Advanced Learning Solutions For Further Career Development And Enhancement Of Seagoing Professionals

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ABSTRACT

MET Institutions have experienced major changes in their structure and provision of services over the past three decades. These changes have come about partly due to national and international requirements concerned with the standards of competence of seafarers (e.g. STCW), and partly due to financial regimes under which these institutions are funded, forcing them to diversify into other areas and activities, such as consultancy, research, and shore based training programmes.

Today's seafarer is also markedly different to those who went to sea some 20 or 30 years ago. The differences in seafarers' attitude and approach to a seafaring career manifest themselves in a desire to spend less time at sea, and treat this as a stepping stone in their working life career. This is definitely true for developed nations, and becoming more and more the norm, even for the developing countries.

With above status in mind one can argue, that MET Institutions, and in particular the IAMU member Universities due to their superior standing and level of provision, have an excellent opportunity to provide a whole range of courses, and components of courses, which can be undertaken by seafarers to prepare them for their next stage of career.

Distance learning and web-based courses are now commonplace in many Higher Education institutions, and that technology can be easily transferred to the MET institutions. This paper will discuss some of the issues involved in web-based and distance learning, and use a recently completed distance-learning project, undertaken by the WMU for the IMO, to demonstrate some of the possibilities in this area.

1. Introduction

Training of seafarers (officers) has traditionally been a matter of national pride, and has evolved and matured in different countries, due to local (national) requirements and circumstances. For this reason, up until mid 1970s, training and education of seafarers in different countries was provided to a very varied set of standards that had developed over the years. These variations included both the content and structure of the training and educational programmes provided, which eventually led to the development of STCW78 and 95. It is also worth noting here at the outset that up until that time most developed countries manned their ships from nationals of their own countries, as well as providing qualified officers for the international fleet.

In terms of structure, some countries (mainly the Commonwealth members) followed the British model, where candidates entered the programme following their 'O' level studies

at the age of 16 or 17. The courses provided were of "sandwich" nature where the training and educational programmes were interrupted by periods of sea service, at the end which candidates were qualified to sit for examinations conducted by the Maritime Administrations.

Other models, which were practiced, included the "front loaded" model where a candidate entered the programme after graduating from school, and spent 3 or 4 years in a college without any periods of sea service. These systems did not require seafarers to return to college for examination of higher certificates of competency.

Some courtiers also had a "dual purpose" or "polyvalent" certification schemes where candidates would go through a programme at the end of which they qualify to sail as both Deck and Engineering officers. In France for example this is taken to the extreme that successful individuals would be qualified to sail as Masters or Chief Engineers.

A series of events, some of which will be highlighted in this paper, caused these arrangements to be changed and forced a global and harmonised system of education and training to put in place (STCW). These changes have had an impact on the operation and running of MET systems, as well as seafarer's attitudes and approach to life at sea. The central topics worth discussing on this subject are:

- What were the main reasons and drivers for changes in the global manning regime?
- What challenges and opportunities does this bring to the IAMU membership?

2. Changes in the Global Manning Regime

2.1 Flagging Out

The most remarkable change in the ship owning and management sector, over the past fifty years, is the way that shipowners and operators have changed their approach to registry (nationality) and flag of their vessels. The flag that ships fly has always been important, as ships, like people, are required by law to belong to a country, and to have their port of registration identified. There is nothing new about shipowners using flags that happen, for certain reasons suit their specific requirements. Looking back in history to a few centuries ago, one can note instances where shipowners changed their flags at times when their ships were in some sort of danger, or when trading in parts of the world where certain flags were not welcomed.

In recent times and around the period immediately following the Second World War, a mass migration of ship registries from the country of ownership to other flags took place. The main purpose for this revolved around commercial gains. Reputable owners have used FoC, or open registers for a variety of different reasons. They may well appreciate the freedom from bureaucracy in their own country, or wish to avoid paying heavy corporation taxes. They might wish to have more freedom over whom they employ on their ships, perhaps preferring crews of a certain nationality, or wish to avoid trade embargoes that apply to ships of their own nationality. International Transport Workers' Federation (ITF, 2004) defines FoC as

"A flag of convenience ship is one that flies the flag of a country other than the country of ownership"

and gives the main reasons for this as cheap registration fees, low or no taxes, and freedom to employ cheap labour. In the same report a list of countries classed as FoC countries are also given together with some of the concerns that ITF has on FoCs which include:

- Treatment of seafarers: denial of basic human and trade union rights, low wages, poor onboard conditions, long contracts, inadequate training, etc.
- Unsafe Conditions
- Unprotected conditions
- Undervalued workforce

This has had major implications for countries, such as the United Kingdom, Germany, and

the Netherlands, which have traditionally been major shipowning countries as well as supplier of officers not only for their own ships, but also for the international fleet.

