracting the best talent. The answer to increasing difficulties in cadet recruitment can, therefore, not be to lower the entry-level threshold. The solution must be to raise the standards and to attract talent is imperative to make the education of cadets less of an outlier in the UK educational landscape.

June 2022

References

Bhardwaj S, Bhattacharya S, Tang L & Howell KE, 2019. Technology introduction on ships: The tension between safety and economic rationality. *Safety Science* 115 (2019), Pages 329–338

Cebr, 2017. The economic contribution of the UK Marine industry - A report for Maritime UK. London

Caesar LD, Cahoon S & Fei, J, 2020. Understanding the complexity of retention among seafarers: a perspective of Australian employers. *Australian Journal of Maritime & Ocean Affairs* Volume 12, 2020 - Issue 1

Department for Transport, 2018. Government doubles trainee funding in SMarT move to boost UK maritime sector [viewed 28 November 2020] Available from: <https://www.gov.uk/government/news/government-doubles-trainee-funding-in-smart-move-to-boost-uk-maritime-sector>

FlyGa, 2017. What Traits & Skills Must Pilots Have? [viewed 28 November 2020] Available from: <https://fly-ga.co.uk/traits-skills-good-professional-pilot/>

HEBRG, 2011. Higher Education Better Regulation Group (HEBRG) - Professional, statutory and regulatory bodies: an exploration of their engagement with higher education. London

IHS, 2015. Maritime training, maritime education, and the difference between them. [viewed 28 November 2020] Available from: <https://www.youtube.com/watch?v=XzomTNf-AOE&feature=youtu.be>

Larkina A, Smith T & Wrobel P, 2017. Shipping in changing climates. *Marine Policy* Volume 75, January 2017, Pages 188-190

ONS, 2018. Being 18 in 2018 [viewed 28 November 2020] Available from: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/articles/being18in2018/2018-09-13>

Seibert S.A., 2020. Problem-based learning: A strategy to foster generation Z's critical thinking and perseverance. *Teaching and Learning in Nursing* 000 (2020) 1-4

Tang L & Sampson H, 2017. Improving training outcomes: the significance of motivation when learning about new shipboard technology. *Journal of Vocational Education & Training* Volume 70, 2018 - Issue 3

Tongzon, JL, 2009. Port choice and freight forwarders. *Transportation Research*

Part E: Logistics and Transportation Review Volume 45, Issue 1, January 2009,
Pages 186-195

D. Hawkins, R. Paul and L. Elder, 2010. The Thinker's Guide to Clinical Reasoning. Foundation for Critical Thinking Press (2010).

www.criticalthinking.org