2.2 Changes in sources of manpower
Seafaring as a profession was an attractive career for nationals of most developed countries as it provided a relatively high level of income; possibility of travelling and visiting foreign countries; and respect in the society. These primary reasons for choosing a seagoing career are no longer valid. The differential salary levels between shore based and seagoing professions have eroded over the years. The attraction of visiting foreign countries are also no longer valid, as transportation systems has become more widely and cheaply available that most school leavers don't consider this as an important issue, as well as the fact that port stays are much shorter than what they used to be. The life onboard has also changed, from small communities of 40 or 50 persons, to very small number of crew, perhaps less than 15, which does not allow social interactions, gatherings, and other activities. The respect in the society has also been eroded over the years, as the media highlighted the major maritime disasters such the Herald of Free Enterprise, and Exxon Valdes, giving the shipping industry a poor image in the society.

FoC, which were mentioned in the previous section, is the other driver for number of seafarers dropping dramatically from nationals of developed countries in recent years. Until early 1990s this was an observation that was made by most developed nations, without realising the full impact of the situation on the shore-based maritime sectors.

A series of classical and original studies that highlighted the global manning problem for the international shipping were sponsored by the BIMCO/ISF and reported to the community, in 1990 (BIMCO, 1990), and then updated by the same group in 1995, and 2000.

The 1990 and 1995 studies had pointed out the potential shortage of skilled labour in the maritime industry, and advised an increase in training in order to offset the losses due to retirement and wastage. The main purpose of the 2000 report was to build on the previous studies, describe the worldwide supply and demand of seafarers, and forecast the situation in 5 and 10 years time. The worldwide supply of seafarers was estimated at 404,000 officers and 823,000 ratings. Worldwide demand was estimated at 420,000 officers and 599,000 ratings, which gave a shortage of 16,000 officers and a surplus of 224,000 ratings. The trends indicated in the 2000 report were very similar to the 1995 update, including the serious reservations about the quality of training of the 'surplus' ratings.

The report indicated that by 2010, the ratings situation will not change significantly, but all the indications are that the shortage of officers will get worse, from a 4% deficit in 2000 to a 12% deficit in 2010.

Some pertinent points identified by ITF from the 2000 report, some of which could be the **basis of future IAMU research work** are listed below:

- Lack of reliable sources (national, regional, global) of data on the numbers of active seafarers;
- Manning levels on ships are not likely to decrease further;
- Back-up levels are likely to increase, thus increasing the demand for crew;
- If a cadet was placed on each ship in the world fleet, there would soon be a surplus of officers;
- Training ratios, cadets to officers: 1 to 13 in 1995; 1 to 10 in 2000; needs to go to 1 to 7 to reduce the predicted deficit;
- Training has increased and altered: OECD trainees have doubled since 1995; Eastern European trainees have halved since 1995;
- About 30% of trainees fail to qualify;
- The world fleet is too dependent on an ageing population of OECD senior officers;

- Among OECD officers, 48% are over 50 years old and 18% over 55;
- Among senior officers, 49% of deck and 43% of engineers are OECD nationals;
- Eastern European and Indian officers have been taking the place of OECD officers;
- Few Asian officers stay at sea beyond the age of 50.

The content of these reports (1990, 1995, and 2000) were noted and analysed by national governments, and the upshot is that most developed nations do not seem to be concerned about the nationality of seafarers supporting their shipboard requirements, as they have accepted the hard fact there is not enough nationals for these jobs. What seems to be the main cause of anxiety in these countries is the realisation that in the near future, some of the sensitive shore-based jobs (such maritime administrations, classification societies, pilotage, etc), which have traditionally been filled by ex seafarers from these countries, will now either remains unfilled, or foreign nationals should be considered for these posts.

Taking the United Kingdom as an example, Tarver and Pourzanjani (2003) reported their findings and analysis on the measures taken by the UK government to deal with this issue. These included introduction in 1997 of "Tonnage Tax" which replaced the normal corporation tax for UK ship owners. This system, based upon a Netherlands scheme, is aimed to provide a level playing field for UK owners and to encourage an increase in UK ship registrations. Although not intended to be a panacea for all the industry's ills, the Government intended that the tonnage tax would also have some positive effect on the recruitment levels of cadets. It was thought that an increase in UK ship registrations would provide greater opportunities for UK officers; increase the numbers of cadet officers being recruited and provide more training berths available on UK registered ships. It therefore made it a condition of an individual shipowner's re-registration that for every 15 officers employed on their UK vessels, there must be a minimum of one trainee officer. Furthermore, the Government also promised a set of initiatives to aid recruitment.

The industry, shipowners, shore based institutions, unions, and some philanthropic bodies have also put into place their own initiatives to boost training of officer cadets. These efforts have led to some success: the UK register of shipping increased in size by 20% in tonnage terms in the months following the announcement of the tonnage tax. Recruitment of cadets has increased but is still half the number that is required to sustain numbers into the future.

Similar studies have been conducted for other countries examples are the "Maritime Skills Availability Study" in Australia (Thompson Clarke Shipping Pty Ltd, 2002), and "Foreign Flag Crewing Practice" for non-US vessels calling at US ports (US Maritime Administration, 2003).

At a regional level, the European Commission considered the issue of the declining number of EU seafarers, in particular the shortage of well-qualified officers, in its Communication to the Council of Ministers and the European Parliament, adopted in April 2001 (COM (2001) 188 final). This report provided an update on the shortage of seafarers on the basis, in particular, of the 1998 FST and ECSA Joint Study (FST/ECSA, 1998). The general interest in the dramatic decline in EU seafarer numbers is also reflected in a number of other studies, research projects, and Network of Experts including some funded by the EC, such as METHAR and METNET. In its conclusions on improving the image of EU shipping and attracting young people to the seafaring profession, adopted on 5 June 2003, the Council invited the EC to continue monitoring the evolution of the training and recruitment of seafarers on the basis of data provided by the Member States.

3. Opportunities and Challenges for IAMU membership

3.1. Impact on Maritime Education and Training Institutions

Maritime Training and Education Institutions (including schools, colleges, faculties and universities) have traditionally been setup due to the needs of the industry and funded through regional or central government funding mechanisms. Courses provided by these organisations had to have the approval of their Ministry of Transport who are responsible for issuing the CoC, and in addition in some countries the Ministry of Education if these courses also provided an educational certification (e.g. BSc, or MSc). Introduction of STCW 78 and 95 had little effect on this arrangement. Events mentioned in previous sections, however, have had a major impact in some countries, where the demand for national seafarers has dropped dramatically, causing some of these Institutions to close down. In the United Kingdom, for example, up to the late 60s and early 70s there were more than 20 nautical colleges, each having 3 or 4 intakes per year. This has now been reduced to three main colleges, with some arguing, that only two would suffice.

In recent years we have observed in most countries a move from the old State funded regime, to a more privatised and independent institutional regimes, where Institutes have to compete to get enough students to make them viable. In some countries the State funding continues, but there is more accountability is required from the Institutions, where they need to demonstrate that they are providing a service, which meet a minimum set of standards. Introduction of QA and QE requirements in some countries (e.g. UK, Australia), which is also part of the STCW 95, is one example of how institutions are required to demonstrate how they achieve some set standards, and what systems they have in place to enhance quality of their provision.

A system, which seems to be unique to the United Kingdom and very few other countries, and have had excellent results, is the participation of the shipping companies in education and training of seafarers. Potential candidates are interviewed and assessed by shipping companies, and introduced to colleges who will provide the educational element. As part of this collaborative effort shipping companies provide the opportunity for sea service, as well as covering part of costs incurred by colleges. It is surprising that other countries have not picked this practice, which have resulted in almost zero dropout rates.

Main issues, which need to be addressed and are frequently asked by those funding these Institutions are:

- Is there demand for services provided?
- Is the Institution financially viable?
- Is the subject area “academic” or “vocational”?

In responding to the first issue, some institutions have diversified into other non-maritime subject areas (management, engineering, etc), as well as other activities such as research, consultancy, short courses, etc.

In raising the second issue, and what makes it difficult particularly for Institutions which are part of a bigger organisation (e.g. a faculty as part of a University) a comparison is made between Maritime subject area and other disciplines. Maritime departments are intrinsically expensive to run and manage. They are different from humanities departments, where there is a high demand and most teaching and learning is classroom based in large groups.

The last issue of “Maritime” being an academic or vocational subject is also an important one, and should be defended strongly, as if this subject area is classified as a purely vocational subject area, there is a danger of high level work not being funded.

3.2 Role of the IAMU members

We have, so far established some facts, which need to be further considered on opportunities that they provide for IAMU membership.

The most important issue is the period of sea service. It is now accepted that most seafarers from developed countries have a short span of service at sea. METHAR and METNET results indicate that for EU seafarers this is about seven year. Other studies from the seafarer supply countries (Philippines, China, etc) also indicate that for different reasons, nationals from these countries also don't have a lifetime ambition of working at sea, and their length of service is around 10 years.

So, what actually happens to this large population of workforce when they finish their seagoing career? The answer is simple; they come ashore and get shore-based jobs. The challenge and opportunity for IAMU membership, is to redefine their services more in line with the needs of current seafarers. As IAMU membership is made up of the best MET institutions around the globe, they also have a responsibility, in ensuring that future managers and leaders of the industry are well educated and prepared to take the industry further.

The EC funded network of experts on MET, METNET, concluded by making a series of recommendations to the EC some of which are equally applicable to IAMU membership. These included:

- Making the seagoing profession more attractive, through: improving the image of shipping industry; developing a career path in the maritime industry where sea service is an element,
- Enhancement of the current courses leading to seagoing certification, through identification and provision of subject areas which would benefit the seafarers, both at sea and ashore,
- Provision of PG courses, specifically designed for ex-seafarers to work in the shore based maritime industries (maritime cluster).

3.3 Identifying the Maritime Cluster

Various sectors of the maritime industry, which put together form what is known in some countries as the Maritime Cluster, are probably the most divers and varied within transportation systems. Most of the sectors within the cluster benefited in the past from an inflow of well educated, disciplined, practitioners, who after serving at sea for a number of years, would come and take shore-based positions. Previous studies (Pourzanjani, 2002, Pourzanjani et al, 2002, Pourzanjani et al 2003) have identified the shore-based maritime sectors that traditionally used to benefit from an inflow of ex seafarers as follows:

- ❑ Ports sector: Port authorities; Terminal operators; Stevedore companies; Contract labour suppliers; Ferry companies; Pilotage organizations; VTS
- ❑ Marine equipment supplies and manufacturers;
- ❑ Commercial maritime and insurance; Loss adjusters
- ❑ Regulatory authorities; Maritime Administrations
- ❑ Education and training;
- ❑ Ship management;
- ❑ Ports and related services;
- ❑ Dredging and hydrographic services;
- ❑ Surveying, Classification Societies;
- ❑ Shipbuilding
- ❑ Maritime Law
- ❑ Coast Guards
- ❑ Offshore (oil and gas)
- ❑ Yachting and Recreational Craft
- ❑ Fishing and aquaculture

In addition to technical subjects that employers identified as essential for their sector, they also identified a number of core skills that they regarded as important for their staff:

- ❑ Organisational / analytical skills
- ❑ Marketing and PR skills
- ❑ Customer awareness
- ❑ Communication and interpersonal skills
- ❑ HR expertise
- ❑ Environmental awareness
- ❑ Safety
- ❑ Leadership and Teamwork
- ❑ Communications (written and oral)
- ❑ Numeracy and problem solving
- ❑ Advanced IT and e-commerce
- ❑ Engineering skills

4. New developments in Distance Learning and Web based Education

We have witnessed an explosion of new ideas and approaches to new way of learning, following the global acceptance of "Life Long Learning" as a concept, as well as technological advances in information and communication technologies providing new routes and tools for delivery and management of learning.

Distance learning has been increasingly considered by institutions as an economical way of expanding their activities, widening opportunities for students around the world, and making effective use of the new technologies that are rapidly emerging. What is most important in making such provision is an assurance that rigorous quality assurance systems to be in place, as well as a well founded reasoning and justification that the usual ways of 'on-campus' provision are not necessarily appropriate or possible in the current context.

These are particularly important and relevant to the IAMU membership, when considering provision of courses for shore-based destinations, where at least part the programme can be delivered through distance learning, either due to lack of on-campus resources, or availability of seafarers to attend courses.

Distance learning is defined by the UK Quality Assurance Agency for Higher Education as *"provision of higher education that involves the transfer to the student's location of the materials that form the main basis of study, rather than the student moving to the location of the resource provider",* Where they also outline four dimensions of distance learning as follows:

***"Materials-based learning**. This dimension of a system of distance learning refers to all the learning resource materials made available by the programme provider to students studying at a distance. The range and diversity of materials provided can be great. It may include printed, audio or audio-visual material, experimental equipment and material on the World Wide Web and other electronic or computer-based resources. Materials forming the basis of study may also be drawn from local public providers or resources accessible locally – as with local libraries, local book suppliers or information on the World Wide Web.*

***Programme components delivered by travelling teachers.** This dimension refers to staff of the providing institution travelling on a periodic basis to the location of the student to deliver components of the programme. The delivery may be concentrated into a period of intensive classroom-based study for a group of students or be arranged on a scheduled basis for an individual student. The scope of the functions carried out by travelling teachers may include initial orientation; delivery of learning materials; intensive teaching of the programme; tutorial support; student development and guidance; assessment; and gathering feedback.*

***Learning supported locally**. This dimension involves the providing institution employing persons specifically to undertake certain defined functions for the local support of students following the programme. It may involve administrative tasks for which a local agent is contracted and/or specified teaching functions for which a local tutor is engaged. An example of the latter might be the provision of residential weekend workshops or the like.*

***Learning supported from the providing institution remotely from the student.** This dimension refers to defined support and specified components of teaching provided remotely for individual distant students by a tutor from the providing institution. The forms of communication between the tutor and student may include postal correspondence in print or by audio or videocassette, telephone, fax, email and the Internet. It may be solely between tutor and individual student or may include voice, video or computer-based conferencing.*

All of these are relevant and appropriate for future developments of IAMU courses, where potentially more than one Institution will be involved.

World Maritime University was awarded a contract by the IMO in 2002, to develop a DL course for "Casualty Investigators". The course is a self-paced study programme, which is developed in HTML (can be delivered through internet), but for a variety of reasons, is provided on CDs. The content of the course is not relevant to the current discussion, but the structure, experienced gained, and lesson learnt from the experience are.

Through this development programme, WMU has gathered information and expertise on the latest innovations and techniques in distance learning including appropriate assessment methods, and available off the shelf IT packages. The most important lesson learnt through this exercise is the realization that conversion from classroom based lessons to electronic and DL mode, takes much longer than anticipated by the academics involved. Although WMU has excellent in-house expertise in web based development methods, it was decided to bring in external experts, who have been involved in similar projects in the past.

The development team has also been experimenting with various types of "Internet Based Video/Audio Conferencing" hardware and software, which can be used as parts of the delivery and discussion method for distance learning purposes. The major difficulties identified here are the time difference between different regions, for a true global provision, and some technical issues on Audio if loudspeakers are used instead of headphones.

5. Summary and Conclusions

This paper has examined the underlying reasons for changes in supply and demand of human resource in the shipping industry. In doing so a number of issues have been discussed and some fundamental facts established. These include:

- There still exist a deficit in the number of officers for the international fleet;
- Regardless of their nationality, there is a desire by almost all seafarers to spend less time at sea;
- MET Institutions are under pressure to diversify into new activities;
- Current MET courses based on STCW do not equip the seafarers for shore-based position;
- There is a lack of PG courses, specifically designed for ex-seafarers;

Changes in MET Institutions have also been discussed, indicating that most MET Institutions should prepare themselves to diversify into other areas of activity in order to remain viable.

What can be concluded from the above is the opportunity that this gives to IAMU members to provide better undergraduate courses, as well as new PG opportunities to satisfy the shore-based industries HR needs, as well as the needs of today's seafarers. So what is being proposed here is that IAMU membership should consider:

"Doing Things Better, and
Doing Better Things."

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BIOGRAPHY

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Professor Pourzanjani was trained as a deck officer by Y-ARD of Glasgow and served on Merchant ships for ten years.

In 1980 he left the merchant navy to read for a BSc (Hons) in Maritime Technology at the University of Wales followed by a PhD at Exeter University. He stayed on as a lecturer in Marine and Systems Dynamics at Exeter University until he joined Southampton Institute in 1991 as a Principal Lecturer in Maritime Technology, leading to Professor and Dean of the Maritime Faculty from 1996 to 2001.

Professor Pourzanjani's main area of interest is maritime safety which spans the whole spectrum of ship design and operation, in particular education and training and Human factor issues. He has been the lead investigator on many Research Council and EC-funded projects and has published extensively in this area.

He is a Chartered Engineer an active member of professional institutions and serves on the H-10 committee of the Society of Naval Architects and Marine Engineers (SNAME). He is also a member of the Marine Technical Committee of the International Federation of Automatic Control (IFAC) and the Founder of the Manoeuvring and Control of Marine Craft (MCMC) series of conferences now run by the IFAC.

He has in the past worked as a consultant to the Canadian Government, and the International Maritime Organisation. He currently holds the INMARSAT Chair in Maritime Education and Training at the World Maritime University, where he has been a resident Professor since January 2003.